

**A psychometric and theoretical investigation of the
measurement of attachment relationships in adolescence**

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Philosophy (Clinical Psychology) at the Australian National University.

ABSTRACT

Abstract text, likely describing the research methodology and findings, though the text is extremely faint and difficult to read.

I hereby certify that the work contained in this thesis is the result of original research and contains acknowledgement of all non-original work.

Jessica White

Main body of text, likely the beginning of the thesis or a detailed abstract, containing the primary research objectives and methods. The text is very faint and largely illegible.

ABSTRACT

Adolescence is marked by rapid changes in biological, cognitive, psychological and social domains. This thesis examines the nature and importance of close dyadic bonds in adolescence. Using an attachment theory perspective and focussing on those relationships which provide physical and psychological security, the composition of these attachment relationships will be examined. Despite the well-documented importance of attachment relationships for psychological adjustment in adolescence, there remains a paucity of theoretically informed and validated measurement tools for this age group. Controversy over the self-report assessment of attachment abounds with several recent reviews of measurement instruments for adults and children. However, there is a lacuna with regard to assessing attachment in adolescence. Theoretical and methodological considerations regarding the measurement of adolescent attachment are discussed in this thesis. It is argued that theoretical and empirical developments in the area of adolescent attachment are limited by the dearth of measurement tools specifically developed for this age group.

The key objectives of this thesis are as follows: i) to review existing measures of attachment in adolescence in order to organise and clarify the body of literature and delineate the necessary conditions for a new measure of adolescent attachment relationships; ii) to examine the psychometric properties of the new measure of adolescent attachment relationships in order to provide initial content and construct validation; iii) to examine the relationship between the new measure of adolescent attachment relationships and a number of existing measures of attachment relationships in order to provide convergent and discriminant validation; iv) to further validate the new measure of adolescent attachment relationships via multi-method validation; v) to examine the relationship between the new measure of adolescent attachment relationships and a range of measures of psychological health in order to provide discriminant validation and information regarding clinical utility.

In addressing the first objective, results of a systematic literature review are reported. Following this, the most commonly used measures of attachment for adolescents are reviewed and critiqued. Several necessary conditions for a psychometrically sound, theoretically coherent measure of adolescent attachment are formulated. A pool of items was developed based on existing scales and theoretical conceptualisations of attachment. The Domains of Adolescent Attachment Scale (DAAS) includes four independent sections: general attachment orientation; and attachment to mother, father and best friend. The scale was administered as a self-report composite questionnaire to two samples of Australian high-school aged participants (N=720).

Studies One and Two investigated the psychometric characteristics and factor structure of each section of the DAAS. Findings provide support for the preliminary validity and reliability of the DAAS. The latent structure of the DAAS sections demonstrates the uniqueness of each attachment bond. Study Three validated the DAAS using a categorical measure of attachment style, the Relationships Questionnaire; and two measures of the attachment network, the Attachment Networks and Functions Questionnaire and the Bull's eye hierarchical mapping technique. Results of this study indicate that the DAAS has good convergent validity with the RQ and demonstrates the ability to discriminate between individuals of different attachment styles. Scores on the DAAS relate effectively to attachment network characteristics including network size, strength of attachment and quality of attachment. Study Four presents a multi-informant validation design utilising parent reports of their adolescent's attachment style as well as the parent's attachment style and psychological health. Analysis of the relationship between the DAAS sections and measures of psychological adjustment are undertaken in Studies Five and Six.

The DAAS is thus suggested to have potential for the measurement of adolescent attachment relationships in a range of contexts. The current research provides evidence for the distinctiveness of general and specific attachment relationships. Adolescence is a unique developmental period where the

individual is faced with developmental, educational, and relational challenges. Research needs to employ refined and sensitive instruments that offer the opportunity to assess individual differences in attachment relationships, in all their complexity, in order for us to understand their true significance.

Thank you to Doctor Cary Kamboukos for his role as thesis advisor. His considered and detailed feedback have resulted in important improvements to my research, particularly in the area of methodology and statistical analysis. I am also appreciative of the support of panel members Professor Don Byrne and Doctor Jeff Ward.

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Finally, this thesis is dedicated to my Godmother, my Aunty Margaret. My fellow researcher is the Wilson family, I know that you understand the nature of postgraduate study and I would have dearly loved to share the journey of research with you. I thank you for watching over me, guiding me from heaven and for interceding with Our Lord for my intentions.

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CHAPTER ONE ADOLESCENCE

Introduction

This thesis is primarily concerned with the nature and importance of close dyadic relationships in adolescence. Adolescence is a period of significant cognitive, social, psychosocial, and biological change as individuals move from childhood to meet the challenges of adulthood. Central to the broad changes experienced in adolescence are variation to the nature of interpersonal bonds in the adolescent's life. A key task of adolescence is the process of individuation from the family. The adolescent's social network expands and they are expected to become increasingly independent. Peer relationships grow in importance and romantic bonds begin to form. During this developmental period they experience many changes in the relative composition of their close relationships. Whilst most adolescents still live with their family of origin, they begin to spend increasing amounts of time with peers and friends.

Because of the many developments that occur through adolescence, this life stage is a rich field of study from a psychological point of view. Developmental stages are interrelated and as such, adolescent experiences influence the entire life course, making it a pivotal developmental stage. Thus, the study of adolescence illuminates aspects of other developmental stages, specifically in studying the aetiology of psychosocial adjustment, delinquency, and psychopathology. It is during the second decade of life that key aspects of identity are formed, and individuals begin to more autonomously navigate the sphere of intimate relationships with peers and romantic partners. Within this domain of close interpersonal relationships, adolescents begin to extend their circle of close others and the way they relate to these figures will permeate aspects of their psychosocial adjustment and functioning. This section outlines the nature of adolescence, including defining characteristics, the historical development of the study of adolescence and the nature of adolescence in contemporary society.

Defining adolescence

The word adolescence is of Latin origin, meaning to grow into adulthood (Lerner & Steinberg, 2004; Steinberg, 1993). Although the commencement and the end of adolescence are defined by fuzzy boundaries, there are a range of biological, psychological, social and economic markers of adolescence (Heaven, 2001; Hill, 1983; Larson & Wilson, 2004; Steinberg, 1993). The beginning of adolescence is broadly indicated by: the onset of puberty; beginning of detachment from parents; emergence of more advanced reasoning skills; shifting interest from parent to peer relations; beginning of training for adult roles and work; starting high school; and ceremonial rites of passage (Steinberg, 1993). Indicators of the end of adolescence may include: attaining a separate sense of identity (from parents); consolidating advanced reasoning skills; developing capacity for intimacy with peers; full attainment of adult status and privileges; completion of formal schooling; majority status (i.e., alcohol, voting in elections); and completing ceremonial and cultural rites of passage (Steinberg, 1993). Thus, adolescence is primarily defined by change in most biopsychosocial domains (Patton & Viner, 2007; Richards & Petersen, 1987).

Most indicators regarding the start and finish of adolescence are embedded in a mix of biological and cultural domains such that “adolescence begins in biology and ends in culture” (Smetana, Capione-Barr & Metzger, 2006, p. 258). Smetana et al. (2006) propose three developmental periods within adolescence: early adolescence (10-13); middle adolescence (14-17); and late adolescence (18 until the early twenties). Hall (1904) considered adolescence to range from age 14 to 24. Heaven (2001), Petersen (1988), and Steinberg (1983) loosely define adolescence as the second decade of life; whilst Lerner and Steinberg (2004) state that adolescence can range from 10 to 21 years of age.

Historical development of adolescence as a developmental stage

Observations about the nature of adolescence date back thousands of years. For example, consider the sentiments of Hesiod in the Eighth Century B.C.:

I see no hope for the future of our people if they are dependent on the frivolous youth of today, for certainly all youth are reckless beyond words. ... When I was a boy, we were taught to be discreet and respectful of elders, but the present youth are exceedingly wise and impatient in restraint.

Furthermore, in the Fourth Century BC, Aristotle detailed his views on adolescence (Rhetoric, Book II):

They look at the good side rather than the bad, not having yet witnessed many instances of wickedness. They trust others readily, because they have not yet often been cheated. They are sanguine; nature warms their blood as though with excess of wine ... Their hot tempers and hopeful dispositions make them more courageous than older men are ... They are fonder of their friends, intimates, and companions than older men are ... they love too much and hate too much, and the same thing with everything else. They think they know everything, and are always quite sure about it; this, in fact, is why they overdo everything.

While references to adolescence date back to Aristotle and the ancient Greeks, it was not until the twentieth century that adolescence was socially constructed in Western society (Arnett, 2000; Furstenberg, 2000; Johnson & Malow-Iroff, 2008). Furstenberg (2000) explains that adolescence transpired initially as a result of the extension of employment and the decline of family-

based farming, elongating the transition to adulthood. He suggests "adolescence becomes culturally defined as a life stage when full-time education replaces full-time employment as the primary activity of young people" (Furstenberg, 2000, p. 897).

While specific cultural contexts play a significant role in the nature of adolescence, some aspects of this life stage are considered to be virtually universal. One such indicator of the commencement of adolescence is puberty (Newman & Newman, 1987; Patton & Viner, 2007; Smetana et al., 1996; Steinberg, 1993). Puberty marks the onset of hormonal activity in the pituitary gland and hypothalamus and results in reproductive capability and adult physical appearance (Bastiani Archibald, Graber, & Brooks-Gunn, 2003). The age of onset for puberty depends on a range of genetic, environmental and nutritional factors (Bastiani Archibald et al., 2003). Marshall and Tanner (1974) have identified five broad elements of the changes that occur during puberty: skeletal growth or a growth spurt; increases in and/or redistribution of body fat and muscle tissue; increased strength and endurance due to development of the circulatory and respiratory systems; maturation of secondary sex characteristics and reproductive organs (i.e., development of breasts, facial/body hair, changes in the voice); and changes in hormonal/endocrine systems.

A result of puberty is an increased preoccupation with the body for adolescents (Johnson & Malow-Iroff, 2008). The changes experienced during puberty mean that many adolescents begin to focus on concerns such as obesity, body image, their masculinity or femininity, and acne. Puberty begins to highlight aspects of virility and potency for males and femininity and attractiveness for females. Aspects of pubertal development are relatively obvious to others around them and this leads to a level of self-consciousness in the developing individual. In addition to the experience of puberty, adolescents across the globe and over time are also significantly influenced by social and cultural factors.

Adolescence in contemporary society

Variations within the broader population have affected the experience of being an adolescent in contemporary society. There are approximately one billion individuals in their second decade of life worldwide (Larson & Wilson, 2004). In 2005 there were 1.9 million Australians aged between 12 and 18 years old, accounting for 9.6% of the total population (Australian Institute of Health and Welfare, 2008). Australia's population is ageing largely due to the shape of Australia's current population structure and increases in life expectancy (ABS, 2009). Dramatic changes have taken place regarding the nature of family composition and structure in Australia in recent decades (Qu & Weston, 2008). The Australian Institute of Family Studies (AIFS; 2006) states that there are 1.1 million families in Australia with adolescents (aged 12-18 years old); 75% of these are couple families and 25% are sole parent families. Sixty percent of families live in metropolitan areas; and in 26% and 14% of families respectively, both or one parent was born overseas. The total fertility rate is declining, as is the number of women who have three or more children, and marriage rates are declining while cohabitation rates are increasing (Qu & Weston, 2008). Thus, today's Australian adolescents are likely to: make up a smaller proportion of the population, have one parent in the home rather than two, have less siblings, have a parent born overseas, and live in a metropolitan area, when compared with previous generations.

The profile of adolescents is high in wider culture, with teenagers as the growing focus of advertising, media, books, and entertainment. The interplay between culture and biology during adolescence is of far reaching consequence for society. To illustrate this point, Cook and Kaiser (2004) describe the increasing focus on children and adolescents in advertising and consumerism. A focus on 'tweens', those aged between 7 and 14, and the transition from childhood to adulthood has blurred the boundaries of these respective life stages. Recurrent discussions of 'anticipatory enculturation', or children growing up too early, have a serious side as society wrestles with the impact of viewing individuals of this age in a sexual light, preserving the 'innocence' of

young people, and the ensuing sexual behaviour and exposure to many types of risk (Cook & Kaiser, 2004).

As well as highlighting the start of adolescence earlier and earlier, contemporary commentators have identified the phenomenon of an 'extended adolescence' where elements of adolescence remain in to the early twenties (Kimmel & Weiner, 1995). There is a growing disparity between the timing of biological and psychosocial transitions to adulthood. Patton and Viner (2007) argue that in pre-industrial societies the gap between physical maturity (marked by puberty) and psychosocial maturity (marked by marriage, sexual activity and parenthood) may have been two to four years. In most contemporary societies this gap may be a decade or more as societies see the impact of increased affluence, the availability and acceptance of contraception and longer time spent in formal education (Patton & Viner, 2007). In Australia, the average age of marriage continues to increase, as does the average age at which an individual first becomes a parent (ABS, 2009). In tandem with this, increasing numbers of Australian students are choosing to attend university, extending their formal education and deferring full time employment (ABS, 2008), prolonging parental dependence and thus, adolescence.

Furthermore, an increasing number of adolescents are choosing to complete schooling (Heaven, 2001; Larson & Wilson, 2004). Consequently, they spend longer in a school environment. Adolescents at the start of the twenty-first century in the industrialised West spend a large portion of their waking hours at school each day (Eccles, 2004). Both the start and finish of high school mark crucial transition points for teenagers. The move to high school is often accompanied by changes in peer groups, a move to unfamiliar surroundings, new expectations, new teaching methods and routines (Eccles & Roeser, 2003). This transition is confounded by differences in cognitive, biological and interpersonal development for individual adolescents (Eccles, 2004).

The advent of instantaneous communication has increased the size and opportunity for contact with social networks, as well as the frequency with which adolescents can have contact and interactions with a range of peers. It is

no longer the case that adolescents only have contact with peers “at school”, and in the evening spend time in the company of parents and families. Mobile phones and the internet mean that communication with peers from school, the wider community, and across the globe can occur simultaneously, regardless of the adolescent’s physical location. Whilst this has had some positive elements, for example, increasing a feeling of social connectedness, allowing socially anxious individuals to communicate with others, and allowing access to resources and opportunities for study, it also has the potential for negative consequences. Bullying is an enduring social phenomenon in adolescence, usually in the context of school. In recent years, the term “cyber bullying” has entered the vernacular, making reference to the use of technology to bully others (Campbell, 2005; Kowalski & Limber, 2007). Adolescents are vulnerable to cyber bullying by peers in chat rooms, using mobile phones, on social networking sites, and via email. A recent study found that over a quarter of Year 8 students questioned knew someone who had experienced cyber bullying (Campbell & Gardner, 2005).

The public mental health system in Australia has come to recognise the unique aspects of adolescence by developing Youth Mental Health programs and services (James, 2007). Promotions such as “headspace” (McGorry, Tanti, Stokes, Hickie, Carnell, Littlefield & Moran, 2007) focus on the specific needs of youth who are at risk of developing mental illness. McGorry, Purcell, Hickie and Jorm (2007) highlight the disability and impairment caused by the development of a mental illness during the sensitive phase of adolescence where “psychological, social and vocational pathways and independence are being laid down” (p. 5).

The psychological study of adolescence

Adolescence began to receive empirical attention within the discipline of psychology approximately one hundred years ago. Hall’s work on adolescence sparked an increase in empirical and theoretical energy. Hall (1904) drew attention to the turbulence and transitional nature of adolescence and

popularised the notion of “storm and stress” in the teenage years. While grounded in a particular type of evolutionary theory – recapitulation – many of Hall’s insights remain valid to the present day, including the nature of peer relationships, biological development and susceptibility to depressed mood in adolescence (Arnett, 2006). Since Hall’s theorisation of “storm and stress”, discussions of adolescence have been marked by the use of terms such as vulnerability, transition, marginalisation, and change. Widespread study of adolescence did not eventuate until the second half of the twentieth century. It was not until the 1960s that academic journals specifically dedicated to adolescence emerged (i.e., *Adolescence*, 1966; *Youth and Society*, 1969; *Journal of Youth and Adolescence*, 1972; *Journal of Adolescence*, 1978; *Journal of Early Adolescence*, 1981).

Academic research frequently focuses on adolescence in order to study the aetiology of psychopathology and risk (Johnson & Malow-Iroff, 2008). The genesis of many social phenomena is in adolescence (Heaven, 2001). Many psychopathological disorders have their origin in adolescence, i.e., the features of a personality disorder are usually first apparent during adolescence; the onset of schizophrenia is typically in the late teens; individuals between 18 and 24 have relatively high prevalence rates for the use of virtually all substances, including alcohol (American Psychiatric Association, 1994; James, 2007). Mental illness in adolescence carries a high burden of disease in Australia and is the leading contributor to years of healthy living lost by Australian adolescents (AIHW, 2007). Depression, anxiety, schizophrenia, suicide/self-harm, polysubstance use, alcohol dependence, cannabis dependence, personality disorders, bipolar disorder, eating disorders remain in the top 10 leading causes of burden of disease and injury for male and female Australians aged 15-24 (AIHW, 2007)

Among those who experience mental illness in adolescence, some will engage in suicidal behaviour or deliberate self-harm (Gould, Greenberg, Velting & Schaffer, 2003). The ABS (2008) reports that in 2005-2006, there were 8040 hospital presentations for intentional self-harm among people aged between 15

and 24 years old. Approximately 266 young Australians die each year due to suicide (ABS, 2008). Suicide accounts for 20% of deaths for those aged 15-24 and just 1% of deaths among people aged over 25. American data reports that one in five US teenagers “seriously considers” suicide (Gould et al., 2003). Thus, researchers frequently turn to adolescence to elucidate the development of risk factors and psychopathology. The rapid change observed across most areas of development during adolescence has made adolescent research a fruitful area of academic study. This is particularly the case in the area of interpersonal relationships.

The importance of interpersonal relationships in adolescence

Relationships are driving forces of both growth and risk across the life span (Colten & Gore, 1991). The upheaval experienced during adolescence can be framed in an interpersonal light. A relational theme permeates discussions of autonomy, identity, self-concept, morality and cognition in adolescence.

The interpersonal focus of adolescence is highlighted in Erik Erikson’s prominent theoretical framework comprising eight psychosocial crises over the life span (Erikson, 1968). Erikson conceptualised the key developmental crisis of adolescence as identity versus identity confusion. Identity refers to a stable sense of self, incorporating one’s values and attitudes. Identity confusion is the failure to develop a coherent and whole sense of self, with difficulty committing to roles, values and people. The development of a coherent sense of self is a crucial developmental task. When this developmental task is not met, identity disturbance may lead to delinquency, difficulty in interpersonal relationships or psychopathology. Other people with whom the adolescent has contact play a key role in “recognising and being recognised by the maturing adolescent” (Kroger, 2003, p. 207). For late adolescence and young adulthood, Erikson’s theory concentrates on intimacy versus isolation (Erikson, 1968). This developmental crisis involves intimacy, the establishment of enduring, committed interpersonal relationships; in contrast with isolation, social withdrawal and the avoidance of commitment. This developmental task

applies to peer and romantic relationships and implicates separation-individuation from the family of origin. The process of separation-individuation is largely underpinned by the development of autonomy.

The process of gaining autonomy across adolescence is widely considered to be a central developmental task (Laible et al., 2004; Noom et al., 1999; Steinberg, 1996). Autonomy is clearly a relational construct in terms of gaining autonomy *from someone*, in order to have liberty to make choices, pursue goals and regulate one's own cognitive, affective and behavioural functioning (Noom et al., 1999; Zimmer-Gembeck & Collins, 2003). From this perspective, autonomy is largely discussed within the context of the adolescent-parent relationship. The nature of this relationship ideally moves from one of unilateral authority to mutuality in healthy, well-functioning families. In developing autonomy, adolescents increasingly exercise personal choice, build up their own values and attitudes, and develop personal taste (Steinberg, 1996). Many parents are familiar with discussions over the level of cleanliness of their adolescent's bedroom, food and nutrition choices, and standards of dress. For most adolescents and their parents, such 'disputes' are minor in nature and resolve by mid- to late-adolescence (Steinberg, 1996). The majority of teenagers feel they can talk to their parents about personal concerns (Prior, Sanson, Smart, & Oberklaid, 2000) and indeed, most Australian adolescents report positive relationships with their parents (Smart, Sanson, & Toumbourou, 2008). The best condition for an adolescent to develop autonomy from parents is in the context of supportive, secure relations with their mother and father (Laible et al., 2004; Newman, 1989; Noom et al., 1999; Meeus et al., 2002). In expanding autonomy and individuation from parents, adolescents increasingly look to their peers as a means for developing their identities.

A key characteristic of adolescent development is the growing importance of peer relationships (Brown & Klute, 2004; Hartup, 1983; Heaven, 2001; Laursen, 1993; Sieffe-Krenke, 1993). The network, structure and composition of peer relationships in adolescence is multi-layered and to some degree idiosyncratic. In defining central characteristics of adolescent peer

relationships, Brown and Klute (2004) and Hartup (1993) provide the following concise taxonomy: *best friends* are more exclusive than good or close friends, include mutual attraction and are ubiquitously reported by teenagers; *cliques* include a range of best friends, close friends, and good friends; and *crowds* constitute a collection of cliques who share overlapping norms

Cliques, crowds and peer groups are an important element of social development and they influence the adolescent through wider cultural norms and values, normative codes, rituals and conformity (Heaven, 2001). As with family relationships, these bonds are not independent. Having close friendships or best friends affects relationships with the rest of one's peers, such that having supportive friendships may help students make positive contacts with other classmates (Berndt, 2004). Therefore, the importance of the broader peer group should not be ignored as it may exert a strong influence (in addition to close friendships), due to the "sheer number of peers relative to close friends" (Giordano et al., 1998, p. 65).

Best friends are a key source of support in the uncertainty experienced during adolescence. While the transition to adulthood is marked by pubertal changes and complex developmental tasks, friendships are an important method through which adolescents learn about themselves and receive social support (Sieffe-Krenke, 1993). Peers can provide a key buffer against daily stressors and hassles (Heaven, 2001). While adolescents continue to consult their parents regarding school and career goals, research suggests that with friends they may focus on dating, sexuality, personal experiences, interests and aims - all of which are important elements of their developing identities (Sieffe-Krenke, 1993). Thus, intimate, dyadic peer relationships in adolescence are a key advance in the broadening of close relationships beyond immediate family.

The association between bonds with parents and peers is reciprocal. The types of relationships adolescents develop outside the family are strongly influenced by the nature of relationships within their family of origin. Familial relationships exert strong influence on peer relationships, relationships with other adults, romantic relationships and occupational choices and performance

(Collins & Laursen, 2004). Adolescents imitate the quality of the relationships they observe i.e., communication patterns (Feeney, 1999; Markiewicz et al., 2001). This social learning perspective provides explanations for the positive influence of strong, high-quality familial relationships, as well as the “intergenerational transmission” of relationship difficulties (Feeney, 1999), where poor marital and parent-child relationships impact on the adolescent’s pair bonds.

The increasing importance of the sexual dimension of interpersonal relationships is a further instance of the relational sphere broadening for the adolescent. It is during adolescence that the majority of individuals are likely to commence engaging in sexual behaviour. Though a normative element of adolescence, the nature and circumstances of sexual activity engaged in by any given individual can have far reaching consequences. Australian data from 2002 reports that 26% of Year 10 students and 47% of Year 12 students have had sexual intercourse (AIHW, 2007). Twenty percent of males and 18% of females reported having engaged in sexual intercourse with more than three people over the past year (AIHW, 2007). Data suggests that approximately one in 10 sexually active young people used no form of contraception in their last sexual encounter; the third most commonly used form of contraception (following the condom and the pill) is withdrawal (AIHW, 2007). Adolescents are more likely to become pregnant when they have sex earlier (due to longer exposure to risk). Furthermore, those who have sex early are more likely to have been pressured or coerced, less likely to effectively use contraception (i.e., to prevent pregnancy), and to have had sex with more partners (Miller, Bayley, Christensen, Leavitt, & Coyl, 2001).

There is much for the developing adolescent to negotiate and learn in terms of new relationships and interactions. Indeed when given the opportunity to discuss their worries and concerns, adolescents themselves concentrate on the interpersonal sphere. The Kids Help Line is a telephone line for young people to call and receive counselling or support. The number one reason why Australian individuals aged five to 25 use the Kids Help Line is

family relationships, the second reason is peer relationships, the fifth reason is partner relationships (Kids Help Line, 2006). In total, interpersonal relationships (family, friends, and partners) comprise almost 40% of calls to the Kids Help Line each year. The next most common category of calls are regarding “emotional problems” (16%), many of which are interpersonal in nature i.e., loneliness, grief and loss (Kids Help Line, 2006).

It is evident that changes in interpersonal relationships are a key area of research in the area of adolescence. Within the family unit, the nature of the bond with mothers and fathers undergoes significant change, as do relationships outside the family. Peer relationships begin to shift from sociable relationships providing an opportunity for play and leisure, to more serious relationships providing support and emotional intimacy. Whilst discussions of adolescence are marked by the use of terms such as tumult, disturbance, confusion and uproar; this storm and stress has come to be somewhat normalised for the majority of teenagers. These are the problems and upheavals seen in any major transitional period in life.

Conclusion

Thus, the second decade of life is a period of cognitive, biological, social and interpersonal transition. The preceding discussion highlights the nature of adolescence, including cultural markers for the commencement and termination of this developmental period. Adolescence comprises a range of universal and contextual elements which influence the experience of being an adolescent. The process of maturation is underpinned by biology, for example puberty, developments in the brain and readiness of the entire body for procreation (Patton & Viner, 2007). Strong cultural influences modulate the universal elements of adolescence through the partial determination of how the adolescent’s time is spent, activities engaged in and opportunities available.

There are key tasks that each adolescent needs to complete. The development of an identity and sense of self, separation-individuation and physical maturation are all important undertakings during adolescence. The

most central theme of adolescence and the best way to frame these developmental changes is through the perspective of the interpersonal sphere. In understanding adolescence it is crucial to understand the role of interpersonal relationship and the nature of the interpersonal constellation of the adolescent. The adolescent develops an identity and sense of self in relation *to others*, they separate-individuate *from others*, and attain physical maturation in order to form relationships with and become parents to *other human beings*. When adolescence brings storm and stress, this is managed by turning to and having the assistance of close and supportive family members and friends. Therefore, interpersonal relationships are the key to investigating and understanding adolescence. The next chapter introduces attachment theory, the overarching orientation from which interpersonal relationships will be considered in this thesis.

CHAPTER TWO

ATTACHMENT THEORY

Introduction

Though there are a number of general theoretical perspectives from which to consider close relationships, the predominant lifespan developmental theoretical context for considering close, dyadic bonds is attachment theory (Cassidy, 2008; Mikulincer & Shaver, 2007). Growing from evolutionary and psychoanalytic traditions, attachment theory offers a framework from which to describe and study a specific element of close, enduring bonds with significant others. Attachment bonds are those key dyadic relationships that provide humans with psychological and physical security and the regulation of distress (Allen, Fonagy, Fultz & Target, 2005; Collins & Read, 1990). Attachment theory refers to a behavioural system with evolutionary and biological underpinnings (Ainsworth, Blehar, Waters & Wall, 1978; Bowlby 1979/2005; Mikulincer & Shaver, 2007). It focuses on a “special type of social relationship” (Bowlby, 1969, p. 376). The term attachment is not synonymous with relationship but rather refers to relationships possessing particular elements, for example “specific functions, including comfort in times of distress and a secure base from which exploration can occur (McElhaney, Allen, Stephenson & Hare, 2009, p. 361). There are a number of strengths of the attachment framework, including a clear and precise definition of the relationship under study (Kerns, Klepac, & Cole, 1996); a strong theoretical basis; a large empirical evidence base and the availability of testable hypotheses; strong ties with psychological adjustment; and the provision of an explanatory framework for the consideration of a range of relationship types, both familial and non-familial.

This chapter outlines the role of attachment theory in describing close relationships. A chronological approach is used to describe the development of the theory. Within attachment theory, two key propositions are made about close relationships: *normative*, describing the typical elements of the attachment system relevant to all humans; and *individual differences*, the particular

trajectories and characteristics of attachment bonds seen in different people (Jaccard & Dittus, 1990).

Attachment theory

The development of attachment theory

Attachment theory arose from John Bowlby's observations of the effects of maternal deprivation on children during work as a clinician involved in child guidance. Early in his career, Bowlby was employed at a home for maladjusted boys and was able to observe the trajectories of these young children, many of whom had experienced maternal deprivation (Cassidy, 2008). The systematic study of these children was published in the 1940s (Bowlby, 1944) and led to his conviction that interactions between mother and child are critical for psychological development both when the child is young and across the lifespan. Bowlby (1979/2005) argued against the predominant perspective argued by behavioural theorists, that the bond between mother and child arises when the mother feeds the infant. Bowlby (1979/2005) contended that the bond between infant and mother develops not as a result of conditioning due to the fact that the parent feeds the child, but rather because a "capacity for bonding has as high a survival value to a species as has any of these other long-studied capacities [i.e., seeing, hearing, eating, digesting]" (p. 87). Bowlby continued to expound and empirically test his hypotheses regarding attachment theory over the twentieth century, culminating in his trilogy, *Attachment and Loss* (1969/1982, 1973, 1980).

Bowlby (1979/2005) proposed that the 'attachment' behavioural system is a "specific biological protection mechanism" (p. x). He developed the theory from an evolutionary perspective, framing the attachment system as a set of behaviours geared toward maintaining the proximity of parent to child, thus increasing the likelihood of protection and ensuring the survival of the individual. The attachment system is present in humans to protect individuals from danger by ensuring proximity to caring and supportive others (attachment figures), especially during infancy, and especially during potentially dangerous

situations. Proximity is maintained by both members of the attachment dyad and separation is strongly resisted (Bowlby, 1979/2005). Infants from a young age exhibit 'attachment behaviours' such as smiling and crying, as adaptive responses to separation from the caregiver, aimed at the maintenance of proximity.

In explaining his theory, Bowlby both linked and distinguished the attachment behavioural system from other aspects of human relationships such as intimacy, caregiving, and love (Bowlby, 1969/1982). Four distinct yet related behavioural systems require demarcation from the attachment system (Cassidy, 2008). The *exploratory* system is closely related to the attachment system. The exploratory system endows the individual with information pertaining to

the workings of the environment: how to use tools, build structures, obtain food, and negotiate physical obstacles ...

The complementary yet mutually inhibiting nature of the exploratory and attachment system ... ensure[s] that while the child is protected by maintaining proximity to the attachment figures, he or she nonetheless learns about the environment through exploration (Cassidy, 2008, p. 8).

The exploratory and attachment systems interact such that as the attachment system is activated, exploration is usually inhibited. When the attachment system is not activated, the individual is more likely to engage in exploration of their surroundings. In this respect, attachment bonds marked by availability and responsiveness foster exploration.

The *fear* system serves the biological function of promoting protection and providing information about potentially dangerous situations (Bowlby, 1973). The fear system is closely linked to the attachment system such that when an individual is frightened or afraid they will increase attachment behaviour and seek the attachment figure for comfort and security. Indeed fear may activate the attachment system and communicate to the attachment figure the need for assistance in regulating distress (Kobak & Madsen, 2008).

The *sociable* system shares in common with the attachment system the drive to maintain proximity, a level of warmth and feelings of affection toward the other (Cassidy, 2008). It is crucial to distinguish sociability or affiliative bonds from the attachment system however. The sociable system is likely to engage more people than the attachment system which is usually limited to a select few. The sociable system is important in building the ability to engage in society and facilitate involvement in play and recreation. The attachment system by contrast is likely to be activated when the individual is distressed, in need, in danger or sick. An individual is most likely to engage in sociable behaviour when the attachment system is not activated (Bowlby, 1969/1982; Cassidy, 2008).

The *caregiving* system complements the attachment system in that it entails the behaviour of the attachment figure toward an individual. Cassidy (2008) defines the caregiving system in infancy as the behaviours of the parent intended to “promote proximity and comfort when the parent perceives that the child is in real or potential danger” (p. 10). The caregiving system works in conjunction with the attachment system with regard to ensuring the safety of the individual by ensuring that both members of the attachment bond act to maintain proximity. Furthermore, when the caregiving system is activated the attachment system may remain deactivated because the attachment figure is maintaining proximity (Cassidy, 2008). Thus the attachment, exploratory, fear, sociable and caregiving systems are closely related. Zeifman and Hazan (2008) suggest that many behaviours serve more than one system i.e., approaching can contain elements of attachment, sociability or caregiving.

Although early research on attachment was focussed on infancy in the context of the parent/child relationship, Bowlby (1979/2005) argued that the attachment system is present throughout the entire lifespan. Despite the fact that attachment behaviours may at times be less obvious in adulthood compared with infancy, for example, they are no less present or important to the functioning of the individual.

In addition to behaviour, the attachment system incorporates a complex range of cognitive and emotional elements. A central characteristic of the attachment system as highlighted by Bowlby (1969/1982) is that it is goal-directed or “goal corrected”. Goal-corrected behaviours are complex patterns of behaviour aimed at a particular outcome, comprised of activating and terminating conditions, and predictable outcomes (Marvin & Britner, 2008). A requirement for a goal-corrected behavioural system is the ability to internally represent this range of complex, dynamic aspects of self, behaviour, the environment and the attachment figure. This internal representation is known as an internal working model (IWM) and is the cognitive element of the attachment system (Bowlby, 1973). IWMs are a type of cognitive schema, persisting across the lifespan and influencing interaction in and responses to interpersonal situations (Bowlby, 1973). They comprise expectations around the availability and responsiveness of attachment figures. IWMs are formed during the early stages of life as an infant learns to expect others as consistently available and appropriately responsive, or unavailable, cold and unresponsive, for example. In conjunction with cognition, emotions play a large role in the attachment system. The strongest positive and the strongest negative emotions experienced across the lifespan are often in relation to the “formation, the maintenance, the disruption, and the renewal of attachment relationships” (Bowlby, 1979, p. 130). The regulation of emotions can serve to influence the attachment bond in terms of maintaining proximity through the expression of anger or protest for example (Cassidy, 2008).

The normative development of attachment bonds

Bowlby’s protégé, Mary Ainsworth, was instrumental in the initial systematic, empirical study of psychological attachment. Ainsworth commenced her study of the development of affectional bonds between the infant and mother in Uganda in the 1950s, using a naturalistic observation approach. Following her time in Africa, Ainsworth (1967) developed a taxonomy to describe the progression of attachment bonds. During the first

phase, the newborn is indiscriminating with minimal social responses and a propensity respond to almost anyone; the second phase shows development of differential responsiveness, in which the infant demonstrates knowing and preferring his/her mother; the third phase is marked by the infant responding differentially from a distance, for example crying when his/her mother leaves the room, approaching his/her mother when she enters the room; the fourth phase brings active initiative in which the child will crawl on to it's mother's lap, follow her when she leaves the room, greet her actively when she returns, and becoming more suspicious of strangers; the fifth phase, which typically occurs around the end of the first year of life, includes exploring immediate surrounds whilst in the company of the mother, and exhibiting anxiety around strangers (Ainsworth, 1967).

Observing attachment becomes slightly more complex as individuals mature beyond infancy. Ainsworth et al. (1978) caution that there is a complex relationship between the attachment bond and observable or reportable attachment behaviours. *Attachment* is defined as the affectional bond present between two members of a dyad; *attachment behaviour* is defined as "behaviours that share the usual or predictable behaviours through which the attachment bond is first formed and then later mediated, maintained and further developed" (Ainsworth et al., 1978, p. 302); the *attachment behavioural system* refers to these classes of behaviours operating systematically in conjunction with each other, within an individual. Ainsworth argued that initially, separation may strengthen or weaken an attachment bond. It is important to recognise that an attachment bond can endure in the absence of attachment behaviour manifest at any given point in time "the presence or absence of overt attachment behaviour and the intensity with which it is manifested clearly depend on situational factors" (Ainsworth et al., 1978, p. 19). The attachment system provides an individual with physical and psychological security; therefore, it is usually *activated* in response to some form of stress or threat, which leads one to seek proximity to the attachment figure (Ainsworth et al., 1978). The attachment system is usually activated more readily in early life as

young children require more support from their attachment figure in comparison with older adults who have developed the ability to self-soothe, engage in symbolic thought and problem solve independently (Mikulincer & Shaver, 2007).

Attachment functions

The elements of attachment formation observed by Ainsworth in infancy are mirrored in the formation of attachment relationships across the lifespan. Starting with Bowlby and Ainsworth's explanations of how attachment bonds are formed, Trinke and Bartholomew (1997, p. 604) define attachment relationships as including four components: "using the attachment figure as a secure base from which to venture out independently, having a strong emotional tie with the person regardless of whether the tie is positive, negative, or mixed, seeking to be in close proximity to the person, and mourning the loss of the person". Thus, attachment relationships provide the following four key attachment functions: proximity seeking, safe haven, separation protest and secure base; and these attachment functions are arranged hierarchically as attachment bonds develop (Doherty & Feeney, 2004; Feeney, 2004; Trinke & Bartholomew, 1997). *Proximity seeking* is the first function to develop chronologically and involves a desire to be with the attachment figure such that individuals enjoy being in the presence of this person. The second function to develop is *safe haven*, seeking comfort in times of stress and seeking the attachment figure for reassurance and safety. The third is *separation protest*, becoming distressed when separated from the attachment figure and actively protesting such separations.

The final function to develop in an attachment bond is the *secure base*, using the attachment figure as a base from which to explore the environment and deriving a sense of security and confidence from the bond with the attachment figure (Ainsworth, 1967). Ainsworth developed the notion of the secure base, observing that once an infant is able to crawl, he/she will venture on short excursions exploring the room or immediate surrounds, whilst

maintaining consciousness of the whereabouts of the mother and returning to her periodically (Ainsworth, 1967). By the time the child is a toddler, the notion of the secure base includes behaviourally testing questions such as “How far do I need to go before my mother will bring me back? How much danger is too much so that my mother will protect me? How much fear do I need to experience before I’m helped to feel safe?” (Lieberman & Pawl, 1990, p. 382). When no threat is present, the attachment system is deactivated, and individuals are free to attend to other drives and needs, for example, exploring the world and engaging in play. By adulthood, Karen (1994) explains that a secure base bond allows individuals to explore their environment on a larger scale than the infant crawling away from it’s mother: “It gives them the strength to do the adult equivalent of exploration – take risks, face challenges, be open to the new” (p. 383), and this exploration eventually leads to the development of new attachment bonds and the opportunity to provide a secure base for another. The secure base plays an important role in fostering a balance between attachment and exploration (Marvin, Cooper, Hoffman, & Powell, 2002).

Attachment networks, hierarchies and transfer

Empirical and theoretical literature indicates that as early as infancy most children have a number of relationship partners who can be turned to for attachment needs (Mikulincer & Shaver, 2007). By adolescence, the size of this *attachment network* increases to include a range of family members and peers (Ainsworth, 1991; Feeney, 2004). Parents continue to serve attachment functions (Doherty & Feeney, 2004) and by adulthood one’s spouse is usually a key attachment figure (Hazan & Shaver, 1987). Doherty and Feeney (2004) suggest however that attachment bonds beyond childhood are not limited to parental or sexual relationships. They argue that an attachment figure can be identified by continual presence, provision of physical and emotional care, and emotional investment. Research indicates that adolescents have an average of 5.38 attachment bonds including siblings, parents, romantic partners and friends (Trinke & Bartholomew, 1997). These different attachment figures are

not necessarily interchangeable or considered equivalently, rather, they are arranged in an *attachment hierarchy* (Bretherton, 1985). An attachment hierarchy can be defined as “one’s collection of others arranged according to whom the individual prefers to orient toward for various components of attachment” (Trinke & Bartholomew, 1997, p. 604). Doherty and Feeney (2004) suggest that most individuals develop attachment networks with a hierarchical arrangement, with various attachment figures fulfilling different attachment functions. Whilst romantic relationships are considered to be the prime example of adult attachment relationships (Feeney, 2004), bonds with “parents, children, siblings, and friends have the potential to be attachment bonds” (Doherty & Feeney, 2004, p. 470).

The development of the attachment hierarchy is influenced by *attachment transfer*. Bowlby argued that the endpoint of attachment formation was a goal-corrected partnership in which “the goal of proximity maintenance is adjusted for the child’s ability to delay gratification and to mentally represent the caregiver’s availability” (Hazan & Shaver, 1994a, p. 4).

Attachment theory currently suggests that attachment transfer happens gradually, with the transfer of attachment functions happening one by one (Feeney, 2004; Fraley & Shaver, 2000; Hazan & Shaver, 1994a). This begins with the transfer of proximity seeking and finishes with secure base transfer. It is hypothesised that parents do not *cease* to become attachment figures in adulthood, but their place in an individual’s attachment hierarchy may change over the lifespan (Hazan & Shaver, 1994a). Feeney (2004) suggests that beyond infancy, individuals of all ages prefer to spend time with peers compared with parents (a function of proximity seeking), however other attachment functions develop according to the strength of the attachment bond.

Attachment transfer is observable from middle childhood in examining the child’s preference for attachment functions to various relational partners (Zeifman & Hazan, 2008). The transfer of safe haven occurs between the ages of eight to 14 with peers surpassing parents; however separation protest and secure base are not transferred from parents until late adolescence (Feeney,

2004). Over the life span, full-blown attachments (those including all four functions) are limited primarily to family members, predominately parents, and romantic partners (Hazan & Zeifman, 1994). Indeed Hazan and Shaver (1994a) suggest that peers can become secure base attachment figures only after an extended period of time or an explicit commitment has been made. In the case of romantic relationships in adulthood evidence suggests that attachment formation takes approximately two years to occur (Feeney, 2004; Fraley & Davis, 1997). Attachment transfer is a normative element of the attachment behavioural system across the lifespan. While not unique to adolescence, it is more apparent during this life stage (Allen, 2008) and will be discussed further in relation to this life stage in the next chapter.

Individual differences in attachment relationships

Individual differences add a further level of complexity to the study of attachment relationships. While a normative process is present in the development of attachment bonds, the characteristics of the individuals involved and their experiences with others lead to a number of distinct patterns. Ainsworth (1967) noticed individual differences in the unfolding of the attachment bond while studying infants in Uganda. She observed a level of individual variation between infants, the influence of the behaviour of the mother and cultural factors. Ainsworth developed the "Strange Situation" paradigm (Ainsworth et al., 1978) in response to the observation that individual infants responded to separations and reunions with their mother differently. The Strange Situation is a standardised laboratory protocol in which the infant, aged 12-18 months is observed playing in a room for 20 minutes while eight stages (in a standard order) are completed involving the caregiver (usually the mother) and strangers leaving and entering the room (see Ainsworth et al., 1978, pp. 31 onwards for a detailed description of the Strange Situation).

The premise underlying the Strange Situation is that a mildly stressful circumstance will activate the attachment behavioural system and reveal the infant's expectations about the availability of the caregiver (Cassidy, 2008).

Thus, the situation varies in stressfulness and involves observing the amount of exploration engaged in by the child; and the child's reactions to the departure and return of the caregiver. The Strange Situation is scored by a number of frequency counts and time intervals for behaviours in the following domains: locomotion, body movement, body posture, hand movements, visual regard, adult contact behaviour, infant contact behaviour, crying, vocalisation, oral behaviour and smiling (Ainsworth et al., 1978).

Ainsworth identified three different styles or types of responses from infants who complete the Strange Situation (Ainsworth et al., 1978). The first is, Group A, *anxious avoidant* attachment. This is marked by ignoring the mother, showing little emotion when she leaves and returns, running away from the mother when approached and failing to cling to her when picked up. Avoidant children may express little emotion regardless of who is present and do not discriminate markedly between their mother and the stranger. The second is Group B, *secure* attachment. Children who are securely attached explore freely while the mother is present, interact with strangers when the mother is present, are noticeably upset when the mother departs, do not engage with the stranger when the mother is absent and express joy when the mother returns. Group C is *anxious-resistant*. These children demonstrate anxiety regarding exploration and the presence of stranger, even when their mother is present. The child shows much distress when their mother leaves, and expresses ambivalence and uncertainty when she returns, remaining close, however showing resentment. When reunited with the mother, the anxious child may hit or push her and fail to cling to her when picked up. A more fine grained typology is offered by Ainsworth et al. (1978) with Group A having two subgroups, Group B having four subgroups and Group C having two subgroups. Main and colleagues later added a fourth category "disorganised/disoriented", marked by "odd, awkward behaviour and unusual fluctuations between anxiety and avoidance" (Main, Kaplan & Cassidy, 1985). This fourth pattern often arises as a result of chaotic, frightening or traumatising experiences with a primary caregiver (Mikulincer & Shaver, 2007).

Two research traditions in the study of attachment beyond infancy

In order to explain individual differences in attachment beyond infancy, a short digression is necessary. Following the initial research of Bowlby and Ainsworth, attachment research somewhat diverged into two research traditions, based on different responses to, and applications of the original theory (Bernier & Dozer, 2002; Shaver & Mikulincer, 2002a; Waters, Crowell, Elliott, Corcoran, & Treboux, 2002). These two research traditions strongly colour theoretical and empirical evidence and are influenced by the professional allegiances and traditions of respective attachment theorists (Bartholomew & Shaver, 1998; Shaver & Mikulincer, 2002a). As such when considering the literature on attachment beyond infancy, somewhat of a 'rift' is noticeable. These two traditions can be called the '*clinical/developmental*' approach and the '*social/personality*' approach (Bartholomew & Shaver, 1998; Bernier & Dozier, 2002; Waters et al., 2002).

Those from the clinical and developmental traditions draw on Ainsworth's observational methodologies and largely focus on the unconscious aspects of attachment, such as the "attachment state of mind" (Main, Kaplan, & Cassidy, 1985). This tradition has focused primarily on the study of the nuclear family, and relies largely on observation, interview and projective methodologies (Shaver & Mikulincer, 2002a). Associated with this approach is the use of specific methodologies such as the Strange Situation and the Adult Attachment Interview (AAI). The AAI is primarily based in the categorical approach originating from Mary Main's developmental studies (Hesse, 2008). The AAI is a classification system for assessing adults' representation of attachment relationships, with a focus on "adults' unconscious processes for regulating emotion" (Jacobvitz, Curran & Moller, 2008, p. 208). For example, the AAI, is not a measure of attachment relationships per se, it is a measure of the internalised representation of attachment. Thus, research from this tradition does not focus on dyadic attachment processes so much as it focuses on

attachment states of mind and the relevant unconscious processes related to this, within any given individual.

A second application of attachment theory arose in the 1980s. A body of social psychology literature was investigating the nature of romantic love in adulthood and the observable variations in how adults go about their romantic relationships. This literature was without a theoretical framework to organise and explain the individual differences found (Hazan & Shaver, 1994). Hazan and Shaver (1987) took attachment theory and offered a conceptualisation of adult romantic love from this perspective. The development of this research tradition has continued to focus on adult romantic relationships and predominately uses self-report measures (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). More recent developments by social psychologists studying attachment relationships involve the use of experimental methodologies and examination of the contextual elements of attachment relationships (i.e., Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996; Mikulincer, Gillath, & Shaver, 2002; Mikulincer & Shaver, 2001).

In considering the two research traditions evident in the adult attachment literature, Allen (2008) suggests that “these two constructs exist at completely different levels of analysis – the intrapsychic and the dyadic/relational – and thus by their very nature differ in fundamental and irreducible ways” (p. 429). The conceptualisation of attachment theory underpinning the current research program is that of “attachment relationships”. That is, attachment is viewed as an interpersonal construct, in part determined by elements of internal working models contained within each individual and influenced by early experiences in one’s life. This is in contrast to conceptualisations of attachment theory as solely an element of one’s personality. Thus, the dyadic/relational formulation of attachment is the central perspective from which the construct will be viewed.

Individual differences in attachment beyond infancy

First proposed by Ainsworth as described above in the context of the Strange Situation, attachment styles have since been forwarded in explaining relationship behaviour beyond infancy. Mikulincer and Shaver (2007) define attachment styles as “patterns of expectations, needs, emotions, and social behaviour that result from a particular history of attachment experiences, usually beginning in relationships with parents” (p. 25). Different attachment styles indicate variations in internal working models. A result of the most chronically accessible working model, attachment style is the primary concept used within attachment theory to explain individual differences in attachment relationships. Attachment styles relate to differences in the way we view our close relationships as the result of factors such as temperament and early experience (Hazan & Shaver, 1987). The literature includes several ways of conceptualising attachment styles.

In the late 1980s and the early 1990s, attachment researchers began to further investigate Bowlby’s claim that attachment was applicable “from the cradle to the grave” (Bowlby, 1973, p. 129). The most eminent research to empirically test this proposition was that of Hazan and Shaver (1987). In this seminal paper, Hazan and Shaver argued specifically that romantic love could be considered an attachment bond. Hazan and Shaver (1987) attempted to capture Ainsworth’s original Group A, B and C categories and apply them to older individuals. They constructed a short description of each attachment style, applicable to an adult romantic relationship: “I am somewhat uncomfortable being close to others; I find it difficult to trust them completely, difficult to allow myself to depend on them. I am nervous when anyone gets too close and others often want me to be more intimate than I feel comfortable being’ (Avoidant); ‘I find it relatively easy to get close to others and am comfortable depending on them and having them depend on me. I don’t worry about being abandoned or about someone getting too close to me’ (Secure); ‘I find that others are reluctant to get as close as I would like. I often worry that my partner doesn’t really love me or won’t want to stay with me. I want to get

very close to my partner and this sometimes scares people away' (Anxious)" (Hazan & Shaver, 1987, p. 515).

Following this, Bartholomew and Horowitz (1991) offered a slightly contrasting conceptualisation of attachment styles in adulthood. Taking Bowlby's claim that internal working models of self and other are key to the nature of attachment bonds, Bartholomew and Horowitz (1991) offered a four-category conceptualisation of attachment in adulthood (see Figure 2.1). The four categories arise from whether people have a positive or negative view of self (i.e., viewing the self as worthy of love and attention versus unworthy of love and attention); and a positive or negative view of others (i.e., viewing others as available and caring versus unavailable and rejecting).

		Model of Self (Dependence)	
		Positive (Low)	Negative (High)
Model of Other (Avoidance)	Positive (Low)	<i>Secure</i> Comfortable with intimacy and autonomy	<i>Preoccupied</i> Preoccupied with relationships
	Negative (High)	<i>Dismissing</i> Dismissing of intimacy Counter-dependent	<i>Fearful</i> Fearful of intimacy Socially avoidant

Figure 2.1

Bartholomew and Horowitz's (1991, p. 227) four-category model of adult attachment.

As the notion of individual differences in attachment relationships developed, debate arose regarding the best way to conceptualise these differences. A central point of discussion concerned the categorical versus dimensional measurement of individual differences in adult attachment. As

previously stated, attachment research in the late 80s and early 90s, focussed on a categorical formulation of attachment styles (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). From this perspective, individuals could be placed into one of three or four attachment style groups based on their narrative responses to an interview or to responses on self-report scales. Subsequent research, however, has questioned this taxonomic approach and argued that attachment is best measured with dimensions, not categories (Fraley & Waller, 1998; Mikulincer & Shaver, 2007).

In attempting to reconcile the many ways of conceptualising individual differences in the attachment literature, researchers identified two dimensions (see Figure 2.2; Fraley & Shaver, 2000; Fraley & Waller, 1998). These dimensions are most commonly referred to as avoidance and anxiety (Brennan, Clark, & Shaver, 1998).

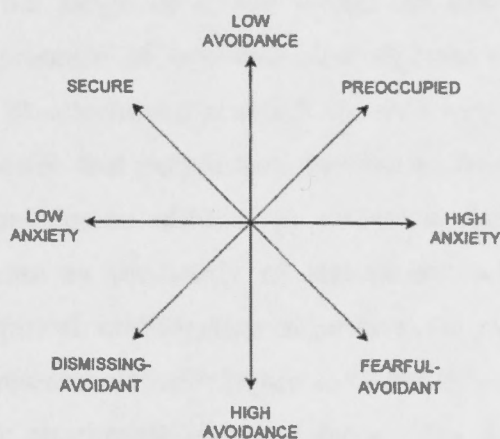


Figure 2.2

The two dimensions of attachment anxiety and avoidance, with their 45-degree rotations, model of self and other (Fraley & Shaver, 2000, p. 145).

The dimensions of avoidance and anxiety have been argued to fit best with theoretical notions of attachment activation and deactivation; as well as empirical findings i.e., relating to behavioural strategies (Mikulincer & Shaver, 2007). Furthermore, the continuous approach is more sensitive to the measurement of individual differences i.e., movement of individuals within

categories when compared with the categorical approach (Ducharme, Doyle, & Markeiwicz, 2002; Mikulincer & Shaver, 2007). The debate regarding categorical and dimensional measurement of attachment has strong links to the two traditions within attachment research discussed above. For example, the model of anxiety and avoidance has been largely developed by the social/personality tradition and further developed using a range of new research methodologies (i.e., cognitive priming tasks). Clinical/developmental researchers still appear to subscribe, in the main, to the categorical approach contained within the Strange Situation and the AAI.

Intra-individual differences in attachment style

The intersection between the normative developmental process of attachment and individual differences in attachment bonds becomes evident when considering the range of dyads within an individual's attachment network, and the presence of *intra-individual differences in attachment style*. During the advent of attachment research in adolescence, Read and Miller (1989) flagged the notion that people may develop working models of specific partners and relationships in addition to general models of self and other. Following an increase in the study of attachment networks and further theoretical and empirical investigation regarding the nature of attachment bonds, attachment researchers have begun to study this relationship between general and specific attachment representations. The body of literature on intra-individual differences in attachment styles demonstrates that there can be variation in the type of attachment bond an individual may have with the various people to which they are attached (Baldwin et al., 1996; La Guardia, Ryan, Couchman, & Deci, 2000; Pierce & Lydon, 2001; Rowe & Carnelley, 2003; 2005). For example, an individual may be securely attached to their mother and anxiously attached to a best friend.

One of the earliest empirical studies to address these research questions was that of Baldwin and Fehr (1995), addressing the assumption that "attachment style is a trait-like construct, which remains relatively invariant

over time and across different close relationships" (Baldwin & Fehr, 1995, p. 248). Using test-retest data for the Hazan and Shaver (1987) three category measure, Baldwin and Fehr (1995) found that while the proportions of the sample endorsing the three attachment styles were consistent across Time One and Time Two (3-4 months), the individuals in each group were not the same. Approximately one third of the total sample changed their attachment style. 19.5%, 42.5% and 68% of secure, avoidant and anxious-ambivalent individuals at Time One changed their attachment style respectively. Results suggest that approximately a third of people are likely to change their attachment style over 3-4 months, with a higher rate of change for anxious-ambivalent individuals, some of whom change their attachment style over a one week period. A key argument in Baldwin and Fehr's (1995) explanation of their results was an appreciation of intra-individual differences in attachment style. This leads to the question of "what does it mean to talk of an 'attachment style', for example, if people often endorse different attachment descriptions for different significant relationships and even for different romantic relationships?" (Baldwin & Fehr, 1995, p. 258).

Following this, Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo (1996) conducted a series of studies focussed on the availability and accessibility of attachment working models from a social-cognitive point of view, in order to shed light on the information processing aspect of attachment working models. Results demonstrate that attachment styles correspond with the availability and accessibility of attachment related knowledge and memories. They found that "a sizable majority of people reported a mixture of types of relationships" (Baldwin et al., 1996, p. 106), even though most people could generate examples of each attachment pattern. This suggests the possibility that "being hurt, abandoned or rejected" (Baldwin et al., 1996, p. 106) only a few times may be enough to designate an insecure style the most chronically accessible working model. These studies set the stage for a body of literature addressing the relationship between specific and general models of attachment patterns or styles.

Research on this topic concentrates on questions such as: how are different attachment models related? Which models should be measured? Which have the best predictive power? Can they be used interchangeably? How are the models organised? (Klohn, Weller, Luo, & Choe, 2005). Such questions shed light on methodological considerations regarding how attachment is assessed; the importance of different attachment bonds for psychological health and adjustment; and elements of the cognitive structure and processes regarding attachment formation, networks, hierarchies and transfer. Although relatively few studies have focussed on this issue to date, there is growing awareness that

“attachment researchers need to be more precise in specifying which aspects of the attachment representation network are under study at a particular time. Just as it is incorrect to speak of a single model of self or others, it may be incorrect to speak of a person’s single attachment style” (Shaver, Collins, & Clark, 1996, p. 45)

Adults form attachment relationships with a number of people and most adults endorse more than one attachment style in these relationships (Ross & Spinner, 2001). An example of this early in life is the observation that an individual’s attachment style with one parent does not necessarily predict their attachment style with the other parent (Cozzarelli et al., 2000). The number of attachment figures and possible relationship domains available changes over lifespan, such that “different types of relationships should fulfil different attachment needs and therefore should be linked to different attachment concerns and expectations” (Overall et al., 2003, p. 1480). Across various relationship domains there is a combination of basic similarities in key attachment functions and differences in the intersection of other behavioural systems i.e., with the romantic partner the sexual system is integrated with the attachment system (Overall et al., 2003).

At a methodological level, the wording of attachment measures influences the mental models activated. For example, some measures “intermix references to people in general and to more specific others”; and in cases researchers pay “scant attention to the level of specificity with which either the attachment or outcome variables are assessed”(Cozzarelli et al., 2000, p. 606). There is a lack of consistency in the definition of mental models in relation to attachment i.e., some authors include “goals, behaviours, unconscious urges, and psychological defenses”, others are much “simpler” (Cozzarelli et al., 2000). Furthermore, when defining ‘general’ and ‘specific’ models, there are a number of levels, i.e., general, romantic relationships in general and specifically, and particular individuals (Klohnen et al., 2005).

This variability in working models for different relationships may help to explain instability in attachment classifications over time i.e., up to a third of people change their overall ‘attachment style’ over one week to 2 years (Baldwin & Fehr, 1995; Overall et al., 2003). New relationships and changes in attachment network can alter how attachment styles are reported, as highlighted by the obvious example of past and present romantic partners (Overall et al., 2003). There is a degree of complexity both between the general and specific models but also within the specific relationship domains. Individuals may hold variable models between specific relationship partners, even within the same relationship category i.e., between different friends (Pierce & Lydon, 2001). This association between specific and general attachment representations may be adaptive such that “individuals with more positive global relational models may be, to some degree, immune to the potentially deleterious effects of holding negative models for a specific relationship” (Pierce & Lydon, 2001, p. 629).

It appears that the relationship between different levels of representation are bi-directional such that specific models are generalised to global ones over time and that global models have a small but significant effect in shaping specific models over time (Pierce & Lydon, 2001). Overall et al. (2003) suggest that the general model is the default or automatic representation; used by

individuals in times of stress, low availability of cognitive resources or with unknown and ambiguous partners and situations.

Conclusion

Attachment theory originated from the study of infants and their caregivers and has attained popularity and status within the academic literature due to its explanatory power in detailing this important element of our closest relationships. A number of key controversies continue to be discussed in the literature. For example, discussions regarding categorical versus dimensional measurement, the global nature of attachment as a personality variable versus an element of specific interpersonal relationships, and the validity of self-report continue to abound. A number of these key controversies remain largely unresolved due to schisms or perceived conceptual differences in the attachment literature and there is a need for research that organises and integrates what is already known (Mikulincer & Shaver, 2007). Notwithstanding the confusion generated in the literature by the controversies outlined above, the more specific area of adolescent attachment presents its own set of intricacies.

The following chapter illustrates the nature of attachment in adolescence and offers more detail regarding the types of attachment figures comprising the attachment network and hierarchy in adolescence. The increased academic attention enjoyed by adolescence as explained in Chapter One has extended the study of attachment theory to this stage of life and has begun to appreciate the changing nature of close relationships in adolescence. The study of attachment bonds during adolescence allows the elucidation of concepts such as the normative development of attachment networks, hierarchies and transfer; as well as the study of inter- and intra-individual differences in attachment bonds.

CHAPTER THREE

ATTACHMENT RELATIONSHIPS AND PSYCHOLOGICAL HEALTH IN ADOLESCENCE

Introduction

The nature and composition of close bonds alter through the course of one's life, and this is particularly so for adolescents. In the 1980s, researchers began to recognise the unique and distinctive aspects of attachment relationships in adolescence, for example, the directing of attachment behaviours toward non-parental figures (Weiss, 1982), the balance between exploration and attachment as the individual engages in the process of identity development and the attainment of independence (Allen, 2008). The constructs of attachment transfer, network and hierarchy are not unique to adolescence but they are particularly prominent during this life stage. It is possible to observe the movement of the primary attachment figure from one's primary caregiver, usually mother, to one's romantic partner or spouse in adulthood, however surprisingly little is known about *how* this occurs (Fraleley & Davis, 1997; Friedelmeier & Granqvist, 2006).

Attachment during adolescence is in a state of flux (Friedelmeier & Granqvist, 2006; Trinke & Bartholomew, 1997). Attachment networks and relationships go through transitions and changes. Bowlby (1982) hypothesised the notion of 'monotropy', that an individual may have an attachment network, but that there would be a clear primary attachment figure. During adolescence, it becomes increasingly difficult to identify this primary attachment figure, as attachments to both parents and attachments to peers are all in a state of transformation and adjustment. Lewis (1994) argues that the preoccupation with the mother as *the* attachment figure within the infant and child attachment literature is detrimental to our understanding of attachment due to the view that "support for singularity of attachment is lacking" (p. 49). Indeed Bowlby suggested that by nine or ten months of age an infant can, and usually does,

have multiple attachment figures (Bowlby, 1979). With regard to adolescence, it appears that there are a range of important individuals and close relationships that can serve as attachment figures. While the role of the family of origin, particularly the parents, remains key, the importance of friends increases (Nurmi, 2004). Most adolescents have a “best friend”, usually of a similar age and the same sex, who may display some elements of an attachment figure (Brown & Klute, 2003; Wilkinson 2006a). As individuals reach late adolescence, romantic partners may take on increasing importance in the individual’s network (Feeney, 2004).

The research literature on adolescent attachment developed largely independently of that for adult attachment previously described in Chapter Two. Armsden and Greenberg (1987) developed a key measure of adolescent attachment, the Inventory of Parent and Peer Attachment (IPPA) around the same time that Hazan and Shaver (1987) offered their conceptualisation of adult romantic relationships. The publication of the IPPA and the approach to adolescent attachment contained in this research largely dictated the course of the adolescent attachment literature. To the present day, the IPPA is the most frequently used measure of attachment relationships in adolescence (see Chapter Four for a discussion of the measurement of attachment in adolescence). The IPPA subscales were developed before the publication of Hazan and Shaver’s (1987) and Bartholomew and Horowitz’s (1991) work and thus this body of literature has progressed in a parallel fashion to the adult attachment literature. As such, the IPPA subscales do not clearly correspond with the anxiety/avoidance or model of self/model of other theoretical models described previously. As links between the IPPA Parent and Peer scales and current attachment constructs (i.e., the attachment avoidance and anxiety dimensions) remain somewhat unclear, there is something of a discontinuity in the attachment literature when one moves from infancy to adolescence to adulthood.

One manifestation of this discontinuity is that the adolescent attachment literature has been largely shaped by research questions regarding

psychological health and the relative influences of various attachment figures. This is in part a reflection of how the IPPA is itself structured, and is commensurate with theoretical constructs such as separation-individuation.

This chapter outlines a review of research demonstrating the importance of attachment relationships for psychological health during this developmental stage. The discussion of psychological health and adjustment includes a discussion of attachment to mother and father and adjustment; and attachment to best friends and adjustment. Subsequently, the relative influence of mothers, fathers and best friends is discussed. Individual differences in attachment and the impact of attachment styles on adjustment are also examined.

The adolescent attachment network and psychological health

Maternal and Paternal relationships

The first experience an individual has with other human beings is usually within the context of the immediate family (Heaven, 2001). Parents serve as role models; they influence emotional and social development; they transmit morals and values; and they are a source of information and knowledge on many topics (Heaven, 2001). Most importantly, parents are a source of security and protection (Ainsworth, 1991). Parents continue to be significant well beyond childhood. Collins and Laursen (2004) argue that "relationships with parents remain the most influential of all adolescent relationships" (p. 337). The content and quality of the parent-adolescent relationship is more important than elements of the adolescent or the parent, a true interaction effect, "despite a long-standing orientation to the impact of parental actions, the significance of relationships with parents derives from the joint action patterns between the two individuals" (Collins & Laursen, 2004, p. 335).

Just as the infant develops a unique relationship with mother and father, the adolescent continues to have a distinct relationship with each parent. In adolescence this manifests such that, generally speaking, adolescents spend more time with their mothers and are more likely to share feelings and

emotions with them; they are more likely to view their fathers as distant figures to be consulted with regarding information and instrumental support, although sons are usually closer to their fathers than daughters (Collins & Laursen, 2004). Despite many empirical studies demonstrating extensive qualitative and quantitative differences between adolescent-mother relationships and adolescent-father relationships (i.e., Allen, Hauser, Bell, & O'Connor, 1994; Buist, Dekovic, Meeus, & van Aken, 2002; Drill, 1987; Ducharme et al., 2002; Kenny, Lomax, Brabeck, & Fife, 1998; McCurdy & Scherman, 1996; Paterson, Field & Pryor, 1994; Russell & Saebel, 1997; Youniss & Ketterlinus, 1987), it has remained common practice to refer primarily to the parent-adolescent relationship. Buist et al. (2002) suggest that research results demonstrating differences between maternal and paternal attachment indicate that "it seems important, therefore, to regard mother-child and father-child attachment as related but distinct attachment relationships" (p. 168). Youniss and Ketterlinus (1987) state this argument in stronger language: "the generic term adolescent-parent relationships is ... too abstract ... For adolescents themselves, the term is differentiated according to daughter or son in maternal or paternal relationships" (p. 266). Ainsworth (1991) draws attention to the differences between attachment to mothers and fathers across the lifespan and observes that "individual differences in male and female roles and commitments are indeed great" (p. 41). In the area of attachment there is growing support for the consideration of both mother and father as opposed to 'parent' (i.e., Flannery, Montemayor, Eberly, & Torquati, 1993; Russell & Saebel, 1997; Steinberg, 1987).

A key element of continuity between infancy and adolescence is that mothers overwhelmingly remain the preferred parental attachment figure (Paterson et al., 1994; Trinke & Batholomew, 1994). Paterson et al. (1994) conducted a self-report study regarding changes in attachment to mothers, fathers and friends in a sample of 493 adolescents in New Zealand. Findings suggest that by adolescence, mothers are sought more frequently than fathers in support seeking situations and a higher quality of affect towards mothers than fathers is reported (Paterson et al., 1994). Fathers are perceived to be less

emotionally involved in the adolescent's life and not as equipped for comforting as are mothers (Paterson et al., 1994). Paterson et al. (1994) suggest however that although attachment to fathers is marked by less communication and lower emotional quality than attachment to mothers, fathers remain an important figure in the life of the adolescent.

A possible perpetuating factor for the differential nature of attachment to mothers and fathers apparent in adolescence is the observation that pubertal maturation is linked to adolescents spending less time with their opposite sex parent (Buist et al., 2002; Collins & Laursen, 2004). A second explanation for this process is that adolescents use their same-sex parent as a source of identification. At the same time, an important developmental task during adolescence is the deidealisation of parents, an element of gaining autonomy and independence from the family (Steinberg, 2001). Buist et al. (2002) found a slow, steady decline in the quality of attachment to the same-sex parent during adolescence and a more erratic, non-linear decline in attachment to the opposite-sex parent during the same time period. While adolescents are attempting to deidealise their same-sex parent, they continue to use this parent as a reference point when making important life decisions (Buist et al., 2002). Familial relationships exert strong influence on peer relationships, relationships with other adults, romantic relationships and occupational choices and performance (Collins & Laursen, 2004).

Maternal and paternal relationships and psychological health

The nature of the adolescent's bond with parents changes markedly during adolescence. This bond remains of central importance for adolescent development however. Despite adolescents spending less time with parents than they may have in childhood, the influence of parents remains evident through continuous monitoring of the parent's whereabouts and availability; brief daily contacts; and instrumental and financial support (Kobak et al., 2007), with adolescents ideally maintaining confidence in their parent's availability. Laible et al. (2004) argue that decreased dependence on parents does not mean

that attachment relationships with parents are any less important or any less predictive of adolescent outcomes.

A general finding is that the parent-adolescent attachment bond moderates a range of negative adjustment outcomes. Nada Raja, McGee, and Stanton (1992) found that low perceived attachment to parents was associated with greater conduct problems, inattention, depression and negative life events. Doyle et al. (2003) report findings of a study on the security of family attachments as moderators of negative associations between early steady dating and adjustment. This study tested 244 12-14 year olds and found that attachment security (parental), marital discord, and parenting style moderated some of the negative associations between romantic involvement and adjustment (Doyle et al., 2003). Secure attachment to mother was associated significantly with fewer symptoms of depression, less delinquency, higher self-esteem, and higher academic achievement. Security of attachment to father was associated significantly with fewer symptoms of depression and shared associations between security with mother, self-esteem and academic grades (Doyle et al., 2003).

Moreover, the parent-adolescent attachment bond influences a range of social adjustment outcomes including social competency and interpersonal functioning. In a study of parental attachment and social competence during the first year of college, Kenny (1987) found that parents both supported independence and remained available as a source of support when needed. Kenny (1987) further reported a positive correlation between parental attachment and social competence. These results are corroborated by Engels et al. (2001) who found that perceived parent-adolescent attachment aids in the development of social skills for peer and social interaction marked by low levels of anxiety. Attachment to both parents relates to perceived self-esteem and life satisfaction (Greenberg, Siegel, & Leitch, 1983; Nickerson & Nagle, 2004).

Several studies link parental attachment and adolescent mood (i.e., Doyle et al., 2003; Nada Raja et al., 1992). In explaining this association, Batgos and Leadbeater (1994) have suggested a model of parental and peer attachment

relationships and interpersonal and self-critical dysphoria in adolescence. They suggest that adolescents who perceive secure relationships with their parents exhibit higher self-esteem and emotional well-being with less depression and social anxiety than individuals who perceive insecure attachment. With regard to the relationship between attachment and dysphoria the authors posit that individuals are constantly asking themselves whether the attachment figure is available and reliable and dysphoria amplifies the way this question is asked. Dysphoric vulnerabilities accentuate attachment styles, with adolescents who perceive inconsistency and ambivalence in their relationships with parents and who internalise a sense of others as inconsistently available and of themselves as unworthy of love, may find it difficult to assume that extra familial relationships can be maintained in the absence of others (Batgos & Leadbeater, 1994).

Further empirical evidence supports these claims, with several researchers finding different results for mothers and fathers on dependent variables regarding adolescent adjustment (i.e., Batagos & Leadbeater, 1994; Doyle et al., 2003; Noom et al., 1999). Batgos and Leadbeater (1994) found that attachment to mothers is significantly greater than attachment to fathers for both male and female adolescents. This impacts psychosocial adjustment such that attachment-adjustment link was been found to be stronger for mother-child dyads than for father-child dyads (Batgos & Leadbeater, 1994). Furthermore, adolescents consistently differentiate between mother and father relationships in terms of communication, the range of topics discussed as well as the form of the discussion; and seeking advice (Youniss & Ketterlinus, 1987).

Thus to summarise, adolescent attachment to mother and father is linked to a wide range of adolescent psychosocial outcomes including: social competence, self-esteem, life satisfaction, depression, academic achievement, anxiety, dysphoria, and communication. Attachment to both parents is linked to the presence of positive adjustment and the moderation of negative adjustment outcomes. Aspects of the literature also draw the distinction between the distinguishable effects of attachment to mother and father.

Best friends

Adolescence marks the first time that an individual becomes able to create peer bonds with aspects of full-blown attachment relationships. By mid-adolescence many of these attributes exist in peer relationships “providing important sources of intimacy, feedback about social behaviour, social influence and information, and ultimately attachment and sexual relationships and lifelong partnerships” (Allen, 2008, p. 422)

Seventeen years ago, Laursen suggested that “the study of adolescent relationship has long been preoccupied with parent-child bonds” (Laursen, 1993, p. 1), with research primarily focussed on changes within the biological family (Buist et al., 2002; Collins & Laursen, 2004; Paterson et al., 1994). It is suggested that the lack of interest in adolescent best friendships has historically been the case due to a dearth of theoretical focus on the area (Laursen, 1993). Indeed the parent-child relationship has been prominent in attachment and psychodynamic theories (Heaven, 2001), however an increasing amount of research has been directed towards adolescent best friend relationships (see Brown & Klute, 2004 for a review).

While most adolescents have a number of peer relationships of varying closeness and intimacy, it is best friends who are most likely to constitute attachment bonds. In this context, it is important to distinguish between relationships based on attachment/intimacy and those based on affiliation/sociability (Cassidy, 2008). Much of the literature on adjustment in adolescence conflates the contributions of peer groups and best friends, the former a form of affiliative relationship and the latter approximating an attachment bond (Wilkinson, 2006a).

Friendship can connote a wide range of dyadic relationships, including relationships with acquaintances with whom one has occasional pleasant interactions, relationships with congenial companions with whom one spends quite a lot of time in activities ... and close, intimate relationship with one

or a few particularly valued persons whose company one seeks intermittently. It seems likely that some of these relationships are sufficiently close and enduring to be characterised as affectional bonds, in which the partner is felt to be a uniquely valued person, not interchangeable with anyone else who might play a similar role (Ainsworth, 1991, p. 44).

In delineating best friendships as attachment bonds, it is important to be mindful of the specific focus of attachment bonds. Stein, Jacobs, Ferguson, Allen, & Fonagy, (1998, p. 75) explain,

attachment in adulthood is elicited in times of illness, fear, and danger, when the sense of safety or security breaks down. Thus attachment cannot be defined sociometrically, in terms of whom an individual talks to more. Rather, the nature of attachment is revealed by what use people make of particular relationships when their attachment system is activated (Stein et al., 1998, p. 75).

Although dyadic peer relationships commonly commence during childhood (Brown & Klute, 2004), these relationships take on qualitatively different characteristics as children become adolescents. While almost all adolescents report having at least one best friend, younger adolescents are likely to report having more best friends than older adolescents (Brown & Klute, 2004). By late adolescence the majority of individuals have one or two best friends (Heaven, 2001). Close peer relationships in adolescence are marked by a range of characteristics, including empathy, understanding, self-disclosure and shared interests (Hartup, 1983); closeness and individuality (Shulman, Levy-Shiff, Kedem, & Alon, 1997); and trust (Sharabany, Gershoni, & Hofman, 1981). Thus, dyadic peer relationships in adolescence are a key advance in the broadening of close relationships beyond immediate family.

Best friends and psychological health

In a review of research on childhood and adolescent friendships over the past fifty years, Berndt (2004) reports on Stack Sullivan's original argument that friendships are particularly crucial during preadolescence, before the onset of puberty. This marks the commencement of relationships comprising sensitivity to another's needs and desires, intimacy and efforts to make interactions mutually satisfying (Berndt, 2004). Furthermore, it marks the emergence of conflict with peers and competition and rivalry. This increased amount of time spent with friends creates new opportunities for developing the competencies required for the longer-term tasks of forming adult pair bonds (Kobak et al., 2007). Building these competencies is encapsulated by such observations as individuals spending more time with their friends than their parents, their friends becoming the prime source of intimacy and disclosure, and intimate friends becoming a major source of social and emotional support (Wilkinson, 2006).

It is in this context that best friends can become what Kobak et al. (2007) describe as 'ad hoc attachment relationships' where a partner serves as a secure base or safe haven function but does not become a primary or secondary attachment figure. Thus, teens are most likely to rely on peers when parents aren't readily accessible, in contexts in which their age-mates are better positioned to provide support or encouragement, and in situations that elicit low-level activation of the attachment system (Kobak et al., 2007). Accordingly, Laible et al. (2004) report that peers *may* begin to serve many of the same attachment needs as parents by middle to late adolescence. Kobak et al. (2007) explain that peers are *tested* as a source of safety and support and that most friendships will not become enduring attachment bonds, as Ainsworth (1991) suggests.

Several elements of friendships have been explored in the context of early adolescent adjustment. Parker and Asher (1993) identify two key components: the extent of a child's participation in friendship (i.e., whether or

not the child has an acknowledged, mutual friendship with another child); and quality of the child's best friendship (the degree of companionship the relationship provides, its supportiveness and level of conflict). They further identify elements of: validation and caring, conflict and betrayal, companionship and recreation, help and guidance, intimate exchange and conflict resolution as dimensions along which friendship quality can be assessed (Parker & Asher, 1993). In a discussion of the influence of peers on children and adolescents, Urberg (1999) highlights stability and quality as key components of the level of influence friendships have on psychosocial adjustment.

An alternative conceptualisation is offered by Berndt et al. (1999) who utilise a friendship interview focused on: intimate self-disclosure during conversations, intimate knowledge of one another, companionship or spending time together, faithfulness and exclusiveness within the friendship. They subsequently define a high quality friendship as a supportive relationship which meets the needs for "companionship, help, and a feeling of being admired and respected" (p.16). Their research suggests that such friendships enhance self-esteem, improve the adolescent's social skills and assist in terms of coping with stressful life events (Berndt et al., 1999). High quality friendships can have a complex effect on the adolescent. Berndt (2004) posits the Magnification Hypothesis stating that the influence of a friend's characteristics is magnified when a child's relationship with that friend is higher in quality. One example of this is that negative interchanges with friends are especially likely to lead to negative interchanges with other peers and teachers when students also view their friendships as intimate and supportive (Berndt, 2004).

Giordano et al., (1998, p. 58) define intimate friendships as having a "high level of caring and mutual regard that characterises such relations, feelings which are believed to be enhanced by frequent communication and mutual self-disclosure ... sense of loyalty, comfort and trust that develops around such communication processes". The findings of this ten-year longitudinal interview study suggest that family intimacy levels are *not*

significantly correlated with reported intimacy with friends in adolescence. Furthermore, those adolescents with highly intimate friendships do not as adults have significantly higher self-esteem, better parental relationships, better mental health or increased marital satisfaction (Giordano et al., 1998). Moreover there was no relationship between the level of friendship intimacy and the likelihood of engaging in criminal behaviour. The only significant impact of adolescent friendship intimacy was that it predicted increased adult friendship intimacy. The authors finally note that adolescent friendship intimacy can foster antisocial as well as prosocial behaviours, and that intimacy should therefore be viewed as a value neutral relational property.

Best friends make a unique contribution to adjustment in adolescence with a number of studies contrasting the effects of general social relationships and close dyadic peer bonds. Parker and Asher (1993) studied the distinction between friendship adjustment, acceptance by the peer group and loneliness in 3rd, 4th and 5th grade students ($N=881$). They found that many low accepted children have best friends and are satisfied by these relationships and furthermore, that having a friend, friendship quality and group acceptance make separate contributions to loneliness (Parker & Asher, 1993). Moreover, not all highly accepted children have friends and children without best friends are lonelier than children with best friends, regardless of how generally well accepted they are. Thus, in support of the argument for the importance of best friendship through adolescence, Parker and Asher (1993) conclude that children's friendship adjustment influences feelings of loneliness above and beyond the influence of peer group acceptance.

Buhrmester (1990) suggests that as friendships increase in intimacy over childhood and adolescence, their impact on psychosocial development increases as well. This is theorised to occur because not having intimate relationships may be a source of stress; adolescents have an increased need for self-disclosure and "consensual validation" of personal worth; and a lack of intimate friendships may lead to deprivation in sources of social support and coping assistance (Buhrmester, 1990). Buhrmester (1990) found adolescents

whose friendships were rated (both by self and friends) as companionate, disclosing, and satisfying reported being more competent, more sociable, less hostile, less anxious/depressed, and have higher self-esteem compared to peers who had less intimate friendships. Similarly, Brendgen, Markiewicz, Doyle, & Bukowski (2001) report higher levels of perceived friendship quality in adolescence are linked to better emotional adjustment, higher interpersonal competence, more adaptive social problem solving skills, and better academic adjustment.

Similarly, in an investigation of the influence of friends and friendship on adjustment to junior high school, Berndt et al. (1999) found high quality friendships have a protective influence during the transition. This study used interview, peer nominations, teacher ratings and school records with 101 students and hypothesised that children benefit when they enter new settings in the company of familiar other people and higher quality friendships are usually more stable so the effects of friendships quality and stability should overlap. Findings show that sixth grade individuals with high-quality friendships increased in their sociability and leadership across the transition interval, but only if most of their friendships were stable across the interval. Supportive friendships are beneficial in times of stress only when these friendships are not ended by the stressor (Berndt et al., 1999). Furthermore, they found having stable, high-quality friendships magnifies the negative influence of delinquent friends. For example, students increased greatly in behavioural problems when they had stable friendships with individuals who also had behavioural problems.

Thus, attachment to peers, particularly close friends and best friends, is linked with a range of adjustment variables including: intimacy, self-esteem, social skills, coping, prosocial behaviour, hostility, perceived self-competence, anxiety, depression, and academic adjustment. In reporting on the link between attachment and adolescence, many researchers compare the influences of parent and peer relationships. Though the two types of relationships are correlated with regard to security of attachment (i.e., Laible et al., 2000, Laible et

al., 2004), distinct effects have been reported. These findings are reviewed below.

The relative influence of parents and peers on adolescent psychological health

One ongoing area of discussion in the adolescent attachment literature is that of the relative influences of parents and peers during adolescence. Changes in the relationship with parents over adolescence can be conceptualised according to compensatory/ competition versus continuity/ cognitive models (Wilkinson, 2004). The compensatory/competition model suggests that adolescents seek increasing support in the peer environment to satisfy unmet needs in the parental/family environment and construes the two interpersonal worlds of the adolescent as being in tension. Alternatively, the continuity/cognitive model suggests that the form and quality of relationships that develop with friends is an extension of the form and quality of relationship that has existed within the family (Wilkinson, 2004). Accordingly, warm and positive interactions with attachment figures through childhood foster positive representations of the self not just within the family context, but in global self-evaluation contexts as well (Laible et al., 2004). Furthermore, Markiewicz, Doyle & Brendgen (2001) suggest that in adolescence, attachment to parents influences attachment to peers in a number of ways. This includes the influence of the marital relationship. Findings suggest that perceptions of parental marital quality predict adolescent attachment security to mother, father and peers. One aspect of this relationship not explored by Markiewicz et al. (2001) is the possibility that adolescent variables could impact on marital relationships and maternal friendships, instead of the other way around, as is often assumed.

Engels, Finkenauer, Meeus, and Dekovic (2001) highlight the distinct skills young people learn in their interactions with nuclear family members and the way in which these skills can be generalised to peer settings. They argue that peer relationships are more symmetrical, that adolescents operate differently in different settings, and that different competencies are required for

these different types of relationships. Similarly, Nada Raja et al. (1992) suggest that adolescents may receive qualitatively different aspects of support from their parents and peers i.e. low attachment to parents is not compensated for by high attachment to peers; this is partially explained by the observation that the adolescent's positive view of him/herself comes from attachment to both parents and peers.

Laible et al. (2000) investigated whether attachment to parent and peers serve similar functions for adolescent adjustment. Using a sample of 89 adolescents (Mean age=16.1 years) and a range of self report measures of attachment and adjustment, Laible et al. (2000) analysed results by group: those participants who were high on both parent and peer attachment; low on both; high on peer and low on parent; and high on parent and low on peer (above and below sample mean of IPPA scores). Results show that parent and peer relationships serve similar functions in terms of adolescent adjustment; adolescents with strong, secure attachments to both peer and parents reported the best overall adjustment as they were the least depressed, least aggressive, and the most sympathetic. Findings suggest that peer attachment may be relatively more influential on adolescent adjustment than parent attachment as adolescents with secure peer attachment and less secure parent attachment reported better adjustment than those with secure parent attachment and less secure peer attachment (Laible et al., 2000). The authors take these findings to suggest the importance of multiple attachment figures in promoting healthy adolescent adjustment and argue for a hierarchical organisation of attachment relationships in which peers are relatively more influential on adolescent adjustment than parents (Laible et al., 2000).

In a series of studies regarding the relationships between parent and peer attachment and self-esteem to psychological health (operationalised as perceived community problems and depression), Wilkinson (2004) found that parents and peers contribute to psychological health and adjustment in different ways. Using samples in two countries and a range of different measurement tools, Wilkinson (2004) reports that when entered after parental

attachment in hierarchical regression, peer attachment had no significant influence on measures of either psychological well-being or distress. Furthermore, when measures of psychological health, such as depression and life-satisfaction, are employed there appears to be further evidence that parental attachment plays a more important role than peer attachment. Conversely, when measures of self-esteem or self-concept are considered, there appears to be more evidence for a greater role of peer attachment (Wilkinson, 2004). A further finding was that the relationship between the quality of peer attachment and psychological health is completely mediated by self-esteem; much of the influence of parental attachment on psychological health is also mediated by self-esteem (Wilkinson, 2004). From these results, Wilkinson (2004) suggests that a primary role of attachment relationships is to bolster self-worth, rather than directly influence psychological symptoms; and that quality attachments appear to be intimately related to how we think of and judge ourselves.

Laible et al. (2004) studied the relationship between parent and peer attachment, empathy, social behaviour and self-esteem in a sample of 246 undergraduate students. They focused on the question of whether parent and peer attachment have direct effects on self-esteem or whether these effects are mediated through social behaviours i.e., aggression and prosocial behaviour. Using a range of self-report measures, Laible et al. (2004) found that adolescents who reported a secure attachment with parents also reported a secure attachment with peers ($r=0.40$) and that only peer attachment significantly, positively predicted empathy. Parental attachment was directly, positively related to self-esteem; and this was significantly stronger for males than females.

Thus, the relationship between parent attachment, peer attachment and adjustment, particularly self-esteem, appears to be complex and in need of further investigation. Both Laible et al. (2004) and Wilkinson (2004) used versions of the IPPA and it is possible that measurement tools differentiating between attachment to mother and father and offering more accurate conceptualisations of attachment dimensions may help clarify results.

In a further attempt to differentiate the relative influences of parents and peers, Meeus et al. (2002) posit a situational hypothesis of parent-peer conflict, suggesting that parent-peer influence is situational: that is, in some domains the parental influence is greater, and in other domains the influence of peers is greater. It is hypothesised that the influence of parents is greater for issues relating to the future, however for issues relating to the present life and life-situation, the influence of peers is stronger (Meeus et al., 2002). The situational hypothesis predicts that parental attachment will be associated with school identity and peer attachment with relational identity; for issues relating to the future the influence of parents is of greater weight, for issues pertaining to the present life situation peer influence is more significant; parent and peer attachment both have the same positive impact on school and relational identity. They found strong support for the situational hypothesis, that is, parental influence was prevalent with regard to the future, and peer influence was greater on issues pertaining to present life (Meeus et al., 2002).

Key differences in the nature of the relationship between parents and peers may influence findings in this area and somewhat impede direct comparison of findings. Giordano et al. (1998) discuss the “positive bias” in assessing friendship bonds as opposed to parent-child relationships. This is based on the presumption of “at least a minimal level of liking” (p. 64) within friendships, which may explain why variations in parent-child relationships better predicted “negative” outcomes in their study (Giordano et al., 1998). Similarly, Feeney’s (2002) investigation of the link between parental behaviour and attachment characteristics of the parents and offspring found that parent reports of parenting behaviour were more positive than that of their offspring. This finding is explained by the “generational stake hypothesis” which suggests that parents have a stake in seeing the family in positive terms, given their level of investment in the family. Adolescents however, are engaged in achieving autonomy from the parents and may be facilitated by taking a relatively negative view of the family (Feeney, 2002). Thus, the variability in findings linking adolescent attachment to parents and peers may be partially explained

by such response biases and the range of research methodologies employed by different studies.

Romantic relationships in adolescence

A central element of exploration in adolescence is within the sphere of love and romantic relationships. It is evident that romantic relationships emerge at some point during adolescence (Bouchey & Furman, 2003; Collins, 2003; Collins, Welsh, & Furman, 2009; Doyle, Brendgen, Markiewicz, & Kamkar, 2003; Doyle, Lawford & Markiewicz, 2009). Within the context of attachment, romantic relationships mark the growing integration between the attachment, caregiving and sexual systems (Fraley & Shaver, 2000; Mikulincer & Goodman, 2006; Shaver, Hazan, & Bradshaw, 1988; Zeifman & Hazan, 2008). Romantic relationships exhibit the mutual provision of security between those in the relationship and each individual provides care to the other (Zeifman & Hazan, 2008). Sexual attraction provides an impetus for the redirection of attention and effort toward romantic relationships (Hinde, 1983; Zeifman & Hazan, 2008).

Timing of romantic involvement varies according to a number of individual and social factors. There is a body of research indicating that there are a number of risks associated with early dating (Collins, 2003; Doyle et al., 2003), including current and later problem behaviours and social and emotional difficulties (Collins, 2003). A key finding suggested by Doyle et al. (2003) is that early romantic relationships are detrimental if earlier age-appropriate key relationships (i.e., same-sex acceptance, friendship) have not been mastered.

Attachment style has a strong influence on the timing and nature of romantic involvement. Freeman and Brown (2001) suggest that for a securely attached individual, attachment to a boy/girlfriend is unlikely prior to young adulthood. For those who are insecurely attached, the search for a primary attachment figure outside the family may be completed during or before high school. Though this is claimed to be normative for insecurely attached youth, it may compromise psychological adjustment, leading to less harmonious and

reciprocated friendships and more antisocial behaviour (Freeman & Brown, 2001; Nada Raja, McGee, & Stanton, 1992). Considering this however, Collins (2003) argues for a need to determine when and how romantic relationships impact on psychological adjustment, with an emphasis on the developmental implications of relationship variables, rather than simply determining whether it makes a difference that an adolescent dates early. Collins et al. (2009) suggest that the developmental significance of adolescent romantic relationships varies markedly depending on individual characteristics such as age, attachment style, rejection sensitivity, and sex.

It is unlikely that romantic relationships in adolescence will become “enduring attachment bonds” (Kobak, Rosenthal, Zajac & Madsen, 2007). Romantic relationships in adolescence serve a number of purposes including “recreation, sexual experimentation, or status attainment” (Bouchey & Furman, 2003, p. 316), and although they may also fulfil some attachment functions, they are unlikely to include the provision of support or care giving in the same way as a ‘full-blown’ attachment relationship. Although such partners may become attachment figures by late adolescence, and signify successful interpersonal development it remains highly unlikely in early and mid-adolescence (Doyle et al., 2003; Kobak et al., 2007). Even by mid- to late-adolescence, research suggests teenagers are more likely to refer to social or affiliative aspects of romantic relationships rather than attachment functions (Bouchey & Furman, 2003; Doyle et al., 2009).

Collins et al. (2009) report that the average length of an adolescent romantic relationship is 6-12 months. This is not considered long enough for an attachment bond to develop as it is commonly contended that attachment bonds take closer to 24 months to develop (Feeney, 2004; Zeifman & Hazan, 2008). Research evidence suggests that these relationships are highly unlikely to constitute attachment relationships for the age group under consideration (Bouchey & Furman, 2003; Fraley & Davis, 1997; Hazan & Zeifman, 1994; Kobak et al., 2007; Trinke & Bartholomew, 1997). Thus, for the purposes of the present

research, the role of romantic relationships as attachment bonds will not be considered in detail.

Adjustment and individual differences in attachment styles: Clinical/developmental research tradition

Whilst a large portion of the adolescent attachment literature has been influenced by the IPPA and focussed on adolescent psychological health, a growing body of research has investigated the link between individual differences in attachment and adjustment. Instead of taking attachment to mother, father or best friend as the key variable, these studies consider the security, avoidance, or anxiety of the individual and the impact of these individual differences on a range of outcome variables. This body of literature includes contributions from both research traditions explained in Chapter Two: the clinical/developmental tradition and the social/personality tradition.

Clinical/developmental researchers have used their primary research methodology, the AAI, to research attachment representations and psychological adjustment in adolescents. Chronologically, adolescence is the first time that 'states of mind' become available to measure due to the increased level of integrated and generalised cognitive conceptualisation of attachment experiences (Allen, 2008). One research strategy has been to study the most disturbed adolescents, those in residential treatment (Allen, 2008). These studies have found strong links between an insecure-unresolved status on the AAI and a range of psychopathological symptoms (Allen, Hauser, & Borman-Spurrell, 1996). Those adolescents who score as preoccupied on the AAI are prone to a number of internalising and externalising symptoms, including suicidality (Adam, Sheldon-Keller, & West, 1996). The hyperactivation of the attachment system found with preoccupied adolescents lends itself to a high level of sensitivity to environmental and contextual stressors (Allen, 2008).

In research utilising the AAI and measures of psychological functioning obtained from parents, adolescents and their peers, Allen, Moore, Kuperminc, and Bell (1998) found that attachment representations are linked to social

acceptance, internalising behaviours, externalising behaviours and delinquency. Secure adolescents are those more able to talk about their attachment experiences with “balance, perspective, autonomy, and open acknowledgement of the importance of attachment” (Allen et al., 1998, p. 1414). They were more likely to have higher levels of functioning marked by less internalising and externalising symptoms and lower levels of delinquency (Allen et al., 1998).

Adjustment and individual differences in attachment styles: Social/ Personality tradition

In many ways the most recent strand of the adolescent attachment literature to gain momentum has been the study of individual differences and psychological health using the self-report methodologies prominent in the social/personality research tradition. As described in Chapter Two, this work arose out of research on adult romantic relationships as the archetype for intimate relationships in general. These measurement tools have been modified for use in adolescence. A number of these studies discussing adolescent adjustment and links with attachment styles are summarised below.

Conceptualised in terms of attachment styles, research suggests that secure adolescents have superior functioning across a number of domains (Cooper, Shaver & Collins, 1998). Rice and Cummins (1996) describe secure attachment as entailing the “ultimate aim of less dependence on an actual attachment figure and more reliance on the internalised aspects of the attachment bond” (p. 50). Cooper et al. (1998) suggest that in terms of normative development, there are different developmental trajectories for secure, anxious-ambivalent, and avoidant adolescents. For example, secure adolescents follow a “normative” trajectory where symptom levels rise and fall by the end of adolescence, however for avoidant adolescents the magnitude of the increase is greater and the decline in late adolescence smaller. For anxious adolescents, levels of distress peak in early adolescence and decrease and stabilise by late adolescence, however at a higher, more dysfunctional level than the avoidant and secure adolescents.

Insecure attachment has been linked to depression, eating disorders, a lack of assertiveness, lower self-efficacy, and college maladjustment (Rice & Cummins, 1996). Although avoidant and anxious adolescents report similar levels of symptomatology, anxious adolescents are significantly more hostile and depressed, less academically able, more socially competent, and more likely to have been involved in romantic relationships, and more likely to have used substances or had sex than avoidant adolescents (Cooper et al., 1998). Results suggest that anxious-ambivalent adolescents are the most poorly adjusted overall i.e., including highest symptom levels, poorest self-concept, highest levels of risky behaviour (Cooper et al., 1998). Anxious-ambivalent adolescents were especially prone to risk or problem behaviour, with hostility posited as a particularly important explanatory variable.

Mikulincer and Shaver (2007) comprehensively summarise the nature of attachment individual differences and psychopathology. Their review focuses on adult populations in clinical and non-clinical samples. Although it is not focussed on the population of interest for this thesis, a broad summary of Mikulincer and Shaver's (2007) review is of general relevance in order to supplement the adolescent specific review above. Mikulincer and Shaver (2007) suggest that attachment insecurity is a predisposing factor to a range of psychopathological outcomes, correlated with a range of outcomes from non-clinical neuroticism to severe personality disorder and suicidality. They suggest that the nature of insecure attachment is such that individuals "harbour serious doubts about their self-worth and self-efficacy (Mikulincer & Shaver, 2007, p. 370), and highlight the importance of the attachment behavioural system in emotion regulation, a key element of many psychopathological states.

Conclusion

The influence of a range of attachment bonds for adolescence has been highlighted, as well as the relationship between individual differences in attachment style and psychological health. Research has identified consistent patterns between attachment individual differences conceptualised as

attachment styles and a range of psychosocial adjustment outcomes and indicators of psychopathology. It is evident from the findings of both research traditions that the impact of attachment security on adjustment is strong and that those with insecure attachment styles are vulnerable to a range of negative adjustment outcomes. Attachment relationships merit extensive empirical study in part due to their impact on psychological health.

As discussed over the course of this review, there are a number of methodological paradigms from which to study adolescent attachment. Limitations exist in the extant literature due to key limitations with a number of the measurement tools used. As evident in discussing the IPPA, the focus of this measure is very much on quality of the relationship as opposed to the attachment bond per se. Research using the IPPA is geared toward assessing the relative influence of parents and peers and does not give a clear indication of individual differences in attachment as conceptualised by attachment styles. As such, the majority of research on adjustment and attachment in adolescence discusses the type of attachment relationship (i.e., parents, peers) and discusses the “strength” of attachment as opposed to discussing attachment styles, as is more common in the adult and infant literature.

Research using the AAI is similarly limited in that “the AAI is one of the most time-consuming instruments in the area of developmental and clinical psychology” (van Ijzendoorn & Bakermans-Kranenburg, 1996, p. 18). Finally, research arising from the social/personality research tradition utilising self-report measures has made use of attachment constructs and measurement tools developed specifically in the context of adult romantic relationships. This body of research assumes that adult romantic relationships are the prototype for intimate relationships beyond infancy and childhood. The assumption that these constructs and measurement tools can be validly and reliably applied to attachment in adolescence has not been formally justified or tested. Thus, the following chapter continues this discussion through the provision of a detailed review and critique of measurement issues in adolescent attachment.

CHAPTER FOUR

THE MEASUREMENT OF ATTACHMENT IN ADOLESCENCE

Introduction

Adolescence, as a period of interpersonal change and growth, adds complexity to understanding patterns of attachment relationships. Young people may become attached to a range of people to varying degrees, and the role of the primary attachment figure is in flux (Bowlby, 1969/1982; Trinke & Bartholomew, 1997). Thus, the measurement of attachment in adolescence becomes complex. Baldwin and Fehr (1995) have suggested that “for a core, influential aspect of personality, attachment style has proven remarkably difficult to measure” (p. 256).

Over the past 20 years adolescent attachment has been measured in a variety of ways. There is no consensus on a ‘gold standard’ for the measurement of attachment in adolescence; therefore there is no clear measure against which to index new measures. Considering the complexity of attachment theory and the implications for measuring such relationships during adolescence, this chapter undertakes a comprehensive review of attachment measures used for this age group.

The first half of this chapter presents a quantitative review of existing attachment measures in order to offer clarity and organisation around this considerable body of literature with regard to adolescence. Following this review, the second half of this chapter outlines the most commonly used measures of adolescent attachment and a selection of adult attachment measures and reviews and critiques each measure in more detail. A set of necessary conditions for measuring adolescent attachment is subsequently formulated following the review of existing measures.

Review of adolescent attachment measurement

The purpose of the systematic review is to organise the literature and provide a critical evaluation of existing measures. Recent reviews of the

measurement of attachment relationships have been published for adults and children for this purpose (Crowell & Treboux, 1995; Dwyer, 2005; O'Connor & Byrne, 2007; Schneider, Atkinson & Tardif, 2001). This has not been done comprehensively for adolescents since Rice (1990), which was prior to major theoretical and empirical developments in the general attachment research which have guided the measurement of attachment in adolescence (i.e., Bartholomew & Horowitz, 1991; Brennan et al., 1998; Griffin & Bartholomew, 1994b). Smaller overviews have been conducted by Lopez and Gover (1993) and Lyddon, Braddon and Nelson (1993). However, these papers are not comprehensive as they present a selection of measures but do not make reference to the most frequently used measures or to a broad range of measures. Furthermore, they include measures of related constructs (i.e., parental bonding, object relations), confusing the discussion of the measurement of attachment. Reviews of attachment measures often present a selection of different measurement tools, however there is no indication as to which measures are most frequently used or cited. In the absence of a review of measures used in the adolescent attachment literature researchers are left to offer conjecture regarding the most frequently used measures, for example "studies of attachment during adolescence have primarily focused on assessing internal working models of attachment, typically utilising an adolescent version of the Adult Attachment Interview" (McElhaney et al., 2009, p. 362).

This section describes a review of the adolescent attachment literature and provides a summary of these results. This is followed by a critical review of a selection of frequently used measures. The design of this review allows for the investigation of two simple but important research questions:

1. What are the most frequently used measures of adolescent attachment?
2. Do the most frequently used measures adequately operationalise contemporary attachment constructs?

METHOD

The Ovid PsycInfo database was used to locate relevant articles published from 1990 to April, 2007. The keywords *adolescent*, *adolescence* and *attachment* were used.

Demarcation of adolescence as a life stage is complex because it contains within it major developmental changes over relatively short time periods (Steinberg, 1996). Despite the generally accepted view that adolescence commences at the onset of puberty, there is no clear indication as to its end (Reber & Reber, 2001) and what holds true for younger adolescents may not for older adolescents. Most adolescents still live with the family of origin and many young adults live with their own nuclear families and one would suspect that attachment relationships could be quite different for both groups. Undergraduate samples are often employed to research both adults and adolescents (e.g., Armsden & Greenberg, 1987) and this may be dictated by convenience rather than empirical rigor. This is an important consideration when studying attachment relationships as relying on one age group as the development sample for adolescent psychometric research may be problematic in generalising to other age groups. Thus, in the current review, the search term *adolescence/adolescent* was used instead of a discrete age range in retrieving studies.

With regard to inclusion and exclusion criteria, the following search parameters were used: human population, abstract available, English language, and peer-reviewed journal. This search retrieved 762 citations. Three hundred and ninety two citations were removed from the sample as they were not peer-reviewed articles (i.e., they were book reviews, corrections, commentaries, rejoinders, reprinted articles) or they did not include a measure of adolescent attachment (i.e., non-adolescent sample, therapeutic interventions, case studies, review articles). Sixteen articles were not available. The remaining 354 citations form the basis of this quantitative review.

Abstracts were read to determine the measure of adolescent attachment used, sample age range, sample size, and key outcome variables. Where the abstract did not specify this information the full text article was retrieved where possible.

RESULTS

A total of 93 different measures of adolescent attachment were cited. Forty-one of these studies used unspecified/unnamed measures of attachment (i.e., 1- 9 items measuring "attachment"; qualitative "interviews"). The National Longitudinal Adolescent Health Study data set was cited eight times. Table 4.1 presents frequency data on scales cited more than four times. Appendix 4A includes a list of scales ($n = 77$) cited between one and three times in the final sample.

Table 4.1

*Most frequently used measures of adolescent attachment (N=433)**

<i>Name of Measure</i>	<i>Author</i>	<i>Frequency</i>
Inventory of Parent and Peer Attachment	Armsden & Greenberg	96
Adult Attachment Interview	Main	47
Parental Bonding Instrument	Parker	21
Adult Attachment Scale	Collins & Read	19
Relationship Questionnaire	Bartholomew & Horowitz	17
Adult Attachment Prototypes	Hazan & Shaver	14
Network of Relationships Inventory	Furman & Buhrmester	8
Parental Attachment Questionnaire	Kenny	8
Experiences in Close Relationships	Brennan, Clark & Shaver	8
Attachment Style Questionnaire	Feeney, Noller & Hanrahan	8
Adolescent Attachment Questionnaire	West	7
Relationship Scales Questionnaire	Bartholomew & Horowitz	6
Security Scale	Kerns	5
Brook Attachment Scale	Brook, Whiteman, Finch & Cohen	4
Attachment Questionnaire for Children	Muris, Meesters, van Melick, & Zwambag	4
Separation Anxiety Test	Resnick	4

*91 measures cited <4 times

Appendix 4B presents a detailed table for each of the frequently cited measures of attachment *relationships*. As this thesis focuses on attachment bonds in the form of attachment relationships (see Chapter Two), a number of the most frequently cited measures in Table 4.1 above are not included in further discussions. The Adult Attachment Interview, Security Scale, Attachment Scale and Separation Anxiety Test are not included in Appendix 4B

for this reason. Appendix 4B presents details on the articles including each respective measure, the sample size, age range and key variables measured in each study. Information on the Attachment measure includes the relationship measured, modifications made to the original scale, scoring, reliability and validity.

DISCUSSION

With regard to the first research question, results of this review indicate that a wide range of measures are used to assess adolescent attachment. Of the 93 measures cited 77 were referenced between one and three times. This indicates that despite the availability of widely used measures, many researchers still employ little known measures of attachment relationships, often with unknown psychometric properties. This further clouds the literature and introduces uncertainty into an already complex area.

The second research question concerned the operationalisation of contemporary attachment constructs. The following section addresses this question by way of a critical review of the most frequently cited measures of adolescent attachment relationships, focussing on methodological credentials and correspondence with current attachment theory.

Inventory of Parent and Peer Attachment

The IPPA was the most frequently cited measure of adolescent attachment in the current review and was cited almost twice as often as the second most popular measure. The IPPA, originally developed by Armsden and Greenberg (1987), has two scales that are scored independently: a 28-item Parent scale and a 25-item Peer scale. The IPPA has three subscales: Trust (10 parent items, 9 peer items), Communication (8 parent items, 9 peer items) and Alienation (10 parent items, 7 peer items). Short-form versions of the IPPA are widely used (e.g., Nada Raja et al., 1992; Wilkinson, 2006a). It is also common

for the Parent scale to be split into separate Mother and Father Scales (e.g. Buist et al., 2002; Wilkinson & Parry, 2004).

One of the criticisms that can be levelled at the continued use of the IPPA is that it was developed in isolation from contemporary theoretical developments in attachment theory. Although the item content of the IPPA was originally developed on the extant literature that related to the attachment construct, it has not been redeveloped in line with recent developments in attachment theory or its assessment. For example, the IPPA does not attempt to categorise people into attachment styles, nor does it assess their location on the two dimensional space of anxiety and avoidance (Mikulincer & Shaver, 2007). A further issue is that the IPPA has been criticised as focussing on relationship quality, as opposed to attachment per se (i.e., the provision of security, the regulation of distress). Mikulincer and Shaver (2007) report that while the IPPA gives an adequate measure of general insecurity and avoidance it does not capture attachment anxiety very well.

There are further problems with the way both the Parent and Peer scales of the IPPA have been developed. For example, the Parent scale instructs participants to answer each item in reference to their mother *and* father. Where “subjects felt they had a very different relationship with their mother and father, they were instructed to respond ... for the parent who had ‘most influenced’ them” (Armsden & Greenberg, 1987, p. 433). This is problematic in terms of both standardisation and construct validity. For example, some participants may be answering questions in relation to their mother and others in relation to their father. It is further arguable that the parent who had “most influenced them” might be interpreted differently and have very different implications for psychological health. Furthermore, research demonstrates important differences in the nature of maternal and paternal attachment relationships (Cook, 2000; La Guardia et al., 2000; Wilkinson, 2006a).

Armsden and Greenberg (1987) do not provide details of the instructions that proceed the Peer section of the measure. The items are worded in the plural however, such that participants answer items about their “friends”, not a

particular friend. In terms of the Peer scale, the literature suggests that usually it is only the “best-friend” who becomes an attachment figure (Ainsworth, 1989; Trinke & Bartholomew, 1997). Considering this, the Peer scale arguably conflates affiliative and attachment relationships (Wilkinson, 2006b). Attachment relationships specifically relate to dyadic relationships, not group or clique based bonds. Moreover, attachment relationships refer to very specific, particular types of relationships and interactions within these relationships and it is imperative that this be distinguished from affiliative or “enjoyable” interactions and relationships (Mikulincer & Shaver, 2007). This is a further example of the way in which the IPPA may be better conceptualised as a measure of relationship quality rather than a pure measure of attachment relationships.

The psychometric validation of the IPPA highlights a number of faults. With regard to validity considerations, the IPPA was normed on 179 college students aged between 16 and 20, 75% of which lived away from home. The generalisability and applicability of this measure for younger adolescents may be compromised with leaving home a major developmental task for adolescents (Fraley & Davis, 1997; Lapsley, Rice & Fitzgerald, 1990). This is particularly important in reference to strong evidence showing the importance of the individuation process for adolescents, and the critical role that moving out of home plays in rebalancing the importance of various relationships in the adolescent’s world (Nurmi, 2004). This means that the original validation sample for this measure may not be representative of the general adolescent population, for example those who are still at high school and/or living with their parents. Whether the measure is applicable for these younger adolescents has not been addressed in the course of scale development. Notwithstanding this, the IPPA has been shown to predict adolescent adjustment outcomes (Armsden & Greenberg, 1987; Paterson et al., 1994; Wilkinson & Walford, 2001; Wilkinson, 2004).

Chronologically, the IPPA was the first dimensional measure of adolescent attachment to be published that is still frequently used today.

Armsden and Greenberg (1987) report the results of a Principal Components Analysis using Varimax rotation with their validation sample of 179 college undergraduate students. This initial EFA suggested splitting items into parent and peer sections and from this a second EFA was performed on each section. Three factors were obtained (eigenvalue > 1) for both the parent and peer sections with items removed if they loaded poorly on these three factors. A final EFA was run, limiting the number of factors to 3, and this final pattern matrix is published in the 1987 paper. When IPPA items were analysed by Brennan et al. (1998) in their development of another attachment scale, they found that two of the original IPPA subscales loaded negatively on the broad avoidance factor (-.72 for the Communication and Trust subscales); and the third factor, Alienation/Anger, loaded equally (.53) on both avoidance and anxiety, suggesting that attachment anxiety is not measured very well with the IPPA. It is somewhat problematic that short forms of the IPPA have been developed using these EFA developed subscales reported in Armsden and Greenberg (1987) and removing the weakest loading items within each subscale based on their item-total correlations (Nada Raja et al., 1992). This new short form was not subject to any further factor analysis to determine whether the subscales still held together as factors with subsequent samples and populations. The theoretical and methodological shortcomings of the IPPA are such that prominent researchers “do not consider if a measure of internal working models of attachment ... appears to provide a general assessment of the current quality of the parent-adolescent relationship without particular reference to attachment-relevant constructs” (McElhaney et al., 2009, p. 395).

Adult Attachment Interview

The AAI, primarily employed by researchers from the clinical and developmental tradition, offers a conceptualisation of attachment, which, it is argued, differs from self-report measures because it taps the “attachment state of mind”, and “unconscious processes for regulating emotions” (Jacobvitz et al., 2002, p. 208). The AAI was developed with the intention of allowing

researchers to infer the nature of one's childhood relationship with parents and the defences associated with early attachment experiences. The measure was largely validated via predicting a participant's child's behaviour in the Strange Situation; and more recently, longitudinal studies have looked at the Strange Situation in infancy and its correspondence with the AAI in early adulthood (Mikulincer & Shaver, 2007).

Despite its strong association with the developmental/clinical approach to assessing attachment, the use of the AAI is limited by a number of factors including cost, training, and access to the test materials. Use of the AAI requires extensive training and trainees must attend courses at significant cost and in a limited number of countries. Hesse (2008) explains that there are 11 certified AAI trainers worldwide and in order to become certified in the analysis of AAI transcripts, it is necessary to attend an AAI institute with one of these 11 trainers. As a general guide, training courses may run for 15 days, followed by the requirement of coding 20 AAI transcripts with a determined level of reliability. Following the training course, individuals must pass a reliability test in which agreement is met with one of two specific researchers (either Mary Main or Erik Hesse) across 30 transcripts (Hesse, 2008).

For those who have been trained, the measure remains costly with regard to time of administration and interpretation. Each AAI takes approximately one hour to complete with the participant. Following this, "the entire interview, including all comments by both the interviewer and the interviewee, is transcribed verbatim, including (timed) pauses, dysfluencies, and restarts" (Hesse, 2008, p. 554). Further, access to scrutiny of the AAI materials, procedures, and coding is restricted generally to those who have done the training and this limits the opportunity for external evaluation, criticism and improvement of the instrument. For example, it is evident that there are different scoring systems for the AAI (i.e., Q-Sort scoring, Main & Goldwyn scoring system), however the specific nuances of the measure are not available to those who have not completed training in administration of the AAI. Although the interview protocol itself is available online to give

researchers a sense of the measure, this does not substitute for attending training.

The valid use of the AAI with younger adolescents may also be problematic. The scale's authors suggest that it can be used with adolescents as young as 14 or 15 (Main & Goldwyn, 1998) but this guideline clearly limits the measure's applicability for the full range of adolescence. Researchers who have used the AAI with adolescents suggest that the adult version requires modification in order to be suitable for use with adolescents (McElhaney et al., 2009). Results of the AAI with adolescents younger than 14 years old have been published (e.g., Rosenstein & Horowitz, 1996; Wallis & Steele, 2001; West, Adam, Spreng, & Rose, 2001). Sroufe, Egeland, Carlson & Collins (2005) report that in order to complete the AAI, it is assumed that the participant "has matured to the point of stepping outside of one's childhood experience so that perspective taking and a reflective integration are possible" (p. 208). They argue that their results showing higher proportions of dismissing individuals and a lack of continuity between infant attachment and attachment representation are due to the reduced validity of the AAI with younger participants (Sroufe et al., 2005). Other AAI researchers have found a high proportion of dismissing strategies used by adolescents (Ammaniti, van Ijzendoorn, Speranza, & Tambelli, (2000). Ammaniti et al. (2000) suggest that this may be due to the process of separation-individuation active in adolescence. During this process dismissing strategies may be adaptive but may also stabilise during adolescence (Ammaniti et al., 2000).

Thus, adolescents may not have the time and space from childhood to be able to reflect back on their experiences (Kerns et al., 2005). This is particularly the case if they are still living at home with their parents, if they are in disadvantaged contexts with a lack of opportunity to reflect on their relationship with their parents and if they have not begun to form adult relationships (Kobak, Zajac, & Smith, 2009). Kobak et al. (2009) suggest that such adolescents classified as dismissing may "move toward a secure or free to evaluate type of discourse" (p. 849). On a practical note, Kobak et al. (2009)

raise a further difficulty of using the AAI with adolescent participants from the point of view of ethical processes related to disclosure of abuse. Kobak et al. (2009) report being unable to “systematically explore abuse or loss topics that are central to the unresolved classification” (p. 850) due to the ethical requirement of child protection notification for underage participants.

Furthermore, Scharfe (2002) argues that “security” of attachment may be a measurement artefact, such that security as measured by the AAI for example may reflect superior cognitive abilities with secure individuals having verbal skills necessary to elaborate on past events and organisational skills required to reconstruct experiences into a coherent story. In partial support of this contention Scharfe (2002) found a moderate, but non-significant correlation between attachment and cognitive abilities. A central element of the AAI is the coherence of the narrative. Ammaniti et al. (2000) found that indicators of a lack of coherence in adults may be a reflection of a different stage of cognitive development in adolescents. For example, an emphasis on ‘fun’ or ‘activities’ in adulthood may suggest a dismissing category of attachment, however in adolescence this may reflect an adolescent focus on “what they do and how they act with their parents instead of valuing the mental exchange” (Ammaniti et al., 2000, p. 339). While the AAI is a well validated, widely used measure of adult attachment, there is a range of evidence to suggest that the AAI may not be an appropriate tool for the measurement of attachment relationships in adolescence.

Parental Bonding Instrument

The PBI was the third most commonly cited measure of adolescent attachment and the second most cited self-report instrument. Although the IPPA and the AAI were cited much more frequently than any other measure, and there are several other measures cited almost as often as the PBI, this measure is given special consideration in this review. Although the PBI is frequently used for assessing attachment and attachment-related constructs, it is arguable that it is an inappropriate instrument as it has no link to attachment

theory and was not developed as a measure of adolescent attachment (Parker, 1990). The PBI was, in fact, developed “to allow any parental contribution to disorder to be specified and quantified” (Parker, 1990, p. 281).

Although there are clearly links between parental bonding and attachment, and there is most likely some overlap in the phenomena being studied, forwarding the PBI as a measure of attachment minimises the rich theoretical underpinnings of attachment relationship and the specificity of this particular type of close relationship. At *best* it may be considered that parental bonding is one element of one specific type of attachment relationship. A body of research has looked at the links between the PBI and measures of attachment. While a correlation is present, the PBI is not intended to give information about attachment styles or dimensions. A more minor point relating to practical use of the scale is that it is not applicable for the full range of adolescence, as it is intended for use only with those over 16 years of age (Parker, 1990). Despite the above points, the PBI continues to be erroneously recommended as a measure of attachment in reviews of measures (i.e., Garbarino, 1998; Lopez & Gover, 1993) and as evidenced by results of the current review.

General shortcomings of adolescent attachment measures

In reviewing the remaining measures, there are a number of general shortcomings. Firstly, a number of the measures refer to romantic relationships i.e., the Adult Attachment Scale (Collins & Read, 1990), the Experiences in Close Relationships (Brennan et al., 1998), the Relationship Style Questionnaire (Griffin & Bartholomew, 1994b). Although these scales are widely used and validated measures of attachment in adulthood, their validity for adolescents is less certain. The scales were all normed on undergraduate university student or adult samples. Items in all three scales vary in terms of the attachment figure referred to. Some items refer to ‘others’, some refer to ‘people’, some refer to ‘love partners’ and some to ‘partners’. In discussing the results and implications of their studies, the authors of the AAS, the ECR and the RSQ appear to conflate the measurement of a general attachment style/orientation

and a romantic attachment style/orientation. Evidence for the validity of these measures focus primarily on romantic relationships i.e., in the case of the AAS, use of the Love Attitudes Scale, a couple design where both members of a dating relationship completed paired questionnaires (Collins & Read, 1990). Romantic attachment style is not applicable to the full range of adolescence. It would be inappropriate to administer a questionnaire referring to 'romantic partners' or 'love partners' to 12 and 13 year olds for example.

Secondly, a number of the measures were not developed from the perspective of attachment theory i.e., PBI, Network of Relationships Inventory (Furman & Buhrmester, 1985), Brook Attachment Scale (Brook, Whiteman, Finch & Cohen, 1998). As explained in Chapter Two, attachment theory pertains to a specific element of close relationships and concentrates on very particular aspects of behaviour, cognition and emotion in respect to close others. The PBI and the NRI conflate aspects of relationship quality and sociability/social networks respectively. In developing the Brook Attachment Scale, the authors clearly differentiate their construct of "mutual attachment relationship" from the "term attachment as used by some attachment theorists", explaining that they are instead measuring "the quality of the parent-child interaction" (Brook et al., 1998, p. 494). Such measures may be useful for their particular purposes and their psychometric properties are not questionable per se, however it is doubtful that they measure the attachment behavioural system.

Thirdly, a number of the measures are categorical i.e., Attachment Prototypes (Hazan & Shaver, 1987), Relationships Questionnaire (Bartholomew & Horowitz, 1991), Attachment Questionnaire - Children (Muris, Meesters, van Melick, & Zwambag, 2001). Such measures are very popular in the adult attachment literature generally, as well as within the area of adolescent attachment. Though efficient to administer, categorical measurements of attachment have demonstrated limitations with regard to reliability, particularly when participants are instructed to identify one attachment style as a forced choice (Feeney et al., 1994). More broadly speaking, categorical measures may be particularly susceptible to the philosophical problem of

reification. Relatively common in psychology, reification is the tendency to “mistake as things entities which are not things” (Eacker, 1972, p. 557). Griffin and Bartholomew (1994b, p. 22) explain that “it is a fundamentally different view of human nature to postulate different kinds of people than it is to think of people varying along underlying dimensions”.

Fourthly, some of the most frequently used measures were developed for specific purposes and are not relevant or applicable for the full range of adolescence, i.e., Parental Attachment Questionnaire (Kenny, 1987). The PAQ was developed specifically to study late adolescents making the transition from living at home to living at college. The subscales are designed to measure aspects of this separation and transition; it is normed with this specific population and it is validated using dating competency as an outcome (Kenny, 1987). Thus, the PAQ is largely unsuitable for younger school-aged adolescents.

Additional review of adult attachment measures

Two further measures of attachment will be reviewed. The ASQ and ECR have been selected for review in this section due to their influence on the adult attachment literature and the attachment literature more broadly in terms of how attachment is conceptualised and measured. Both are multi-item self-report measures of attachment relationships and are frequently cited in the adult and adolescent literature.

Attachment Style Questionnaire

Feeney, Noller, & Hanrahan (1994) developed the ASQ for populations for whom attachment to a romantic partner may not be relevant. The ASQ measures general attachment orientation. Feeney (1994) describes the fragmentation in the literature regarding the use of categorical and continuous measures and disagreement about the number of attachment styles/dimensions and developed the ASQ from ‘scratch’ in response to this. The ASQ started with 65 items administered to 470 university students and the authors found

three and five factor solutions using Principal Components Analysis with orthogonal rotation. Cluster analysis is then reported to determine if distinct clusters of individuals could be identified using the scales of the ASQ and their accordance with attachment theory. This analysis resulted in four clear clusters, consistent with Bartholomew's (1990) model. Feeney et al. (1994) argue that the five-factor model found in the ASQ gives a "clearer and more stable delineation of the various attachment groups" (p. 145).

The ASQ offers a psychometrically sound measure of general attachment orientations for adolescents and young adults. In the context of adolescent attachment, the measure does not allow for the measurement of attachment networks, hierarchy and transfer; nor does it allow for the measurement of attachment to mother, father or best friend which are crucial for adolescent attachment. As discussed in Chapters Two and Three, intra-individual differences in attachment styles during adolescence have unique and distinct influences on aspects of psychological health.

Experiences in Close Relationships

Brennan, Clark and Shaver (1998) developed the ECR by factor analysing all non-redundant items from self-report measures created by the late 1990s (323 items) using a sample of 1086 undergraduate students. An initial Principal Components Analysis with oblique rotation produced two major factors. The two factors were relatively uncorrelated at .12 and were labelled attachment anxiety and attachment avoidance. Two subscales were created by selecting 18 items for each scale with the highest absolute-value correlations with the two higher-order factors. Brennan et al. (1998) performed cluster analysis on the two higher-order factors (these factors were referred to as 'higher-order' as the original PCA grouped items into the subscales from their original measures).

Fraley et al. (2000) present a modification of the ECR using item response theory analysis in order to test the ability of various items to discriminate with equal sensitivity across the range of responses. The new and old scales correlate at .95 suggesting that the modified ECR (ECR-R) is not markedly

different from the original version. Furthermore, Mikulincer and Shaver (2006) suggest that in the ECR-R, the anxiety and avoidance subscales correlate slightly more with each other, with no gain in validity; and that some of the newer items are poorly worded.

The ECR is the gold standard for measuring the two dimensional anxiety/avoidance model of adult attachment. The scale was specifically developed to measure adult attachment in the context of romantic attachment relationships “where necessary, we adapted item wording to emphasise romantic relationships (our own special interest) rather than all close relationships” (Brennan et al., 1998, p. 52). The authors validated the initial scale with two additional self-report measures, intimate touch and romantic sexuality. The assumption that the two dimensional anxiety/avoidance model of attachment is generalisable outside of adult romantic relationships has gone largely unquestioned. Considering that a hallmark of romantic love is the integration of the attachment, caregiving and sexual behavioural systems (Brennan et al., 1998; Mikulincer & Goodman, 2006), it is legitimately open to discussion whether other attachment relationships that do not implicate the sexual behavioural system would have the same underlying dimensions. Indeed Dinero Conger, Shaver, Widaman, & Larsen-Rife (2008) argue that “the hypothesised origins of self-reported romantic attachment styles in previous relationships with parents have largely been taken on faith rather than been empirically tested” (p. 623).

In developing the ECR and defining the two-dimensional space, Brennan et al. (1998) define secure individuals as “infants and adults who are neither anxious about abandonment nor avoidant in their behaviour” (Brennan et al., 1998, p. 49). Thus, security is defined negatively as the absence of anxiety and the absence of avoidance. In contrast to this, Bartholomew’s conceptualisation of security in their model of self and other is defined positively as those individuals “comfortable with intimacy and autonomy” (Brennan et al., 1998, p. 49). Whether these two definitions correspond is debatable. It is a long standing criticism of the ECR that the measure loses a degree of sensitivity and

specificity for those individuals with low anxiety and low avoidance (Mikulincer & Shaver, 2006).

Possible methodological limitations and conclusion

The practicalities of conducting this review mean that there are a number of limitations that need to be considered. The current review is limited to published data, written in English, and indexed in peer-reviewed journals. Further, due to resource constraints, only one database, PsychInfo, was searched. Given that this database is the major indexing source for publications in this field, this is not considered to be a major limitation.

There are many existing measures of attachment used in adolescence. This review offers a snapshot of current research practice in the area of measuring adolescent attachment relationships. A number of challenges remain however; primarily, the observation that there is a disparity between the attachment theory literature and the measurement tools being used by researchers. It is clear that the current most widely used instruments have significant limitations, particularly in relation to their theoretical and practical utility. In order to develop a psychometrically sound, theoretically coherent measure of adolescent attachment it is imperative to have a good understanding of the current literature and theory. Researchers should be aware of the depth of attachment theory and its contemporary developments and incorporate these details into empirical work.

Necessary conditions for a new measure of adolescent attachment relationships

Mikulincer & Shaver (2007) suggest that new and improved measures of attachment relationships are needed, and that “probably many of the landmark studies will need to be repeated, in improved forms, when new and better attachment measures are developed” (p. 115). It is arguable that this is particularly so for adolescents considering the aforementioned need for special consideration when researching this developmental period. Thus, what would a “new and better” attachment measure encompass? The following section

outlines proposed necessary conditions for a psychometrically sound, theoretically coherent measure of adolescent attachment in light of the preceding critical review and attachment literature more generally.

Key dimensions

The first necessary condition is the measurement of key dimensions of attachment relationships. In line with current theoretical conceptualisations of attachment, a measure of adolescent attachment should include items tapping the dimensions of anxiety and avoidance (Brennan et al., 1998) and models of the self and other (Bartholomew, 1994; Bartholomew & Horowitz, 1991). Shaver and Mikulincer (2002) argue that these key dimensions map onto Ainsworth's discriminant function analysis of infant-mother attachment. Additionally, some evidence remains for three category formulations of attachment, in line with Hazan and Shaver (1987), namely secure, anxious and avoidant styles. It is evident in the systematic review that none of the most frequently cited measures attempt to cover these key dimensions outlined in attachment theory. Those measures that do incorporate key dimensions were not developed for use with adolescents i.e., they measure adult romantic relationships.

General and specific relationships

The second necessary condition is the measurement of attachment at both general and specific relationship levels. It is apparent that attachment is multi-faceted and it is evident from the literature that individuals have a global attachment style, as well as variation in attachment style across specific relationships (Collins & Read, 1990; Cozzarelli, Hoekstra, & Bylsma 2000; Kerns & Stevens, 1996; LaGuardia et al., 2000; Mikulincer & Shaver, 2007; Rowe & Carnelley, 2005). The assessment of attachment at both general and specific levels allows for a determination of the relative ability of each to predict different behavioural and psychosocial outcomes (Kerns & Stevens, 1996; Pietromonaco & Barrett, 2000; Shaver & Mikulincer, 2002b). It also allows

research questions concerning specific relationships to be addressed, and to give a more accurate measure of individual differences in attachment. While this issue is by no means unique to adolescent attachment, the active nature of attachment transfer during adolescence highlights these intra-individual differences in attachment between different attachment figures.

Some authors argue that measurement of both general and specific attachment models is not necessary. For example, McElhaney et al. (2009) argue that “assessment[s] tend to focus on adolescents’ overarching attachment models, and such methods supersede an examination of relationships with each parent separately” (McElhaney et al., 2009, p. 390). There is a large body of literature opposing this view however. An overall finding shared by existing research in this area is that general/global and specific attachment models of self and other are correlated but not redundant, ‘distinct, yet related’ (Furman, Simon, Shaffer, & Bouchey, 2002, p. 241). It remains important to measure both global and specific models of attachment due to the observation that global models are more than the sum of a number of specific models (Pierce & Lydon, 2001; Ross & Spinner, 2001). It is arguable that these findings are commensurate with common sense, as argued by Hendrick and Hendrick (1994), that many find it difficult to believe “the way the infant attaches at one year of age mostly determines the way the adult attaches at age 21” (Hendrick & Hendrick, 1994, p. 39). Similarly, it is important to remain cognisant of one of the key claims made by attachment theory, that the attachment bond to any given person is “individual” and “not interchangeable” (Cassidy, 2008). Kerns and Stevens (1996) highlight the disconnection between the infant/child and adult attachment literature where research early in life has “examined the predictive significance of the qualities of particular attachments” (Kerns & Stevens, 1996, p. 324), where the adult literature concentrates more on general feelings and beliefs independent of specific close relationships.

There are a number of key shortcomings in existing research investigating general and specific attachment relationships. The majority of studies in this area (i.e., Cozzarelli et al., 2000; Klohnen, Weller, Luo, & Chloe,

2005; Pierce & Lydon, 2001; Ross & Spinner, 2001) use categorical measures, reworded for different relationships i.e., Hazan and Shaver (1987) three-category measure or Bartholomew and Horowitz's (1991) Relationships Questionnaire. There are unique aspects of various types of attachment bonds which are not considered when this approach is used. For example, elements of physical intimacy or the sexual relationship for romantic bonds; elements of caregiving present in the maternal or paternal relationship which are not applicable to best friendships. There is no capability for factor analysis or for tailoring item content to the various relationships. It has been a complex and somewhat neglected area of the literature with regard to establishing the validity of various RQ versions relating to mother, father, best friend, romantic partner etc. in relation to and distinct from the original general RQ.

Furthermore, of relevance to the current research, almost all studies addressing this particular research question use undergraduate university student samples (Cozzarelli et al., 2000; Pierce & Lydon, 2001; Ross & Spinner, 2001). It is unclear how younger high-school aged adolescents might be similar or different to older university aged individuals. Considering the active nature of attachment transfer during adolescence, it is unclear how accurate it would be to simply extrapolate findings across age groups. An accurate measure of attachment relationships should have some mechanism for identifying within-person differences, and the characteristics of specific attachment bonds; as well as the global categorical or prototypical attachment style endorsed by an individual.

Self-report

A third necessary condition is the assumption that self-report measures of attachment can give a valid representation of the construct. A key controversy within the attachment literature has been disagreement as to whether attachment can be appropriately and accurately measured using self-report. For example, researchers from the clinical and developmental tradition assert that because self-report measures are based on conscious, deliberate

responses, they are “probably limited to accessing conscious aspects of attachment” (Jacobvitz et al., 2002). This is problematic considering that internal working models are thought to be at least partially unconscious (Collins & Read, 1990). In response to this, research has demonstrated that self-report offers accurate reflection of the individual’s behaviour in attachment-related situations (Shaver & Mikulincer, 2002).

The attachment behavioural system includes various components, for example, behaviour, cognition and emotion. Adolescent attachment is less likely to be sought through direct physical contact with an attachment figure, but rather by expressing feelings and concerns to the attachment figure when needed (Zimmerman & Becker-Stoll, 2002). Throughout adolescence, Buist, Dekovic, Meeus, and van Aken (2004) suggest that the affective-cognitive component of attachment (i.e., internal working models) remain relatively stable, however the behavioural dimension of attachment is subject to change due to developmental maturation. Therefore, the affective-cognitive aspect of attachment, measured via self-report, may offer better prediction of adolescent functioning compared with the behavioural component (Buist et al., 2004; Zimmerman & Becker-Stoll, 2002). Research results demonstrate that self-report measures show theoretically predictable relationships with various other constructs, as well as implicit, unconscious processes (Shaver, Belsky, & Brennan, 2000). Freeman and Brown (2001) suggest that adolescent perceptions are valid representations of their own experience regardless of whether they accurately represent actual behaviours.

Due to the fact that there are a myriad of methods for assessing attachment, researchers need to be guided by the particular research questions being addressed (Mikulincer & Shaver, 2007). For example, there are important “domain differences” between measures such as the AAI (focussing on unconscious representations of the family of origin) and some self-report measures (which focus on romantic relationships) (Bartholomew & Shaver, 1998).

It is evident that a large body of both theoretical and empirical evidence attests to the validity of self-report measures of attachment. Whilst there will likely remain two sides to this debate into the future it is necessary for researchers to take a side on this debate *a priori* and further support this decision psychometrically in the course of scale development. For the purposes of this discussion it is argued criticisms of self-report do not negate its utility; however it provides important guidelines for the establishment of the validity of self-report measures. As internal working models may operate partially outside of conscious awareness, measurement will most likely require a multi-method design including such methods as in-depth interviews, analysis of problem-solving styles, simulated interactions, and social perception tasks, to reveal these models (Collins & Read, 1990).

Networks, transfer and hierarchies

A fourth necessary condition is that a measure of adolescent attachment should accommodate the constructs of *attachment networks, transfer and hierarchies*. These constructs are particularly important in the measurement of adolescent attachment. Individuals form attachment relationships with many different types of people and most people endorse more than one attachment style in these relationships (Ross & Spinner, 2001). An individual's attachment style with one parent does not necessarily predict their attachment style with the other parent (Cozzarelli et al., 2000). The number of attachment figures and possible relationship domains available (i.e., romantic relationships) changes over lifespan, such that "different types of relationships should fulfil different attachment needs and therefore should be linked to different attachment concerns and expectations" (Overall, Fletcher, & Friesen 2003, p. 1480).

New relationships and changes in the attachment network can alter how attachment styles are reported, as highlighted by the obvious example of past and present romantic partners (Overall et al., 2003). There is a degree of complexity both between the general and specific models but also within the specific relationship domains. Individuals may hold variable models between

specific relationship partners, even within the same relationship category i.e., between different friends (Pierce & Lydon, 2001).

When measuring attachment in adolescence, scales should be sensitive to research results suggesting within-person variation in attachment style between relationships and over time. Such a measure provides a good account of an individual's attachment network at any point in time, as well as being able to track attachment transfer if administered at different points in time. In addressing this necessary condition questions such as: how are different attachment models related? Which models should be measured? Which have the best predictive power? Can they be used interchangeably? How are the models organised? (Klohn et al., 2005), should be addressed. Such questions shed light on methodological considerations regarding how attachment is assessed and elements of the cognitive structure and processes regarding attachment formation, networks, hierarchies and transfer.

There are many existing measures of attachment used in adolescence. A number of challenges remain however; primarily, the observation that there is a disparity between the attachment theory literature and the measurement tools being used by researchers. The necessary conditions formulated in this section offer direction for the development of new measures of adolescent attachment relationships, informed by the preceding theoretical discussion and quantitative review.

Conclusion

This chapter details elements often used in the measurement of adolescent attachment, as well as the psychometric validation of new measurement tools. The emerging literature indicates this increasingly researched area is complex with regard to how attachment is defined, operationalised, and measured. It is hoped this review provides some organisation around this body of literature and some direction for future research. The necessary conditions formulated in this chapter offer direction for the development of a new measure of adolescent attachment relationships,

informed by the preceding theoretical discussion and quantitative review. No existing measure in the adolescent attachment literature meets all of these necessary conditions. The development of a new measure of attachment in adolescence will be outlined in Chapter Five.

CHAPTER FIVE

A NEW MEASURE OF ATTACHMENT IN ADOLESCENCE

Introduction

The validation strategy for a new measure of adolescent attachment in this thesis is explained. The development and validation of this measure is guided by a set of necessary conditions for measuring adolescent attachment, formulated following the review of existing measures in the previous chapter. This chapter commences with an outline of how the Domains of Adolescent Attachment Scale (DAAS) was conceptualised and the development process aimed at face and content validity. The process for selecting items is explained and the items are presented. Following this, the validation strategy is outlined in detail. In general terms, the validation strategy includes statistical and psychometric validation; convergent and discriminant validation; and multi-method validation.

Conceptualisation of a new measure of adolescent attachment

The DAAS is a new measure of adolescent attachment. Following a discussion of the measurement of attachment in adolescence and the foregoing review, this section contains details of a new measure of adolescent attachment relationships.

The DAAS utilises a self-report questionnaire format. It is axiomatic that there are many methods suitable for measuring adolescent attachment, each with requisite strengths and weaknesses. Self-report has particular advantages for the type of measure being developed. It is efficient in terms of time taken to administer and score, applicable in a clinical setting, has a low demand on participants, and is economical. In this sense, while a number of alternative methodologies could be implemented, this is the preference for the current context.

The DAAS has been developed independent of the construct of romantic relationships. As evident in Chapters Two and Four, aspects of the adult

romantic attachment literature have become absorbed into the attachment literature generally, often without empirical testing. Considering the age range at which the DAAS is targeted, this is an important aspect of validity.

Coupled with the development of the DAAS independent of romantic relationships, the measure includes the capacity to retrieve a two- or three-dimensional model of attachment. A number of researchers continue to find three, four or five factor models of various attachment bonds (i.e., Carver, 1997, Chotai et al., 2005, Feeney et al., 1994, Torquati & Raffaelli, 2004, Torquati & Vazonyi, 1999). This suggests that the increasingly ubiquitous two-dimensional anxiety/avoidance model of attachment should not be considered to be necessarily universal across developmental stages or relationship domains.

Security of attachment is explicitly measured in the DAAS. Secure items are included in the initial version of the item tested with adolescents. While some researchers have moved away from expressly measuring security, for example when using the ECR, instead measuring a lack of anxiety and a lack of avoidance, literature on adolescent attachment and the link to psychological health suggests that this remains a salient part of attachment bonds. In conceptualising the DAAS as a measure with advantages and utility for clinicians and researchers alike, the DAAS will be validated against a range of psychological adjustment outcome variables.

Related to the notion of psychological adjustment, the review of attachment in adolescence (see Chapter Three) clearly highlights the distinct yet related contributions of specific attachment figures in the attachment network of adolescents. These specific attachment bonds predict elements of psychological health and each make a contribution to the nature of attachment in adolescence. Specific attachment bonds are related to general attachment orientations or working models related to self and others more broadly. As explained in Chapter Four, the measurement of both specific and general elements of adolescent attachment is a guiding objective of the DAAS.

Development and content validation

The DAAS has four independent sections: general attachment orientation, attachment to mother, father, and best friend. This is to measure a global attachment style, and attachment to the theorised three primary attachment figures in an adolescent's attachment network. It is argued that due to differing attachment styles between these primary relationships, it is most informative to measure these separately, in order to determine their relative contributions towards psychological adjustment and in order to be maximally informative where the scale is used in a clinical setting.

Initially, a broad item pool was developed. Items were selected from a bank of 599 items from 19 existing attachment scales. Face validity was sought in clearly describing elements of the various attachment bonds following the literature review and tailoring the items for an adolescent sample. Items were canvassed from a broad range of attachment measures and scales in order to ensure content validity, "the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct" (Haynes, Richard & Kubany, 1995, p. 238). Therefore, the items sample from all the major dimensions/factors identified in the literature (see Chapter Two) including anxiety, avoidance, models of self, models of other, security. In determining the format and length of the DAAS, 16 items were selected for each of the main dimensions: anxiety, avoidance, and security; for each of the four sections of the DAAS. Thus, the initial version of the DAAS included four sections of 48 items each.

This initial item bank was scrutinised by the researcher and supervisor. It was apparent that many of the six hundred original items were duplications or very similarly worded. After these duplicate items were removed items were grouped according to their section i.e., general attachment, best friend etc., and their subscales i.e., all secure items together. Items were reworded or shortened in order to make them as succinct and clear as possible. Each section of the DAAS was developed independently in order to stand alone. Items were taken from scales measuring various elements of attachment and reworded for

particular relationships where necessary. Thus, with the exception of the mother and father sections, the items in each section are different¹. When inspecting items it became apparent quickly that items that are appropriate for a best friend attachment are not appropriate for father attachment for example. An item such as "I'm worried that once my best friend gets to know me they won't like who I really am" is appropriate, however "I'm worried that once my father gets to know me he won't like who I really am" does not make sense in the same way due to differences in the nature of the adolescent-best friend relationship and the adolescent-father relationship. Researchers have found similar issues when adapting general or romantic partner attachment scales for mother/father attachment (Kerns & Stevens, 1996), further highlighting the potential problems of simply rewording existing scales for a range of relationship domains.

The response format is a 5-point Likert scale. In reviewing existing measures, the most common response formats are 3-, 5-, and 7-point scales. 7-point scales are more commonly used with adult populations (i.e., for the ECR; Brennan et al., 1998); with 3-point scales more commonly used with younger populations (i.e., for the IPPA-R; Gullone & Robinson, 2005). The 5-point scale is the most used scale for adolescents. A number of scale labels are utilised i.e., almost always or always true to almost never or never true; very untrue to very true; not at all characteristic to very characteristic; disagree strongly to agree strongly; not at all to very much. The following scale labels were chosen for the DAAS: Not at all, Somewhat, A moderate amount, Quite a bit, Very much.

The condensed list of items was pilot tested with three adolescents. Items were pilot tested to explore the item wording, ease of understanding and the way in which the adolescent would read and answer each item. The

¹ In the development of existing attachment measures, general attachment has been developed independently (i.e., Feeney et al., 1994), best friend attachment has been developed independently (i.e., Wilkinson, 2007), however maternal/paternal or parental attachment has always been developed together (i.e., Armsden & Greenberg, 1987; Kenny, 1987). There was no clear rationale for developing different items for the mother and father sections.

adolescents were asked to circle any words on the questionnaire they did not understand, any statements which did not make sense or that were confusing. Examples of rewording include changing the word 'anxious' to 'worried'; replacing the word 'ashamed' with 'silly'; to aid in ease of comprehension. Contractions i.e., 'don't' instead of 'do not' were used to aid in readability and in keeping items short. Tables 5.1 to 5.4 include the original source, any modifications made and the original subscale loading for each item for the four sections of the DAAS.

Table 5.1.

DAAS General Section: Items from original source

Reworded Item	Original	Scale	Original Scale	Original Subscale
1. I worry a lot about my relationships	I worry a lot about my relationships	Anx	ECR	Anxiety
2. I worry about being alone	I worry about being alone	Anx	ECR	Anxiety
3. I don't worry about being abandoned	I do not often worry about being abandoned	Anx	ECR-R	Anxiety
4. I often feel left out or alone	I often feel left out or alone	Anx	ASQ	Preoccupation
5. It's very important to me to have a close relationship	It's very important to me to have a close relationship	Anx	ASQ	Preoccupation
6. Other people often disappoint me	Other people often disappoint me	Anx	ASQ	Preoccupation
7. I often want to get closer to others than they want to get to me	I often want to get closer to others than they want to get to me	Anx	ASS	Preoccupied
8. Even though I know others will hurt my feelings I keep going back to them for help	Even though I know he/she will hurt my feelings, I keep going back to him/her for help	Anx	PAQ	Preoccupied (Ambivalence)
9. I want to feel close to others but I also feel worried about it	I want to feel close to him/her, but I also feel uneasy about it	Anx	PAQ	Preoccupied (Ambivalence)

Table 5.1. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
10. I will do anything to stop others from leaving me	I will do anything to prevent him/her from leaving me	Anx	PAQ	Preoccupied (Coercive Behaviour)
11. Sometimes I have to make others show that I'm special to them	Sometimes I have to force him/her to show more commitment to me	Anx	PAQ	Preoccupied (Coercive Behaviour)
12. Being with others when I am upset makes me more confused	Being with him/her when I am upset makes me more confused	Anx	PAQ	Preoccupied (Let Down and Disappointment)
13. I am not sure that I can always depend on others to be there for me	I am not sure that I can always depend on others to be there when I need them	Anx	ASS	Fearful
14. I get worried when people close to me are away	I get anxious when people close to me are away	Anx	VASQ	Proximity Seeking
15. I worry that I will be hurt if I get too close to others	I worry that I will be hurt if I allow myself to become too close to others	Anx	ASS	Secure
16. When I talk over my problems with others, I feel silly	When I talk over my problems with others, I generally feel ashamed or foolish	Anx	ASQ	Need for Approval
17. I feel like no one understands me	I feel that no one understands me	Av	IPPA	Alienation
18. I find it hard to count on others	I find it hard to count on others	Av	ARSQ	Fearful
19. I find it difficult to trust others	I find it difficult to trust others	Av	ARSQ	Fearful

Table 5.1. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
20. I find it hard to tell others private things	I find it difficult to confide in people	Av	VASQ	Insecure
21. People close to me often annoy me	People close to me often get on my nerves	Av	VASQ	Insecure
22. People let me down a lot	People let me down a lot	Av	VASQ	Insecure
23. I find it hard to depend on others	I find it difficult to depend on others	Av	ASQ	Discomfort
24. I like to keep to myself	I prefer to keep to myself	Av	ASQ	Discomfort
25. I worry about people getting too close	I worry about people getting too close	Av	ASQ	Discomfort
26. I choose not to depend on people	I prefer not to depend on people	Av	ARSQ	Dismissing
27. I don't give others the chance to let me down	I don't give him/her the chance to let me down	Av	PAQ	Dismissing (Avoidance of Closeness)
28. I like to keep distance between myself and others	I prefer to keep some distance between us	Av	PAQ	Dismissing (Avoidance of Closeness)
29. I don't need others, I take care of myself	I don't need him/her, I take care of myself	Av	PAQ	Dismissing (Independence)
30. I can get along just fine without other people	I can get along just fine without him/her	Av	PAQ	Dismissing (Indifference)

Table 5.1. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
31. I look forward to spending time on my own	I look forward to spending time on my own	Av	VASQ	Proximity Seeking*
32. I am too busy with other things to put much time into relationships	I am too busy with other activities to put much time into relationships	Av	ASQ	Relationships as Secondary
33. I am comfortable having other people depend on me	I am comfortable having other people depend on me	Sec	ARSQ	Secure
34. When I am sick, I am comfortable depending on another person	When I am sick, I am comfortable depending on him/her	Sec	PAQ	Secure (Availability and Dependability)
35. Other people can comfort me when I am upset	He/she is able to comfort me when I am distressed	Sec	PAQ	Secure (Effective Comforting)
36. When people close to me are away, I feel better just thinking about our relationship	When he/she is away for a few days, I take comfort in just thinking about our relationship	Sec	PAQ	Secure (Effective Comforting)
37. When I am hurting, talking to another person makes me feel better	When I am hurting, talking to him/her makes me feel better	Sec	PAQ	Secure (Effective Comforting)
38. I feel safe when I am with people I'm close to	I feel safe when I am with him/her	Sec	PAQ	Secure (Feeling of Safety)

Table 5.1. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
39. I like it when others get emotionally close to me	I like it when he/she gets emotionally close to me	Sec	PAQ	Secure (Sense of Closeness)
40. I am very comfortable being close to others	I am very comfortable being close to others	Sec	MAQ	Security*
41. When I'm close to someone it makes me feel better about life in general	When I'm close to someone it gives me a sense of comfort about life in general	Sec	MAQ	Security
42. Being close to someone makes me feel confident about doing other things	Being close to someone gives me a source of strength for other activities	Sec	MAQ	Security
43. I feel sure other people will be there for me when I need them	I feel confident that other people will be there for me when I need them	Sec	ASQ	Confidence
44. I feel good knowing that other people cares about me	I feel good knowing that other people cares about me	Sec	PAQ	Secure (Availability and Dependability)
45. I am confident that others will really understand my feelings	I am confident that others will really understand my feelings	Sec	PAQ	Secure (Availability and Dependability)
46. I rely on others to help me make decisions	I rely on others to help me make decisions	Sec	VASQ	Proximity Seeking

Table 5.1. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
47. I am easier to get to know than most people	I am easier to get to know than most people	Sec	ASQ	Confidence
48. I worry about having people not accept me	I worry about having people not accept me	Sec*	ARSQ	Secure

Table 5.2.

DAAS Maternal Section: Items from original source

Reworded Item	Item	Scale	Original Scale	Original Subscale
1. I get annoyed if my mother is not around when I need her	I get frustrated if romantic partners are not available when I need them	Anx	ECR	Anxiety
2. I need a lot of reminding that I am loved by my mother	I need a lot of reassurance that I am loved by my partner	Anx	ECR	Anxiety
3. I don't like it when my mother spends time away from me	I resent it when my partner spends time away from me	Anx	ECR	Anxiety
4. I often worry that my mother doesn't really love me	I often worry that my partner doesn't really love me	Anx	ECR-R	Anxiety

Table 5.2. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
5. If my mother doesn't show interest in me, I get upset or angry	If I can't get my partner to show interest in me, I get upset or angry	Anx	ECR	Anxiety
6. My mother only seems to notice me when I'm angry	My partner only seems to notice me when I'm angry	Anx	ECR-R	Anxiety
7. My mother makes me doubt myself	My romantic partner makes me doubt myself	Anx	ECR-R	Anxiety
8. Sometimes my mother changes her feelings about me and I can't tell why	Sometimes romantic partners change their feelings about me for no apparent reason	Anx	ECR-R	Anxiety
9. When my mother gets cross with me, I feel really bad about myself	When romantic partners disapprove of me, I feel really bad about myself	Anx	ECR	Anxiety
10. I find it hard to let myself to depend on my mother	I find it difficult to allow myself to depend on romantic partners	Anx	ECR-R	Avoidance
11. I want to get close to my mother, but I keep pulling back	I want to get close to my partner, but I keep pulling back	Anx	ECR	Avoidance
12. I often feel angry with my mother and I don't know why	I often feel angry with my mother without knowing why	Anx	AAQ	Angry Distress
13. I wish I had a different mother	I wish I had a different mother	Anx	IPPA	Trust

Table 5.2. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
14. When I go to my mother for help I still feel confused	When I go to my mother for help I continue to feel unsure of myself	Anx	PRQ	Affective quality of relationships*
15. My mother treats me like a younger child	In general, my mother treats me like a younger child	Anx	PRQ	Parents as facilitators of independence *
16. My mother has her own problems, so I don't bother her with mine	My mother has her own problems, so I don't bother her with mine	Anx	IPPA	Alienation
17. I don't show my mother how I feel deep down	I prefer not to show a partner how I feel deep down	Av	ECR-R	Avoidance
18. I try to stop getting too close to my mother	I try to avoid getting too close to my partner	Av	ECR	Avoidance
19. Just when my mother starts to get close to me I find myself pulling away	Just when my partner starts to get close to me I find myself pulling away	Av	ECR	Avoidance
20. I get upset a lot more than my mother knows about	I get upset a lot more than my mother knows about	Av	IPPA	Alienation
21. I tell my mother just about everything	I tell my partner just about everything*	Av*	ECR-R	Avoidance*
22. I usually discuss my problems and worries with my mother	I usually discuss my problems and concerns with my partner*	Av*	ECR-R	Avoidance*

Table 5.2. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
23. I don't mind asking my mother for comfort or help	I don't mind asking romantic partners for comfort, advice, or help*	Av*	ECR	Avoidance*
24. I feel comfortable depending on my mother	I feel comfortable depending on romantic partners*	Av*	ECR-R	Avoidance*
25. It helps to turn to my mother in times of need	It helps to turn to my romantic partner in times of need*	Av*	ECR-R	Avoidance*
26. It's not hard for me to get close to my mother	It's not difficult for me to get close to my partner	Av*	ECR-R	Avoidance*
27. My mother really understands me and my needs	My partner really understands me and my needs	Av*	ECR-R	Avoidance*
28. I talk things over with my mother	I talk things over with my partner	Av*	ECR-R	Avoidance
29. I don't feel comfortable opening up to my mother	I don't feel comfortable opening up to romantic partners	Av	ECR-R	Avoidance
30. My mother has no idea what I am feeling or thinking	In general, my mother has no idea what I am feeling or thinking*	Av	PRQ	Affective quality of relationships
31. I find it hard to trust my mother	I find it difficult to trust others completely*	Av	AAS	Depend (Avoidant)

Table 5.2. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
32. My mother is never there when I need her	People are never there when you need them*	Av	AAS	Depend (Avoidant)
33. I'm sure that my mother will listen to me	I'm confident that my mother will listen to me	Sec	AAQ	Availability *
34. I'm sure that my mother will try to understand my feelings	I'm confident that my mother will try to understand of feelings	Sec	AAQ	Availability *
35. My mother helps me to understand myself better	My mother helps me to understand myself better	Sec	IPPA	Communication
36. My mother can tell when I'm upset about something	My mother senses when I'm upset about something	Sec	IPPA	Communication
37. My mother encourages me to talk about my problems	My mothers encourage me to talk about my difficulties	Sec	IPPA	Communication
38. My mother has trust and confidence in me	In general, my mother has trust and confidence in me	Sec	PRQ	Parents as facilitators of independence
39. My mother is around to give me advice or help when I want it	In general, my mother is available to give me advice or guidance when I want it	Sec	PRQ	Parents as source of support

Table 5.2. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
40. My mother protects me from danger and trouble	In general, my mother protects me from danger and difficulty	Sec	PRQ	Parents as source of support
41. When I go to my mother for help I feel like I will be able to handle the problems myself	When I go to my mother for help I feel more confident in my ability to handle the problems on my own	Sec	PRQ	Parents as source of support
42. I talk to my mother when I am having a problem	I talk to my mother when I am having a problem	Sec	PIML	Positive representation of Parents
43. My mother cares about me	My mother cares about me	Sec	PIML	Positive representation of Parents
44. My mother pays attention to me	My mother pays attention to me	Sec	PIML	Positive representation of Parents
45. I trust my mother	I trust my mother	Sec	IPPA	Trust
46. My mother accepts me as I am	My mother accepts me as I am	Sec	IPPA	Trust
47. My mother is sensitive to my feelings and needs	In general, my mother is sensitive to my feelings and needs	Sec	PRQ	Affective quality of relationships
48. It makes me feel good to be able to do things for my mother	It makes me feel good to be able to do things for my mother	Sec	AAQ	Goal-Corrected Partnership *

Table 5.3.

DAAS Paternal Section: Items from original source

Reworded Item	Item	Scale	Original Scale	Original Subscale
1. I get annoyed if my father is not around when I need him	I get frustrated if romantic partners are not available when I need them	Anx	ECR	Anxiety
2. I need a lot of reminding that I am loved by my father	I need a lot of reassurance that I am loved by my partner	Anx	ECR	Anxiety
3. I don't like it when my father spends time away from me	I resent it when my partner spends time away from me	Anx	ECR	Anxiety
4. I often worry that my father doesn't really love me	I often worry that my partner doesn't really love me	Anx	ECR-R	Anxiety
5. If my father doesn't show interest in me, I get upset or angry	If I can't get my partner to show interest in me, I get upset or angry	Anx	ECR	Anxiety
6. My father only seems to notice me when I'm angry	My partner only seems to notice me when I'm angry	Anx	ECR-R	Anxiety
7. My father makes me doubt myself	My romantic partner makes me doubt myself	Anx	ECR-R	Anxiety
8. Sometimes my father changes his feelings about me and I can't tell why	Sometimes romantic partners change their feelings about me for no apparent reason	Anx	ECR-R	Anxiety

Table 5.3. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
9. When my father gets cross with me, I feel really bad about myself	When romantic partners disapprove of me, I feel really bad about myself	Anx	ECR	Anxiety
10. I find it hard to let myself to depend on my father	I find it difficult to allow myself to depend on romantic partners	Anx	ECR-R	Avoidance
11. I want to get close to my father, but I keep pulling back	I want to get close to my partner, but I keep pulling back	Anx	ECR	Avoidance
12. I often feel angry with my father and I don't know why	I often feel angry with my father without knowing why	Anx	AAQ	Angry Distress
13. I wish I had a different father	I wish I had a different father	Anx	IPPA	Trust
14. When I go to my father for help I still feel confused	When I go to my father for help I continue to feel unsure of myself	Anx	PRQ	Affective quality of relationships*
15. My father treats me like a younger child	In general, my father treats me like a younger child	Anx	PRQ	Parents as facilitators of independence *
16. My father has her own problems, so I don't bother her with mine	My father has his own problems, so I don't bother him with mine	Anx	IPPA	Alienation
17. I don't show my father how I feel deep down	I prefer not to show a partner how I feel deep down	Av	ECR-R	Avoidance

Table 5.3. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
18. I try to stop getting too close to my father	I try to avoid getting too close to my partner	Av	ECR	Avoidance
19. Just when my father starts to get close to me I find myself pulling away	Just when my partner starts to get close to me I find myself pulling away	Av	ECR	Avoidance
20. I get upset a lot more than my father knows about	I get upset a lot more than my father knows about	Av	IPPA	Alienation
21. I tell my father just about everything	I tell my partner just about everything*	Av*	ECR-R	Avoidance*
22. I usually discuss my problems and worries with my father	I usually discuss my problems and concerns with my partner*	Av*	ECR-R	Avoidance*
23. I talk things over with my father	I talk things over with my partner	Av*	ECR-R	Avoidance
24. I don't feel comfortable opening up to my father	I don't feel comfortable opening up to romantic partners	Av	ECR-R	Avoidance
25. My father has no idea what I am feeling or thinking	In general, my mother has no idea what I am feeling or thinking*	Av	PRQ	Affective quality of relationships
26. I find it hard to trust my father	I find it difficult to trust others completely*	Av	AAS	Depend (Avoidant)

Table 5.3. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
27. My father is never there when I need him	People are never there when you need them*	Av	AAS	Depend (Avoidant)
28. I don't mind asking my father for comfort or help	I don't mind asking romantic partners for comfort, advice, or help*	Av*	ECR	Avoidance*
29. I feel comfortable depending on my father	I feel comfortable depending on romantic partners*	Av*	ECR-R	Avoidance*
30. It helps to turn to my father in times of need	It helps to turn to my romantic partner in times of need*	Av*	ECR-R	Avoidance*
31. It's not hard for me to get close to my father	It's not difficult for me to get close to my partner	Av*	ECR-R	Avoidance*
32. My father really understands me and my needs	My partner really understands me and my needs	Av*	ECR-R	Avoidance*
33. I'm sure that my father will listen to me	I'm confident that my father will listen to me	Sec	AAQ	Availability *
34. I'm sure that my father will try to understand my feelings	I'm confident that my father will try to understand of feelings	Sec	AAQ	Availability *

Table 5.3. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
35. My father helps me to understand myself better	My father helps me to understand myself better	Sec	IPPA	Communication
36. My father can tell when I'm upset about something	My father senses when I'm upset about something	Sec	IPPA	Communication
37. My father encourages me to talk about my problems	My fathers encourage me to talk about my difficulties	Sec	IPPA	Communication
38. My father has trust and confidence in me	In general, my father has trust and confidence in me	Sec	PRQ	Parents as facilitators of independence
39. My father is around to give me advice or help when I want it	In general, my father is available to give me advice or guidance when I want it.	Sec	PRQ	Parents as source of support
40. My father protects me from danger and trouble	In general, my father protects me from danger and difficulty	Sec	PRQ	Parents as source of support
41. When I go to my father for help I feel like I will be able to handle the problems myself	When I go to my father for help I feel more confident in my ability to handle the problems on my own	Sec	PRQ	Parents as source of support
42. I talk to my father when I am having a problem	I talk to my father when I am having a problem	Sec	PIML	Positive representation of Parents

Table 5.3. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
43. My father cares about me	My father cares about me	Sec	PIML	Positive representation of Parents
44. My father pays attention to me	My father pays attention to me	Sec	PIML	Positive representation of Parents
45. I trust my father	I trust my father	Sec	IPPA	Trust
46. My father accepts me as I am	My father accepts me as I am	Sec	IPPA	Trust
47. My father is sensitive to my feelings and needs	In general, my father is sensitive to my feelings and needs	Sec	PRQ	Affective quality of relationships
48. It makes me feel good to be able to do things for my father	It makes me feel good to be able to do things for my father	Sec	AAQ	Goal-Corrected Partnership *

Table 5.4.

DAAS Best Friend Section: Items from original source

Reworded Item	Items	Scale	Original Scale	Original Subscale
1. My best friend doesn't want to get as close as I want them to	I find that my partner(s) don't want to get as close as I would like	Anx	ECR-R	Anxiety

Table 5.4. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
2. I get annoyed when my best friend is not around as much as I would like	I get frustrated when my partner is not around as much as I would like	Anx	ECR	Anxiety
3. I need a lot of reminding that I am liked by my best friend	I need a lot of reassurance that I am loved by my partner	Anx	ECR	Anxiety
4. I don't like it when my best friend spends time away from me	I resent it when my partner spends time away from me	Anx	ECR	Anxiety
5. I often worry that my best friend doesn't really like me	I often worry that my partner doesn't really love me	Anx	ECR-R	Anxiety
6. I'm worried that once my best friend gets to know me they won't like who I really am	I'm afraid that once a romantic partner gets to know me, he or she won't like who I really am	Anx	ECR-R	Anxiety
7. My best friend only seems to notice me when I'm angry	My partner only seems to notice me when I'm angry	Anx	ECR-R	Anxiety
8. My best friend makes me doubt myself	My romantic partner makes me doubt myself	Anx	ECR-R	Anxiety
9. Sometimes best friends change their feelings about me and I can't tell why	Sometimes romantic partners change their feelings about me for no apparent reason	Anx	ECR-R	Anxiety

Table 5.4. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
10. When best friends pick on me, I feel really bad about myself	When romantic partners disapprove of me, I feel really bad about myself	Anx	ECR	Anxiety
11. I am not sure I can always depend on my best friend	I am not sure I can always depend on my best friend	Anx	AFAS	Anxious/ Ambivalent
12. I get angry with my best friend when they do not understand me	I become angry with my best friend when he/she does not understand me	Anx	AFAS	Anxious/ Ambivalent
13. I would like my best friend to be more understanding	I would like my best friend to be more understanding	Anx	AFAS	Anxious/ Ambivalent
14. I get angry at my best friend when I can't get in contact with them	I get angry at my best friend when I can't get in contact with him/her	Anx	AFAS	Anxious/ Ambivalent
15. I get upset a lot more than my best friend knows about	I get upset a lot more than my best friend knows about	Anx	IPPA	Alienation
16. I wish I had a different best friend	I wish I had a different best friend	Anx	IPPA	Trust*
17. I choose not to show my best friend how I feel deep down	I prefer not to show a partner how I feel deep down	Av	ECR-R	Avoidance
18. I try to stop getting too close to my best friend	I try to avoid getting too close to my partner	Av	ECR	Avoidance

Table 5.4. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
19. I want to get close to my best friend but I keep pulling back	I want to get close to my partner, but I keep pulling back	Av	ECR	Avoidance
20. Just when my best friend starts to get close to me I find myself pulling away	Just when my partner starts to get close to me I find myself pulling away	Av	ECR	Avoidance
21. I don't need to rely on my best friend	I don't need to rely on my best friend	Av	AFAS	Avoidant
22. I don't turn to my best friend for support when things are hard	I don't turn to my best friend for support when things are difficult	Av	AFAS	Avoidant
23. I don't mind asking best friends for advice or help	I don't mind asking romantic partners for comfort, advice, or help*	Av*	ECR	Avoidance*
24. I feel comfortable depending on my best friend	I feel comfortable depending on romantic partners*	Av*	ECR-R	Avoidance*
25. I turn to my best friend for many things, including comfort and support	I turn to my partner for many things, including comfort and reassurance*	Av*	ECR	Avoidance*
26. It helps to turn to my best friend in times of need	It helps to turn to my romantic partner in times of need*	Av*	ECR-R	Avoidance*
27. It's easy for me to be close with my best friend	It's easy for me to be affectionate with my partner	Av*	ECR-R	Avoidance

Table 5.4. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
28. My best friend really understands me and my needs	My partner really understands me and my needs	Av*	ECR-R	Avoidance*
29. I seek out my best friend when things go wrong	I seek out my best friend when things go wrong	Av*	AFAS	Avoidant*
30. Without this best friendship, it would be very hard to cope when things are hard	Without this best friendship, it would be very hard to cope when things are difficult	Av*	AFAS	Avoidant*
31. My best friend has no idea what I am feeling or thinking	In general, my best friend has no idea what I am feeling or thinking*	Av	PRQ	Affective quality of relationships
32. I avoid discussing personal things with my best friend	I avoid discussing personal things with my best friend	Av	AFAS	Avoidant
33. If my best friend knows something is wrong with me, they ask me about it	If my best friend knows something is bothering me, he/she asks me about it	Sec	IPPA	Communication
34. My best friend understands me	My best friend understands me	Sec	IPPA	Communication
35. I can count on my best friend to help me when I have a problem	I can count on my best friend to help me when I have a problem	Sec	PIML	Positive representation of Peers

Table 5.4. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
36. My best friend cares about me	My best friend cares about me	Sec	PIML	Positive representation of Peers
37. My best friend pays attention to me	My best friend pays attention to me	Sec	PIML	Positive representation of Peers
38. I am sure my best friendship will last	I am confident my best friendship will last	Sec	AFAS	Secure
39. I can talk things through with my best friend	I can talk things through with my best friend	Sec	AFAS	Secure
40. I can trust my best friend	I can trust my best friend	Sec	AFAS	Secure
41. I like spending time with my best friend	I enjoy spending time with my best friend	Sec	AFAS	Secure
42. I feel close to my best friend	I feel close to my best friend	Sec	AFAS	Secure
43. I know I can rely on my best friend	I know I can rely on my best friend	Sec	AFAS	Secure
44. I know my best friend does like me	I know my best friend does like me	Sec	AFAS	Secure
45. I like the closeness I share with my best friend	I like the closeness I share with my best friend	Sec	AFAS	Secure
46. I think it would be hard to replace my best friend	I think it would be difficult to replace my best friend	Sec	AFAS	Secure

Table 5.4. *cont.*

Reworded Item	Original	Scale	Original Scale	Original Subscale
47. When I have had a bad day my best friend cheers me up	When I have had a bad day my best friend cheers me up	Sec	AFAS	Secure
48. My best friend listens to what I have to say	My best friend listens to what I have to say	Sec	IPPA	Trust

Psychometric validation strategy for the DAAS

This section outlines the validation strategy for the DAAS. Test validation is defined as the ability of a scale to measure what it purports to measure and involves accurate interpretation of test scores (Anastasi, 1988; Foster & Cone, 1995; Kane, 1992). The first step of this process is content validation and is detailed above. The second step is statistical validation in the form of Exploratory and Confirmatory Factor Analysis (EFA; CFA respectively). The third step includes a range of convergent and discriminant validation strategies using self-report measures in a composite questionnaire format. The fourth step includes multi-method validation and includes the decision making process for determining the nature of this validation.

Statistical validation

Following content validation, scale construction and initial data collection, a key step in the development of new psychological scales is statistical validation involving exploratory factor analysis (Clark & Watson, 1995; Comrey, 1988; Cronbach & Meehl, 1955; Panter, Swygert, Dahlstrom, & Tanaka, 1997; Reise, Widaman, & Pugh, 1993). The purpose of EFA is investigation of “whether the items are behaving empirically in a manner consistent with expectations” (Comrey, 1988, p. 760). EFA is an exploratory data reduction technique, which aims to reveal any latent variables that lead the manifest variables (or scale items) to covary (Costello & Osborne, 2005; Tabachnick & Fidel, 2001). EFA can be used to identify meaningful, underlying constructs or dimensions by evaluating the observed covariation of measured variables (Panter et al., 1997). A “factor” denotes a group of variables that are correlated with one another but largely independent of other groups of variables (Tabachnick & Fidel, 2001). Within EFA, it is assumed that factors are correlated (i.e., oblique rotation) or uncorrelated (i.e., orthogonal rotation) (Tabachnick & Fidel, 2001).

Subsequently, a new scale may be subject to CFA (Comrey, 1988; Ho, 2006; Reise et al., 1993). CFA contrasts with EFA in that intercorrelations

between observed and latent (unobserved) variables are specified prior to testing the model, and assessments of fit are gathered to determine whether the hypothesised model matches the observed correlations (Panter et al., 1997). Furthermore, CFA allows the researcher to specify whether specific factors will be orthogonal or oblique (Byrne, 2001; Tabachnick & Fidel, 2001); and allows the researcher to hypothesise about the structure and source of error within the model (Messick, 1991; Tabachnick & Fidel, 2001).

Within the analysis for this study an item-level CFA approach is used. This is predominately in response to the observation that there remains ambiguity about the number of factors that best represent individual differences in attachment, particularly during adolescence. Byrne (2001) lists a number of advantages to the item-level CFA approach: *a priori* specification of item loading onto factors; assessment of construct validity; assessment of measurement error; and modelling of factors as latent.

Factor analysis has been a primary statistical strategy in the development of many primary attachment measures employed in the literature at present (i.e., Armsden & Greenberg, 1987; Collins & Read, 1990; Feeney et al., 1994; Griffin & Bartholomew, 1994; Hazan & Shaver, 1987; See Chapter Four for a review). Upon scrutiny of the development of several major dimensional attachment scales in the adult and adolescence literature it is evident that there is a relative simplicity in the trend of analysis using exploratory factor analysis. Exceptions to this are the development of two adult attachment scales, the ASQ and the ECR, who employ more sophisticated strategies. Thus, previous attachment measures have been subject to psychometric investigation using a wide range of statistical techniques. Within the studies that utilise factor analysis there is limited use of CFA and as such, there is little consideration of the detailed information to be gathered from this analysis. CFA would be particularly informative considering the ongoing dispute over the number of dimensions/subscales in attachment research and conceptualisation. The initial psychometric analyses for each section of the instrument are considered independently in subsequent chapters.

Convergent and discriminant validation

Convergent validity is “a confirmation by independent measurement procedures” (Campbell & Fiske, 1959, p. 81), while discriminant validity is an absence of “too high correlations with other tests purporting to measure different things” (Campbell & Fiske, 1959, p. 84). Convergent and discriminant validity are both forms of concurrent validity, that is, studying the relationship between a test score and criterion score at the same time i.e., comparing results of a multiple choice test of spelling and taking a dictation, or correlating a test score with a psychiatric diagnosis (Cronbach & Meehl, 1955). Foster and Cone (1995) stipulate that new scales should demonstrate that they correlate with other measures of the same construct. In developing a strategy for convergent and discriminant validity it is important to clearly hypothesise how the new scale should relate to other measures, in order to accurately interpret results (Foster & Cone, 1995). This is key to the entire validation strategy and includes demonstrating the psychometric strength of scales used for comparison.

It is important to differentiate between discriminant and discriminative validity. Discriminant validity, as explained above, involves showing that a measure does not correlate with a construct with which it is unrelated. Discriminative validity, on the other hand, involves showing that groups of people known or presumed to diverge on the construct can be categorised accordingly based on differing scores on the new scale (Foster & Cone, 1995). Evidence for discriminative validity is usually sought following demonstration of construct validity. A primary source of discriminant validity for self-report measures is social desirability.

Social desirability falls under the umbrella of “non test relevant response determinants” (Crowne & Marlowe, 1960). It can be defined as the “need of subjects to obtain approval by responding in a culturally appropriate and acceptable manner” (Crowne & Marlowe, 1960, p. 353) in response to items regarding “culturally acceptable and approved behaviours which are, at the same time, relatively unlikely to occur” (p. 354). More simply, it is “the tendency to give answers that make the respondent look good” (Paulhus, 1991,

p. 17). Therefore, social desirability may be viewed as an individual difference variable, as in the Crowne and Marlowe (1960) definition above. Leak and Parsons (2001) suggest that this individual difference dimension has two manifestations: conscious response distortion (impression management) and unconscious self-deception (self-deceptive enhancement). A further conceptualisation is that social desirability may be considered as a property of items or scales and thus a form of response bias (McCrae & Costa, 1983).

In the specific instance of attachment research, Leak and Parsons (2001) suggest that characteristics of attachment relationships and attachment styles make the consideration of social desirability particularly important. They argue that defensiveness around “masking disappointments with past or present attachment figures” (Leak & Parsons, 2001, p. 23) may cloud categorisation of participants as secure or insecure for example. Leak and Parsons (2001) administered the ASQ, the AAS and the Bartholomew and Horowitz (1991) Attachment Style Prototypes along with a measure of socially desirable responding to a sample of 141 undergraduate students in the USA. They found the three attachment measures used were susceptible to a “moralistic bias” where participants present themselves as agreeable and virtuous. They found evidence that avoidant individuals may be the least defensive group compared with other attachment styles, based on the ASQ subscales Discomfort with Closeness and Relationships as Secondary and a small negative correlation with social desirability. While the authors note that this finding is not in line with previous research and should be viewed with caution, it was the first study to directly examine the link between socially desirable responding and a range of attachment measures.

Mikulincer and Shaver (2007) discuss the implication of socially desirable responding in self report measures of attachment. They conclude although social desirability may be at play when participants report on their attachment behaviours, cognitions and affect, this is not a particularly detrimental observation. They argue that attachment theory gives enough detail to be able to account for the role of defensiveness within certain types of

situations and relationships; and that self report can be used to predict behaviour in situations, even if the individuals themselves could not make these predictions (Mikulincer & Shaver, 2007).

Overall, the following sources of convergent and discriminant validation were used in developing the DAAS: attachment networks and functions, social desirability, school attitudes, psychological adjustment and strengths and difficulties. The details of these investigations will be further expounded in Chapters Ten and Eleven.

Multi-method validation

Among attachment researchers and theorists there is consensus that measures of attachment need to be validated using multi-method designs (Bartholomew & Moretti, 2002; Collins & Read, 1990; Ducharme et al., 2002; Pietromonaco & Barrett, 2000; Rice & Cummins, 1996). This is particularly because internal working models may operate outside of conscious awareness. Pietromonaco and Barrett (2000) suggest that measures which don't rely on self-report are crucial in measuring internal working models, and furthermore, that any self-report measurement is prone to biased or self-protective responses. As previously stated, in order to provide further validation for a new self-report measure, multi-method validation is required. This section provides a detailed rationale for the selection of such a methodology in validating the DAAS.

Rationale for choice of multi-method validation

Interview measure

The Adult Attachment Interview (AAI) is a widely cited, widely used measure of attachment representations. See the first half of this Chapter for a thorough discussion of the AAI in relation to the measurement of attachment in adolescence. Following this discussion it is concluded as a method for validating the current new measure of adolescent attachment relationships, it appears the AAI is not a desirable choice.

Priming and experimental designs

In recent years several studies have been published using social-cognitive and experimental research designs in order to look at the underlying cognitive processes involved in attachment representations (Mikulincer & Shaver, 2007). Such studies include security priming with subliminal cues, lexical decision tasks, and Stroop colour word-naming tasks (Mikulincer & Shaver, 2007). They use reaction times to look at the effect of priming on the accessibility of thoughts related to target words and attachment figures (Mikulincer et al., 2002). It is arguable that this body of research arose from increasing discussion regarding the need to activate the attachment system with some form of threat in order to fully access internal working models.

Findings of these studies show differences in accessibility for those with different attachment styles. For example, Mikulincer et al. (2002) used a lexical decision task and a Stroop task following either a threat or neutral word prime to test differences in accessibility of attachment figures and non-attachment figures. Individual differences in attachment style were found to impact on the accessibility of representations of attachment figures during the tasks. Differences were most clear on the dimension of anxiety, compared with avoidance (Mikulincer et al., 2002). Mikulincer et al. (2002) suggest that their study provides construct validation for the WHO-TO measure as it allows for identification of those individuals who are “psychologically special” (attachment figures). This is different to providing validation for a measure, which gives an indication of internal working models of attachment for general and specific relationships, as opposed to the WHO-TO which provides an indication of those individuals included in one’s attachment network.

It is debatable whether findings regarding activation of attachment using priming studies and the links to individual differences (as measured by attachment styles or dimensions) are robust enough to provide validation for a new self report measure of attachment, particularly in the area of adolescence. Experimental studies such as those explained above have not been extensively applied to adolescence and it is unclear whether findings could be extrapolated

from undergraduate or adult samples to adolescents. Thus, it is unclear as to how such a methodology might provide validation for a measure of adolescent attachment.

Diary methodology

A further methodology in the area of adolescent attachment is the diary methodology (Bradford, Feeney, & Campbell, 2002; Ducharme et al., 2002; Pietromonaco & Barrett, 1997). Ducharme et al. (2002) suggest that combined with rating scales, the diary methodology is an “ideal” measurement of adolescent attachment across a broad range of relationships and interactions. Arguments for such a methodology include the “event focussed” nature of the diary such that the impact of recall biases and sentiment are minimised; and the methodology is able to be modified to measure a wide range of relevant variables, i.e., interaction quality, emotional reactions, views of self, views of others, information about the nature of the interaction (Bradford et al., 2002; Ducharme et al., 2002). Kerns, Tomlich, and Kim (2006) highlight the importance of information in relation to its context, i.e., especially for proximity seeking (when distressed, versus companionship).

Previous research suggests that this methodology must be used cautiously however, as in some cases it may be insufficient to activate attachment-related disclosure if one considers that such behaviour is only elicited in the context of a perceived threat or stressor (Ducharme et al., 2002). Furthermore, they raise important points regarding the decreased frequency and intensity of attachment behaviour as individuals move from infancy into middle childhood and adolescence as self-reliance increases (Kerns et al., 2006).

Moreover, there is the possibility that individual differences in writing skills and literacy contribute to the amount of self-disclosure in diaries (Ducharme et al., 2002). The diary is onerous on participants, particularly adolescents who may be unwilling to complete such an extensive form of data collection, possibly compromising the quality of data gained. Furthermore, there are difficulties with both qualitative and quantitative diary

methodologies. A qualitative diary would prove difficult to utilise as a validation for a self-report measure of attachment relationships. It is somewhat unclear what one would expect from a qualitative diary due to the lack of scoring systems and standardised formats used in previous research. Thus, it is unclear specifically what the DAAS would be validated against and what kind of results may lead one to conclude that the DAAS was either valid or invalid. With regard to the quantitative diary, it is somewhat difficult to offer a meaningful distinction between this form of data collection and traditional self-report questionnaires. A quantitative diary may be considered as a repeated self-report questionnaire. Thus, as with the priming and experimental designs, it is unclear as to how a diary methodology might provide validation for a measure of adolescent attachment.

Multi-informant validation

Collecting data from close others in order to provide information regarding a participant's attachment relationships is common within the attachment literature (i.e., Cook, 2000; Fuligni & Eccles, 1993; Kerns & Stevens, 1996; Kerns, Klepac, & Cole, 1996; Kobak & Sceery, 1988; Larson et al., 1996; van Ijzendoorn & Bakermans-Kranenburg, 1996). Multi-informant validation is a key element of validating new scales, and is mentioned frequently in the psychometric literature in a variety of contexts (i.e., Achenbach, McConaughy, & Howell, 1987). A number of types of informants have been used in the adolescent literature: parents (i.e., Larson et al., 1996; Markiewicz et al., 2001; Ridenour, Greenberg, & Cook, 2006; Target, Fonagy, Schmueli-Goetz, 2007), peers (i.e., Kerns & Stevens, 1996; Kerns et al., 1996), teachers (i.e., Fuligni & Eccles, 1993; Ridenour et al., 2006), and family units (i.e., Buist et al., 2004; Cook, 2000); using a range of questionnaire and interview formats.

The type of data collected from parents, teachers and peers in validating attachment measures varies considerably. For example, some researchers make use of other-informants in order to provide estimates of adjustment (Ridenour et al., 2006; Target et al., 2007) or school performance (Fuligni & Eccles, 1993) in

providing convergent validity. In a study of social relationships and personality in late adolescence, Kerns and Stevens (1996) used peer dyads in order to gain more information about the adolescent's attachment bonds. They administered the Network of Relationships Inventory and a Q-sort task to both members of the dyad. Both the correspondence between the friends' ratings of the relationships; and the respective attachment styles of the two friends were used in analysis (Kerns & Stevens, 1996).

Following scrutiny of the various shortcomings identified for the previously discussed methodologies and following consideration of a number of *a priori* arguments and pragmatic considerations, multi-informant validation was selected as the multi-method validation technique to be undertaken for the DAAS. Chapter Five presents further details regarding the specific technique for multi-method validation of the DAAS, multi-informant validation.

Conclusion

This chapter outlines the development, conceptualisation and psychometric validation strategy for the DAAS. Research needs to employ refined and sensitive instruments that offer the opportunity to assess individual differences in adolescent attachment relationships, in all their complexity, in order to understand their true significance. The DAAS was developed as a measurement tool aimed to encapsulate the unique elements of attachment bonds in adolescence. The psychometric validation strategy and rationale for the DAAS has been outlined in detail. The following chapters report empirical results of the DAAS psychometric validation.

CHAPTER SIX

DAAS GENERAL PSYCHOMETRIC ANALYSIS

Introduction

This chapter presents results for the initial psychometric validation of the four sections of the DAAS. A detailed rationale is outlined in Chapter Five. In overview, the analyses report on findings that the factor structure for the DAAS for each section is unique to each relationship under scrutiny. The sections of the DAAS were analysed sequentially and in isolation. Two samples of data were used in order to provide information regarding the replication of the factor structure found.

The aims of this first segment of analysis were to: (1) validate the factor structure of each of the four sections of the DAAS, (2) investigate which of the theoretically proposed dimensions of attachment relationships may apply within the context of the DAAS, and (3) validate the CFA results retrieved for each section of the DAAS with an independent validation sample to ensure stability of the model structure. Thus, for each section, exploratory analysis is followed by presentation and discussion of CFA results. In Chapter Nine the implications of these findings are synthesised and discussed within the broad context of adolescent attachment relationships.

Details on the method for the two studies are presented first, followed by the DAAS General (Study 1A) and replication (Study 2A); the DAAS Maternal (Study 1B) and replication (Study 2B); the DAAS Paternal (Study 1C) and replication (Study 2C); and the DAAS Best Friend (Study 1D) and replication (2D). The chapter concludes with a general discussion on the results of the psychometric validation of the DAAS.

STUDY 1A: DAAS GENERAL

METHOD

Participants

Participants included high school students (Years 7-12) in the Australian Capital Territory and New South Wales. Participants were recruited from five government high schools and colleges and three Catholic High Schools. Data was collected between March and November 2008.

Data was collected using two questionnaires (see Appendix 6A for details) during two instances of data collection. A total of 880 individuals volunteered to participate in the study. Approximately 63 questionnaires were discarded due to incorrect completion. Therefore, a total of 817 surveys were retained for analysis. There were 356 (43.6%) males and 454 (55.6%) females; 7 (0.9%) participants did not state their sex. Participants' mean age was 14.61 ($SD= 1.46$) years, with a range from 9.75 to 18.25 years.

Design

The study was a cross-sectional questionnaire design. The following variables used in the analysis for this chapter were: attachment to mother, father and best friend; general attachment orientation (Appendix 6L); and demographic characteristics. Demographic variables included sex, age, and ethnicity (Appendix 6K).

Materials

The following materials were contained within a composite questionnaire designed specifically for this study.

Demographic characteristics were collected at the commencement of the composite questionnaire. Participants were asked to indicate their sex, month and year of birth, country of birth, language spoken at home, and indigenous status. Ethnicity was coded via country of birth and language spoken at home. Further demographic characteristics were collected for participants' mother and

father following the relevant section in the questionnaire. Participants were asked to indicate whether they answered the relevant questions for their biological mother/father, step mother/father, foster mother/father, or "other". Participants were asked to indicate whether they lived with their biological mother and father, and asked to indicate if not, why this was. Categories of response for not living with a biological parent were retained as completed on questionnaires by participants. Parental occupation was used as a measure of socioeconomic status. Occupation was coded according to the Australian Standard Classifications of Occupations (Australian Bureau of Statistics, 1997). Occupation consisted of nine categories: managers, professionals, technicians and trades workers, community and personal service workers, clerical and administrative workers, sales workers, machinery operators and drivers, labourers, and not employed.

Domains of Adolescent Attachment Scales. The DAAS is a new measure of adolescent attachment with a self-report questionnaire format (Appendix 6L). See Chapter Five for details of the development of this measure. The DAAS is structured in four independent sections: general attachment orientation, attachment to mother, father, and best friend. This is to measure a global attachment style, and attachment to the theorised three primary attachment figures in an adolescent's attachment network. There are 36 items for each section and the response format is a five-point Likert scale response format ("Not at All" to "Very Much"). The four sections of the DAAS were counterbalanced in the questionnaire to counter any response bias based on order.

Procedure

Prior to commencement of the study, approval was sought and granted from the relevant ethics committees (Appendix 6B). Schools were approached via a letter addressed to the Principal (Appendices 6C & 6H). After gaining verbal consent from the school Principal, the researcher liaised with school staff to have the information sheet and informed consent form sent home to parents

(Appendices 6D, 6E, 6I & 6J). Convenient times and arrangements for completion of student questionnaires were sought in consultation with classroom teachers. Data was collected within class or homeroom groups during a class period (Approximately 45-60 minutes depending on the school).

Participants were given an information sheet (Appendices 6F). Questionnaires were then distributed to those students who had returned the parental consent form and students gave their assent by completing the questionnaire. Any questions that arose during this process were addressed. Questionnaires were collected from each student in a sealed envelope, or collected by the teacher and forwarded to the researcher. In order to protect the anonymity and confidentiality of participants, completed questionnaires and signed consent forms were stored separately. All questionnaires were then checked and collated for an initial data analysis.

Analysis Plan

The statistical analysis plan aimed to provide insight into the hypotheses and research questions posed. In order to do so, the data was initially prepared and screened for analysis; demographic results are presented following this. The details of data screening/preparation and demographic results are included in Chapter Six Study 1A with the results of the General attachment measure. They are not repeated in subsequent Chapters Seven, Eight and Nine as the same sample was used in the development of each of the four measures.

All scores were entered and analysed using the Statistical Package for the Social Sciences (SPSS) (SPSS Inc., 2007; both PC and MAC versions). Cases were deleted if they had completed less than 90% of each section for the DAAS ($n < 43$ completed for each section). Given the small number of remaining missing data after these cases were deleted (less than 3% of values on each variable), the mean substitution method was used for replacement purposes (Tabachnick & Fidell, 2001).

RESULTS

Demographic Characteristics

Descriptive analyses were conducted to investigate the demographic characteristics of participants. Country of birth, language spoken at home and identification of Aboriginal/Torres Strait Islander are summarised in Table 6.1. The majority of the sample were born in Australia, speak English at home and do not identify as indigenous; however a broad range of ethnicities are evident.

Table 6.1

Country of birth, language spoken at home and indigenous status

Variable	<i>f</i> (%)	<i>(n)</i>
Country of birth		
Australia	90.1	736
New Zealand	1.2	10
India	0.9	7
Germany, Philippines	0.6	5
Thailand, Fiji, China, Israel	0.4	3
Papua New Guinea, Chile, England, Croatia, Laos, South Africa, Malaysia, Japan, Serbia, Zimbabwe	0.2	2
Ukraine, Poland, Sierra Leone, Italy, Lebanon, Brazil, Ghana, South Korea, Macedonia, Tonga, Canada, Wales, Pakistan, Palestine, Afghanistan, Cook Islands	0.1	1
Language spoken at home		
English	83.1	691
Italian and English	1.3	11
English and Laos	0.9	7
Vietnamese and English	0.7	6
Hindi	0.6	5
English and Hindi, Vietnamese, Arabic, Italian	0.5	4

Table 4.1. *cont.*

Variable	f(%)	(n)
Chinese, Laos, Spanish and English, Arabic and English, Serbian, Hebrew	0.4	3
English and Greek, Tagalog, English and Thai, English and Serbian, Tagalog and English, English and Japanese, Tongan, English and Samoan, Indian	0.2	2
English and Russian; Thai; English and Polish; English and Urdu; Punjabi, Hindi and English; English, Hindi and German; Croele; English and German; Zulu, English and Suthu; Cantonese; English and Chinese; Croatian and Bosnian; Afrikaans; Portugese; Akan; Korean; English and Cantonese; Motu; English and Macedonian; English and Khmer; Indian and English; Serbian, Croatian and English; Bangla and English; German; Bangladeshi; English and Aboriginal; Marathi and English; English and Indian; English and Philippino; Punjabi; Lebanese; Urdu and English; Vietnamese, English and Chinese; Nbedele; Dari; English and Cook Island; English and Punjabi; English, Indian and Japanese	0.1	1
Indigenous Status		
Non-indigenous	95.6	781
Aboriginal or Torres Strait Islander	2.6	21

Note. 6 participants did not indicate their country of birth; 7 participants did not indicate the language spoken at home; and 15 participants did not indicate if they were indigenous or non-indigenous.

Participants were asked to specify who they had in mind when completing the maternal and paternal questions. The majority of participants answered these questions in relation to their biological parents, however a number answered the maternal and paternal items in reference to step parents,

foster parents, and grandparents. Table 6.2 presents a summary of this information.

Table 6.2

Maternal and Paternal figures

Variable	F(%)	(n)
When you answered the questions about your mother who were you thinking about?		
Biological mother	97.3	795
Step-mother	0.7	6
Foster mother	0.6	5
Grandmother	0.2	2
When you answered the questions about your father, who were you thinking about?		
Biological father	93.6	751
Step-father	3.7	30
Foster father	0.4	3
Other	0.2	2
Grandfather	0	0

Data regarding residence with parents is presented in Table 6.3. Categories detailing why participants do not live with a biological parent were retained as participants reported them. A total of 20.7% (n=166) of participants did not live with their biological father and 6.1% (n=50) lived apart from their biological mother. The ABS (2006) states that in 2003 19.2% of all children aged 0-17 lived apart from their biological father and 2.8% of children lived apart from their biological mother.

Table 6.3

Parental demographics and residency

Variable	F(%)	(n)
Do you live with your biological mother?		
Yes	91.3	746
No		
Parents divorced	3.1	25
Mother lives away	1.0	8
Mother deceased	0.6	5
Lives with Grandparents	0.2	2
Mother uses drugs, Exchange student (host family), adopted	0.1	1
Do you live with your biological father?		
Yes	76.1	610
No		
Parents divorced	12.2	98
Father lives away	3.4	27
No contact with father	1.9	15
Father deceased	0.6	5
Father was abusive towards mother	0.5	4
Father left when mother became pregnant	0.2	2
Lives with Grandparents, Father was a sperm donor, Exchange student (host family), Father is in jail	0.1	1

Note. 28 participants did not indicate why they do not live with their biological mother; 37 participants did not indicate why they do not live with their biological father

Occupational characteristics of participants' parents are summarised in Table 6.4. This data was collected to provide an estimate of socio-economic status. According to participants, the majority of mothers were employed as

clerical/administrative or professional occupations and the majority of fathers were employed in professional or technician/trade occupations. Approximately 10% of mothers and three percent of fathers were unemployed.

Table 6.4

Parental occupation

	Mother		Father	
	<i>f</i> (%)	(<i>n</i>)	<i>f</i> (%)	(<i>n</i>)
Professionals	19.1	156	19.5	156
Clerical/Administrative	19.1	157	7.2	58
Community/Personal Service	13.1	107	6.9	55
Labourer	8.6	70	7.4	59
Manager	6.9	56	18.1	145
Sales	5.1	42	2.2	18
Technicians/Trades	3.7	30	20.0	160
Machinery Operators/Drivers	1.0	8	4.4	35
Not employed	12.2	100	3.6	29

Note. 91 participants did not indicate their mother's occupation; 87 participants did not indicate their father's occupation.

DAAS General Psychometric Investigation

DAAS psychometric investigation was undertaken using a random 50% of the total sample. The remaining 50% of the sample is used in the replication study, Study 1B below.

The initial sample comprised 407 high school students (184 males, 219 females). Ages ranged between 11 and 17 years ($M = 14.74$ years, $SD = 1.30$ years).

Exploratory Analysis

The DAAS General section contained 48 items. See Chapter Five for details on the selection of these items during initial development of the DAAS.

A number of methods for reducing the initial number of items were employed. Reliability analyses and item-total correlations were investigated; a number of Exploratory Factor Analyses were run; item length and complexity was considered; and items were scrutinised for their conceptualisation of attachment constructs at an *a priori* level. Following these investigations the DAAS General was reduced to 34 items. A list of deleted items is contained in Appendix 6M.

Table 6.5 below contains each item in the DAAS General, the item name, the *a priori* hypothesised attachment construct of each item and whether the item is positively or negatively worded. Negative item wording denotes reverse scoring.

Table 6.5

The 36 items of the DAAS General

Item Number	Item	Item wording		Dimension
		Neg	Pos	
G2	Being close to someone makes me feel confident about doing other things		✓	Secure
G3	I find it hard to depend on others		✓	Avoidant
G8	I worry about people getting too close		✓	Avoidant
G9	When I'm close to someone it makes me feel better about life in general		✓	Secure
G10	Even though I know others will hurt my feelings I keep going back to them for help		✓	Anxious
G12	When I talk over my problems with others I feel silly		✓	Anxious
G13	I am comfortable having other people depend on me		✓	Secure
G14	I worry about being alone		✓	Anxious

Table 6.5. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
G15	When I am sick, I am comfortable depending on another person		✓	Secure
G16	I am confident others will really understand my feelings		✓	Secure
G17	I often feel left out or alone		✓	Anxious
G18	When I am hurting, talking to another person makes me feel better		✓	Secure
G19	I am easier to get to know than most people		✓	Secure
G20	Sometimes I have to make people I am close to show that I'm special to them		✓	Anxious
G21	I want to feel close to others but I also feel worried about it		✓	Anxious
G22	I am not sure that I can always depend on others to be there for me		✓	Anxious
G23	People let me down a lot		✓	Avoidant
G24	I am too busy with other things to put much time into relationships		✓	Avoidant
G25	I find it difficult to trust others		✓	Avoidant
G26	I worry a lot about my relationships		✓	Anxious
G28	I am very comfortable being close to others		✓	Secure
G29	Other people often disappoint me		✓	Anxious
G31	Other people can comfort me when I'm upset		✓	Secure
G32	I choose not to depend on other people		✓	Avoidant
G37	I feel good knowing that other people care about me		✓	Secure
G38	I feel like no one understands me		✓	Avoidant

Table 6.5. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
G39	I feel safe when I am with people I'm close to		✓	Secure
G40	I feel sure other people will be there for me when I need them		✓	Secure
G41	I find it hard to count on others		✓	Avoidant
G42	I find it hard to tell others private things		✓	Avoidant
G43	I get worried when people close to me are away		✓	Anxious
G45	I look forward to spending time on my own		✓	Avoidant
G46	I often want to get closer to others than they want to get to me		✓	Anxious
G48	I like to keep distance between myself and others		✓	Avoidant

Data screening

CFA is sensitive to violations of the assumption of normality (Byrne, 2001; Tabachnick & Fidell, 2000). Two key indicators of univariate and multivariate normality are skewness and kurtosis. Data screening revealed violations of univariate and multivariate normality (Mardia's coefficient of multivariate kurtosis = 178.499, $p < .001$). Table 6.6 demonstrates that several variables show significant skewness and kurtosis values (± 3.29 , $p = .001$). Inspection of histograms and box-plots revealed several univariate outliers. Most notably, examination of Mahalanobis d-squared values revealed one univariate outlier, which was subsequently removed from further analysis.

Table 6.6

Absolute and standardised skewness and kurtosis values of the DAAS General section

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
G2	-.628	-5.190	-.427	-1.772
G3	.611	5.0496	-.233	-0.967
G8	1.172	9.686	.477	1.979
G9	-.546	-4.512	-.630	-2.614
G10	.772	6.380	-.530	-2.19
G12	.569	4.702	-.825	-3.423
G13	-.568	-4.694	-.581	-2.411
G14	.586	4.843	-.982	-4.075
G15	-.280	-2.314	-1.058	-4.390
G16	-.014	-0.116	-.850	-3.527
G17	.912	7.537	-.140	-0.581
G18	-.353	-2.917	-.967	-4.012
G19	-.078	-0.645	-.824	-3.419
G20	.722	5.967	-.486	-2.017
G21	.756	6.248	-.371	-1.539
G22	.492	4.066	-.700	-2.905
G23	.739	6.107	-.439	-1.822
G24	.930	7.686	-.041	-0.170
G25	.678	5.603	-.476	-1.975
G26	.542	4.479	-.845	-3.506
G28	-.529	-4.372	-.720	-2.988
G29	.846	6.992	.041	0.170
G31	-.275	-2.273	-.915	-3.797
G32	.493	4.074	-.617	-2.560
G37	-1.226	-10.132	.749	3.108
G38	.935	7.727	-.204	-0.846
G39	-1.143	-9.446	.570	2.365
G40	-.657	-5.430	-.287	-1.191

Table 6.6. *cont.*

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
G41	.691	5.711	-.167	-0.693
G42	.201	1.661	-1.198	-4.971
G43	.658	5.438	-.624	-2.589
G45	.255	2.107	-.694	-2.880
G46	.733	6.058	-.427	-1.772
G48	.717	5.926	-.069	-0.286

The bivariate correlations, means and standard deviations for each item of the DAAS General are presented in Appendix 6N. The variance-covariance matrix data of the sample was then analysed using CFA.

Violations of normality assumption when using CFA: Solutions

There are a range of options for dealing with non-normal data prior to CFA. Traditional transformations, i.e., square root, logarithmic and reciprocal, are possible for small departures from normality (West et al., 1995). West et al. (1995) caution strongly against the use of SEM analyses (including CFA) when assumptions of normality are violated. They further argue that use of such analytic strategies with non-normal data is rife (Byrne, 2001; West et al., 1995). Severely non-normal data with high skewness and/or kurtosis may require the use of bootstrapping. Bootstrapping is a process where statistics (in this case, factor loadings in the CFA model) are generated over a large number of replications, where samples are drawn with replacement from the dataset (Tabachnick & Fidel, 2000). Thus, each case may be drawn several times, or not at all, in each bootstrapped sample (Tabachnick & Fidel, 2000). From this, a confidence interval for each factor loading is generated, giving averaged parameter estimates across the empirical samples (Kline, 1998). These confidence interval estimates can be compared to the estimates retrieved from the original sample. If the estimate from the original sample falls within the confidence interval from the bootstrapped samples, the researcher may

conclude that the CFA resulting from the original data set is robust and stable (Byrne, 2001).

Therefore, the original sample of 407 was bootstrapped to 500 replications and the 90% confidence interval (CI) of the parameter estimates were examined for all CFA analyses. Comparison of the parameter estimates of the original sample of the 90% CIs of the bootstrapped empirical sample distribution revealed all parameter estimates (i.e., factor loadings and covariances) in the original sample fell within the CIs of the bootstrapped data (see Appendix 6O). Thus, the parameter estimates of the original sample were realistic and the dataset was amenable to CFA.

DAAS General Confirmatory Analysis

CFA is a particular application of Structural Equation Modelling (SEM; Byrne, 2001). As such, CFA models are represented using path diagrams. See Figure 6.1 for an example (first DAAS General model). Observed variables (i.e., DAAS items) are represented in rectangles. Unobserved variables (i.e., factors) are represented in ovals. As it is not assumed that the observed variables will be perfectly measured, the model includes an error term for each observed variable. Error terms are not displayed in Figure 6.1 and subsequent figures for ease of presentation. The single-headed arrows denote linear dependencies, and the double-headed arrows represent correlation or covariance between variables in the model. The path coefficients from e1 to G1 for example, are constrained to 1, this is necessary for model identification. Without constraining this value to 1, there is not enough information to estimate the regression from the factor to the observed variable and the variance of the error term simultaneously.

A number of elements are used to determine how well the data 'fits' the hypothesised model. A detailed discussion of approaches to SEM and fit indices is beyond the scope of this thesis. The reader is directed to Byrne (2001) and Tabachnick and Fidell (2001) for further technical detail. A combination approach was used to evaluate model fit (Hu & Bentler, 1999). Four indices of

absolute fit (indicating the degree to which the models predicted the variance-covariance matrix of the data) were used, specifically: the chi-square (χ^2), goodness of fit index (GFI), adjusted goodness of fit (AGFI), and root mean square error of approximation (RMSEA). Two incremental fit indices were also used: the Tucker Lewis index (TLI) and comparative fit index (CFI).

The aforementioned fit indices all have acceptable values that designate satisfactory model fit. For the absolute fit indices these values are: χ^2 non-significant ($p > .05$) (Tabachnick & Fidel, 2001); AGFI and GFI should be as close to 1.00 as possible (Byrne, 2001); RMSEA should be $< .10$ (Tabachnick & Fidel, 2001). Thresholds for the incremental fit indices are TLI close to $.95$ (Byrne, 2001); and CFI $> .95$ (Byrne, 2001; Tabachnick & Fidel, 2001). Whilst thresholds for the various incremental fit indices have been forwarded within the SEM literature, Gignac (2007) suggests that such fit indices are adversely affected in models with a large number of observed variables (30+). There are few recommendations of thresholds for incremental fit indices considering this, and even models that are known to be well fitting may not meet absolute criteria.

Due to the model comparison strategy employed in the analysis of the DAAS, it is important to provide clear criteria to compare the various fit statistics of competing models. Models will be compared statistically using the χ^2 difference test. This test involves taking the difference in χ^2 values and the difference in the degrees of freedom and checking manually for significance using a χ^2 table.

Three-factor model

A number of competing factor structures of the DAAS General were tested using CFA. Model 1 (Figure 6.1) is a first order, three factor structure of attachment, resulting from the *a priori* hypothesised factors (see Table 6.5). The model is classic within the attachment literature and posits the constructs of security, avoidance and anxiety as comprising general attachment (i.e., Hazan & Shaver, 1989). As can be seen in Figure 6.1, this model demonstrates the 34 DAAS items as observed variables (represented in rectangular boxes), loading

on three first order factors as latent variables (represented by the ellipses). Items measuring security load on to the security factor et cetera. It resulted in a marginally well fitting model, $\chi^2(524, N=407) = 1389.035, p < .001$; CFI = .837; TLI = .825; GFI = .822; AGFI = .797; RMSEA = .064. The standardised factor loadings presented in Table 6.9 demonstrate that the secure and anxious factors are quite robust with uniformly strong factor loadings; however the avoidant factor is slightly less robust with lower average factor loadings. The anxious and secure factors are moderately correlated ($r = -.208$); the avoidant factor is highly correlated with the anxious factor ($r = -.872$) and slightly less so with the secure factor ($r = -.523$), see Table 6.10. Previous research is somewhat mixed regarding the correlation of attachment dimensions. For example, some authors (i.e., Bartholomew & Horowitz, 1990; Griffin & Bartholomew, 1994; Scharfe & Bartholomew, 1994) suggest that the attachment factors or dimensions of internal working models are largely independent, or orthogonal. In contrast to this, recent research reports a range of correlations between attachment dimensions (i.e., Fossati, Feeney, Donati, Donini, Novella, Bagnato, Acquarini, & Maffei, 2003; Wei, Russell, Mallinckrodt, & Zakalik, 2004).

Two-factor model

Considering the strong correlation between the anxious and avoidant factors in the three-factor model, a two-factor model was tested. Combining the insecure factors, Model 2 resulted in a worse fitting model compared with the three-factor Model 1, $\chi^2(526, N=407) = 1535.273, p < .001$; CFI = .809; TLI = .797; GFI = .785; AGFI = .756; RMSEA = .069. The two factors are correlated at -.426. Compared with the three-factor model, the two-factor model demonstrates a statistically significant decrease in model fit, $\Delta\chi^2(\Delta df = 2) = 146.238, p < .001$.

Six-factor model

Upon scrutiny of the three *a priori* factors, it is apparent that a more fine-grained analysis of the broad avoidant, anxious and secure factors may be possible. This is consistent with previous research suggesting the presence of

four and five factor solutions (i.e., Carver, 1997; Chotai et al., 2005; Torquati & Raffaelli, 2004; Torquati & Vazonyi, 1999). When investigated using EFA and CFA, the avoidant, anxious and secure items each comprised a respective two-factor solution. As shown in Table 6.7, the fit statistics for the sub-factor models are adequate and suggest good fit. These item clusters are shown in Table 6.8 and Figure 6.2.

Such a model has not been found in the attachment literature however it is congruent with the findings of Feeney et al. (1994), who have found more fine grained factors than the traditional two and three factor models of general attachment. Thus, Model 2 is a six-factor, first order model of general attachment (Figure 6.3). This model performed better than Model 1, $\chi^2(509, N=407) = 1053.20, p < .001$; CFI = .897; TLI = .887; GFI = .867; AGFI = .844; RMSEA = .051, and demonstrates acceptable overall model fit. Compared with the three-factor model, the six-factor model demonstrates a statistically significant increase in model fit, $\Delta\chi^2(\Delta df = 15) = 335.835, p < .001$.

The factor loadings in Table 6.9 indicate varying stability of pattern coefficients with most items loading strongly on their respective factors. The lowest factor loadings remain above .3. Interpretation of this model is compromised by a range of very highly correlated factor couplings, see Table 6.11. It is evident that the first avoidant and first anxious factors are correlated at .981, severely complicating interpretation of the model. Overall, the results of this Model suggest some promise regarding the fine-grained factors identified in the DAAS General, however it is less parsimonious than Model 1, and interpretation is made considerably more complex given the high levels of correlations between factors.

Table 6.7

Avoidant, anxious and secure sub-factor CFA fit statistics (N=407)

	$\chi^2(df)$	GFI	AGFI	RMSEA	TLI	CFI
Secure	147.5(52)	.943	.915	.067	.924	.940
Avoidant	79.8 (43)	.965	.947	.046	.971	.977
Anxious	97.0(41)	.957	.931	.058	.931	.948

Note. All χ^2 values were statistically significant.

Table 6.8

Six factor item clusters and suggested titles

Anxious 1: Uncertainty

- 17 I often feel left out or alone
- 12 When I talk over my problems with others, I feel silly
- 21 I want to feel close to others but I also feel worried about it
- 22 I am not sure that I can always depend on others to be there for me
- 29 Other people often disappoint me
- 26 I worry a lot about my relationships

Anxious 2: Preoccupation, ambivalence

- 20 Sometimes I have to make people I am close to show that I'm special to them
 - 46 I often want to get closer to others than they want to get to me
 - 43 I get worried when people close to me are away
 - 10 Even though I know others will hurt my feelings I keep going back to them for help
 - 14 I worry about being alone
-

Table 6.8. *cont.*

Secure 1: Availability of others, protection

- 16 I am confident that others will really understand my needs
 - 31 Other people can comfort me when I am upset
 - 18 When I am hurting, talking to another person makes me feel better
 - 19 I am easier to get to know than most people
 - 40 I feel sure other people will be there for me when I need them
 - 28 I am very comfortable being close to others
 - 15 When I am sick, I am comfortable depending on another person
 - 13 I am comfortable having other people depend on me
-

Secure 2: Exploration, secure base

- 37 I feel good knowing that other people care about me
 - 39 I feel safe when I am with people I'm close to
 - 9 When I'm close to someone it makes me feel better about life in general
 - 2 Being close to someone makes me feel confident about doing other things
-

Avoidant 1: Others as unavailable

- 25 I find it difficult to trust others
 - 23 People let me down a lot
 - 41 I find it hard to count on others
 - 3 I find it hard to depend on others
 - 38 I feel like no one understands me
 - 8 I worry about people getting too close
 - 32 I choose not to depend on people
 - 42 I find it hard to tell others private things
-

Avoidant 2: Relationships as secondary

- 48 I like to keep distance between myself and others
 - 45 I look forward to spending time on my own
 - 24 I am too busy with other things to put much time into relationships
-

Five-factor model

Following analysis of Model 3, and considering the pattern of correlations between factors, a five-factor model was tested (Figure 6.4). This model collapses the Avoidant 1 and Anxious 1 factors, which are very highly correlated in Model 2. Scrutiny of the items comprising these factors indicates that Avoidant 2 is distinguishable from Avoidant 1 in that Avoidant 2 appears to represent a “relationships as secondary” form of avoidance (i.e., see Feeney et al., 1994). Anxious 2 can be conceptualised as a fearful type of anxiety (i.e., see Bartholomew & Horowitz, 1991). Avoidant 1 and Anxious 1 appear to represent general attachment insecurity. Model 4, the five factor model, demonstrates acceptable fit, $\chi^2(515, N=407) = 1106.96, p < .001$; CFI = .888; TLI = .878; GFI = .859; AGFI = .837; RMSEA = .053. Overall, the five-factor model is statistically significantly less well fitting than the six-factor model, $\Delta\chi^2(6, N = 407) = -53.760, p < .001$; and statistically significantly better fitting than the three-factor model, $\Delta\chi^2(\Delta df = 3) = 282.075, p < .001$.

This model is slightly easier to interpret as the correlations between factors are not as high as those in the six-factor model. Whilst two sets of factor loadings remain high (Secure 1 and Secure 2 $r=.781$; Anxious 1 and Avoidant 2 $r=.789$), they are much lower than those found in the six factor model. A key shortcoming of the five-factor model is the variation in the size of factors (i.e., the range of items per factor is from three to 14). This may pose a problem for the stability of factors and scoring of the measure. Due to these limitations in interpretability, the five-factor model is not considered further.

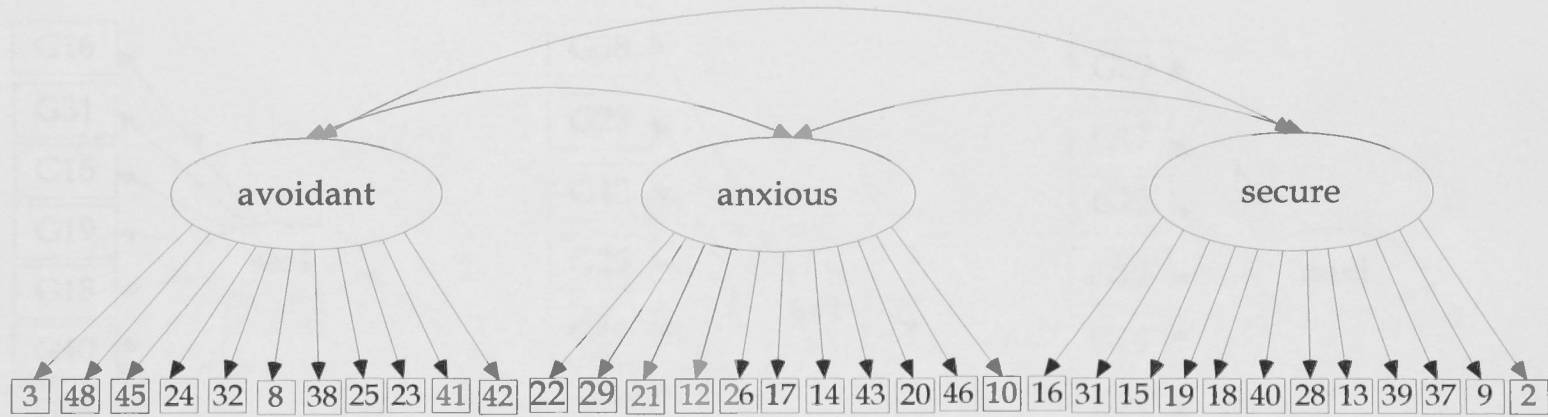


Figure 6.1

DAAS General Model 1: Three-factor model.

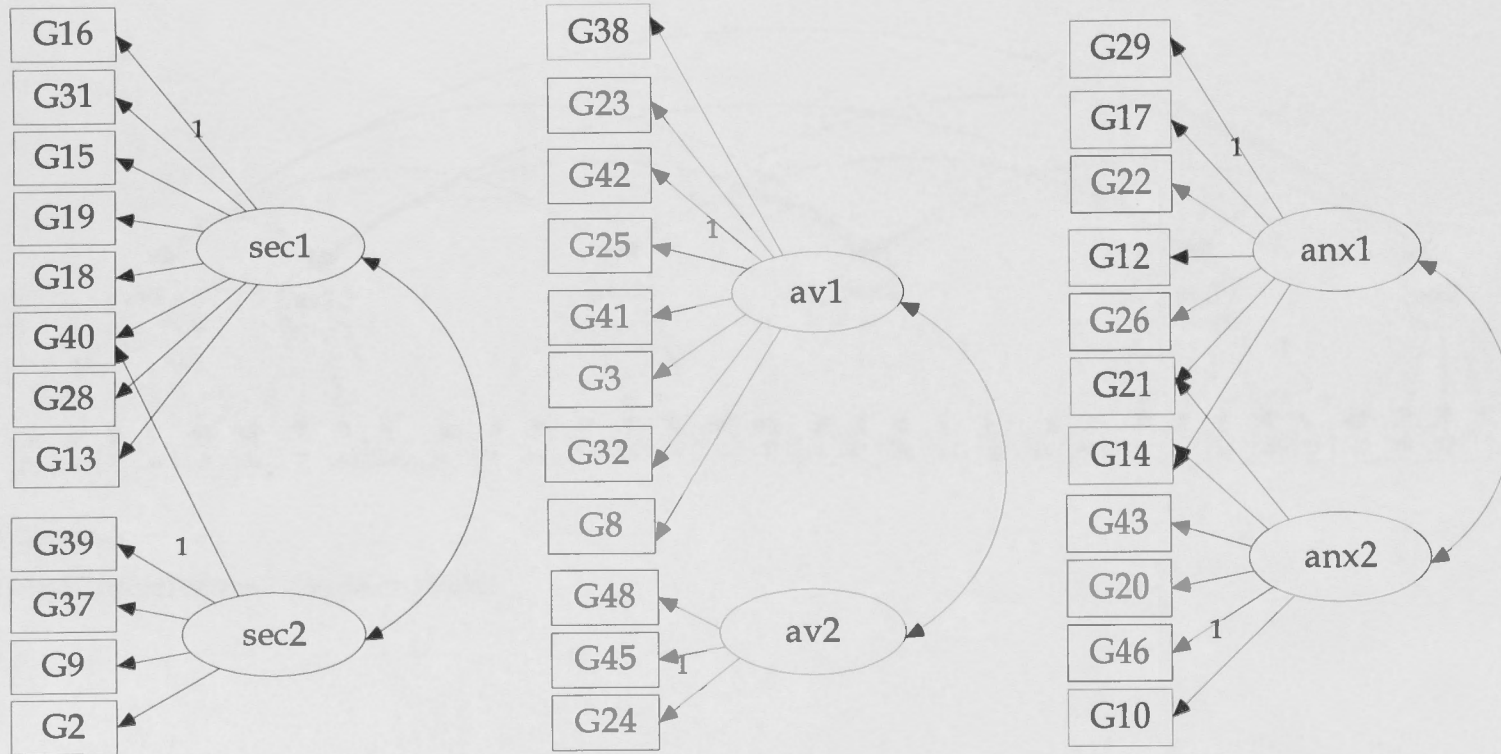


Figure 6.2

CFA models for secure, avoidant and anxious sub-scales.

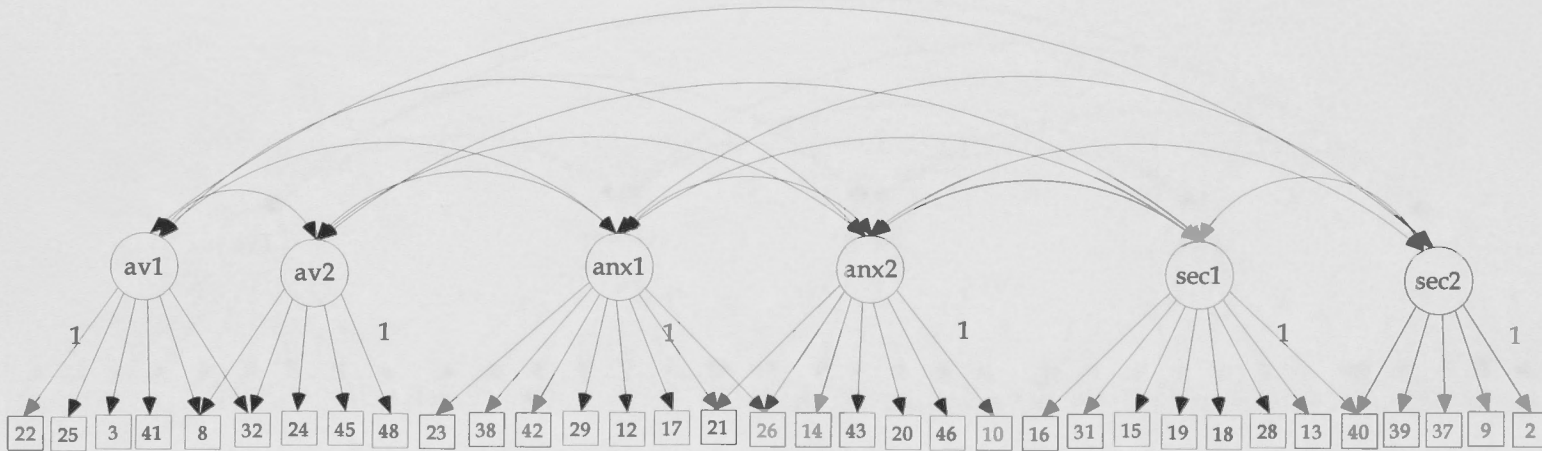


Figure 6.3

DAAS General Model 2: Six-factor model.

Table 6.1

CFA standard loadings for loadings for all models of the DAAS General

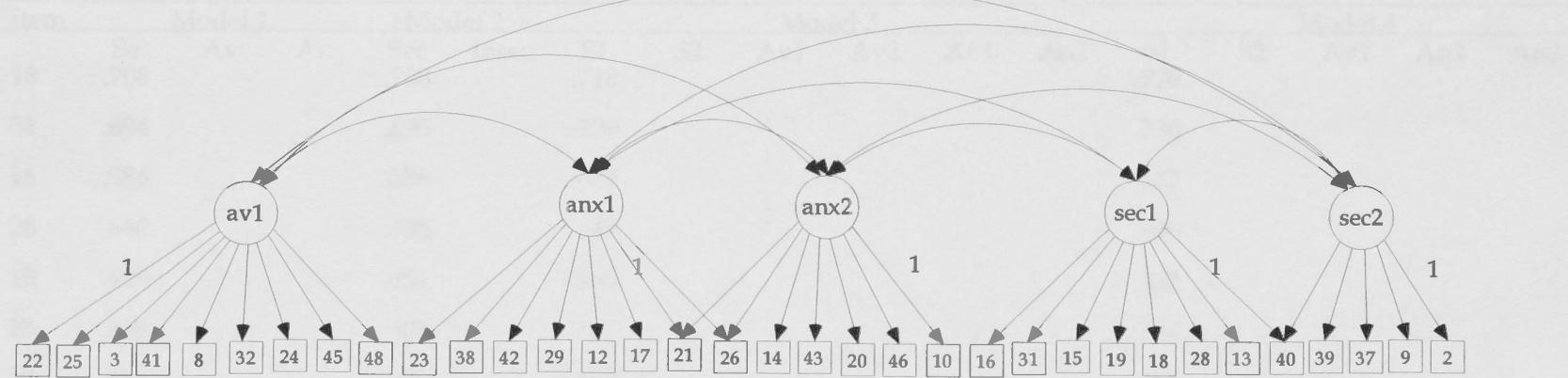


Figure 6.4

DAAS General Model 4: Five-factor model.

Table 6.9. *cont.*

Item	Model 1			Model 2		Model 3						Model 4				
	Se	Av	An	Sec	Insec	S1	S2	Av1	Av2	An1	An2	S1	S2	Av1	An1	An2
3		.700			.674			.696							.682	
41		.762			.740			.755							.747	
23		.749			.770			.756							.762	
38		.722			.727			.728							.731	
42		.564			.553			.561							.560	
48		.566			.546				.675					.675		
45		.329			.324				.438					.439		
24		.480			.454				.588					.588		
22			.578		.578			.564						.575		
29			.704		.719					.707					.713	
17			.678		.678					.678					.677	
12			.518		.529					.540					.535	
26			.631		.584					.601					.576	
21			.755		.692					.517	.276				.471	.367
20			.426		.328						.538					.532
14			.422		.321						.591					.560
46			.489		.395						.573					.469

Table 6.9. *cont.*

Item	Model 1			Model 2		Model 3						Model 4				
	Se	Av	An	Sec	Insec	S1	S2	Av1	Av2	An1	An2	S1	S2	Av1	An1	An2
43			.381		.283						.523					.545
10			.383		.318						.441					.439

Table 6.10

Factor correlations for Model 1.

	1	2	3
1. Secure	<i>.867</i>	-.523	-.208
2. Avoidant		<i>.876</i>	-.872
3. Anxious			<i>.826</i>

Note. Cronbach's alpha in italics on the diagonal

Table 6.11

Factor correlations for Model 2.

	1	2	3	4	5	6
1. S1	<i>.814</i>	.783	-.558	-.551	-.459	.146
2. S2		<i>.788</i>	-.358	-.435	-.201	.263
3. Av1			<i>.872</i>	.806	.981	.528
4. Av2				<i>.590</i>	.737	.253
5. An1					<i>.800</i>	.763
6. An2						<i>.664</i>

Note. Cronbach's alpha in italics on the diagonal

Thus, results of Study 1A indicate that General attachment as measured using the DAAS is best conceptualised as a three-factor model. Results of this study will be considered further in Study 2A with the use of a replication sample.

STUDY 2A: DAAS GENERAL REPLICATION STUDY

A second study was undertaken to replicate the factor structure for the DAAS General found in Study 1A. Amos Version 16.0 was used to conduct CFA analyses of the models retrieved in Study 1A using the second half of the data set and a multi-group invariance analysis procedure. The invariance test compared the factor structure, factor loadings and covariances across two samples of adolescents.

METHOD

Participants

The validation sample comprised 409 high school students (171 males, 235 females). Ages ranged between 9 and 18 years ($M = 14.58$ years, $SD = 1.40$ years).

Materials and Procedure

As with Study 1A, the DAAS General was administered as part of a composite questionnaire. See Study 1A for further details.

RESULTS

Across both cross-validation samples, the items of the DAAS General did not violate assumptions of univariate normality (skewness of $|2.0|$ and kurtosis of $|4.0|$). Mardia's multivariate statistic for kurtosis suggested the data was multivariate normal and thus Maximum Likelihood Estimation was employed across all analyses. See Study 1A for details of the three and six factor models.

Multigroup-Factorial Invariance: Three-factor model

A baseline unconstrained model was fitted to the data and resulted in acceptable fit $\chi^2(1036, N = 409) = 2518.219, p < .05$; CFI = .858; TLI = .847; GFI =

.837; AGFI = .813; RMSEA = .042. This model was then compared to a partially constrained invariant model to identify any factor loadings differing significantly across the groups (for a detailed description of multigroup invariance testing see Byrne, 2004). The constrained parameters were factor loadings, factor variances and factor covariances. The partially constrained invariant model provided an acceptable fit to the data, $\chi^2(1078, N = 409) = 2576.047, p < .05$; CFI = .857; TLI = .851; GFI = .832; AGFI = .815; RMSEA = .041. As a result, there was no statistically significant difference between the two models $\Delta\chi^2(\Delta df = 42) = 57.828, p < .05$. The factor loadings for the model are presented in Table 6.12.

Multigroup-Factorial Invariance: Six-factor model

A baseline unconstrained model was fitted to the data and resulted in acceptable fit $\chi^2(1018, N = 409) = 2099.202, p < .05$; CFI = .897; TLI = .886; GFI = .868; AGFI = .846; RMSEA = .036. This model was then compared to a partially constrained invariant model to identify any factor loadings differing significantly across the groups (for a detailed description of multigroup invariance testing see Byrne, 2004). The constrained parameters were factor loadings, factor variances and factor covariances. The partially constrained invariant model provided acceptable fit to the data, $\chi^2(1070, N = 409) = 2148.964, p < .05$; CFI = .897; TLI = .892; GFI = .864; AGFI = .849; RMSEA = .035. As a result, there was no statistically significant difference between the two models $\Delta\chi^2(\Delta df = 52) = 49.762, p > .05$. The factor loadings for the two models are presented in Table 6.12.

Table 6.12

*CFA standardised factor loadings for the DAAS General three-factor and six-factor models
(Replication Sample; N=409)*

	Model 1				Model 2				
	Se	Av	An	S1	S2	Av1	Av2	An1	An2
18	.723			.725					
31	.621			.631					
16	.678			.710					
28	.669			.669					
15	.570			.583					
13	.463			.471					
19	.352			.367					
40	.732			.451	.304				
39	.675				.715				
37	.676				.719				
9	.582				.629				
2	.605				.627				
32		.609				.600			
8		.590				.588			
25		.769				.769			
3		.652				.644			
41		.745				.744			
23		.686				.698			
38		.644				.650			
42		.575				.581			
48		.514					.731		
45		.328					.519		
24		.492					.601		
22			.611					.611	
29			.643					.689	

Table 6.12. *cont.*

	Model 1			Model 2					
	Se	Av	An	S1	S2	Av1	Av2	An1	An2
17			.668					.643	
12			.493					.516	
26			.692					.640	
21			.696					.495	.223
20			.476						.548
14			.546						.627
46			.488						.527
43			.414						.511
10			.446						.502

DISCUSSION: STUDIES 1A AND 2A²

In Studies 1A and 2A the process for investigating the factor structure of the DAAS General was detailed. An extensive psychometric investigation was undertaken. A number of alternative models of general attachment were hypothesised. It appears that Model 1 offers the most parsimonious, theoretically appropriate conceptualisation of the DAAS General. Model 2 also suggests some promise with adequate model fit, however interpretation is somewhat complicated by high correlations between the six factors. A five-factor model was investigated in response to the very high correlation between two factors in Model 2. The five-factor model retrieved slightly poorer model fit compared to the six-factor model. Furthermore, in the five-factor model, the variation in the size of factors (i.e., the range of items per factor is from three to 14) may pose a problem for the stability of factors and scoring of the measure. A subscale level CFA was undertaken to explore the relationship between Models 1 and 2 however this model does not suggest superior model fit compared with Models 1 and 2. As Models 1 and 2 for

² See Chapter Nine for a general discussion of the DAAS psychometric studies and the limitations of this study

the DAAS General may be of use in research and clinical contexts, two sets of scales were constructed for the measure.

Although a two-dimensional (anxiety/avoidance) conceptualisation of attachment has become ubiquitous within the area of adult romantic relationships, this is not necessarily the best conceptualisation for the measurement of general attachment orientation for adolescents. Johnson, Ketring and Abshire (2003) draw attention to the assumption that attachment measures are often established using undergraduate, educated samples and that "even the participants used to derive common constructs were undergraduate students" (Johnson et al., 2003, p. 345). It is important to empirically test whether these findings generalise to other populations. Extensive psychometric investigation of the ASQ (i.e., Feeney et al., 1994; Karantzas, Feeney & Wilkinson, in press) suggests a number of ways to conceptualise general attachment above and beyond a two-dimensional solution. For example, Karantzas et al. (in press) suggest a nested factor model with both broad attachment factors (anxiety and avoidance), as well as five more specific factors (discomfort with closeness, relationships as secondary, confidence, need for approval, preoccupied). Furthermore, other researchers (i.e., Carver, 1997; Chotai, Jonasson, Hagglof, & Adolfsson, 2005; Torquati & Raffaelli, 2004; Torquati & Vazonyi, 1999) continue to find three, four and five factor solutions for various measures of general attachment in adolescence.

Several researchers have reported and discussed different types of anxiety and avoidance. For example, Bartholomew (1990; Bartholomew & Horowitz, 1991) identified two types of avoidance: fearful-avoidance and dismissing-avoidance. She argues for two distinct patterns of avoidance, those who are avoidant towards attachment relationships to prevent being hurt or rejected; and those who develop an avoidant orientation to maintain defensive self-reliance and independence. Similarly, in developing the Measure of Attachment Qualities (MAQ), Carver (1997) found two types of anxiety or ambivalence: ambivalence-worry and ambivalence-merger. The former is a pattern of overt anxiety around attachment

bonds with a sense of worry regarding abandonment and betrayal; the latter focuses on approach and merging elements of attachment anxiety (Carver, 1997).

It is arguable that these more specific facets of attachment relationships may be of clinical relevance. It is of minimal utility to formulate a clinical case with reference to levels of attachment anxiety and avoidance in comparison with the capacity to discuss a client's need for approval, fearful avoidance or ambivalence regarding abandonment for example. A key shortcoming of the two-dimensional avoidance/anxiety conceptualisation of attachment relationships is disregard for the unique nature of attachment security (Bäckström, & Holmes, 2007). In the avoidance/anxiety model, attachment security is defined as a low score on avoidance and low scores on anxiety. Furthermore, Fraley et al. (2000) argue that both the ECR and the ECR-R "assess high levels of security (i.e., low Anxiety and low Avoidance) with considerably less precision than insecurity" (Fraley et al., 2000, p. 360). It is arguably intuitive to suggest that security is qualitatively different from not being anxious and not being avoidant. Similarly, happiness is more than the absence of depression. Carver makes a related point, suggesting a general dissatisfaction with attachment scales that fail to measure a sense of security "in any way other than as low insecurity" (Carver, 1997, p. 867). He suggests elements of safe haven and secure base that are not conceptualised by low scores on measures on insecurity.

Results suggest that a three-factor model offers the most accurate conceptualisation of general attachment orientation in this adolescent sample. Investigation of more fine-grained factors was undertaken. These results add to the growing body of literature suggesting both the presence of specific and broad attachment factors (i.e., Feeney et al., 1994, Karantzas et al., in press).

CHAPTER SEVEN

DAAS MATERNAL PSYCHOMETRIC ANALYSIS

Introduction

The maternal section is the second DAAS scale to be subject to psychometric analysis. Maternal attachment has received extensive theoretical and empirical consideration in the literature since the conception of attachment theory. Maternal attachment is often seen as the most prototypical, quintessential example of an attachment bond. In moving from the DAAS General to the DAAS Maternal, there is a move in the level of cognitive processing used from the general and abstract representation to the specific representation of a relationship (Overall et al., 2003).

Currently, adolescent maternal attachment is measured with self-report most commonly by the IPPA (either for both parents or reworded specifically for mothers), a reworded version of the RQ or a reworded version of the Hazan and Shaver (1987) adult attachment prototypes measure (see Chapter Four for a discussion of this measure). The maternal section of the DAAS is an attempt to measure adolescent-maternal attachment independently of general or parental attachment. This chapter presents exploratory and confirmatory analysis for the DAAS Maternal and follows an similar process to Chapter Six.

STUDY 1B: DAAS MATERNAL

METHOD

Participants

See Study 1A. Participants included high school and college students (Years 7-12) in the Australian Capital Territory and New South Wales. Participants were recruited from five government high schools and colleges and three Catholic High Schools. Data was collected between March and November 2008.

Data was collected using two questionnaires (see Appendix 6A for details) during two instances of data collection. A total of 880 individuals volunteered to participate in the study. Approximately 63 questionnaires were discarded due to incorrect completion. Therefore, a total of 817 surveys were retained for analysis. Participants' mean age was 14.61 ($SD= 1.46$) years, with a range from 9.75 to 18.25 years.

Design

See Study 1A.

Materials

The following materials were contained within a composite questionnaire designed specifically for this study.

Demographic characteristics See Study 1A.

Domains of Adolescent Attachment Scales. The DAAS is a new measure of adolescent attachment with a self-report questionnaire format. See Chapter Five for details of the development of this measure. The DAAS is structured in four independent section sections: general attachment orientation, attachment to mother, father, and best friend. This is to measure a global attachment style, and attachment to the theorised three primary attachment figures in an adolescent's attachment network. There are 36 items for each section and the response format is a five-point Likert scale response format ("Not at All" to "Very Much"). The four sections of the DAAS were counterbalanced in the questionnaire to counter any response bias based on order.

Procedure

See Study 1A.

RESULTS

DAAS Maternal psychometric investigation

DAAS psychometric investigation was undertaken using a random 50% of the total sample. The remaining 50% of the sample is used in the replication study, Study 2B below.

The initial sample comprised 409 high school students (183 males, 223 females). Ages ranged between 9 and 17 years ($M = 14.63$ years, $SD = 1.32$ years).

Exploratory analysis

See Study 1A for details on reducing the number of items in the DAAS Maternal. A list of deleted maternal items is contained in Appendix 7A.

Table 7.1 below contains each item in the DAAS Maternal, the item name, the *a priori* hypothesised attachment construct of each item and whether the item is positively or negatively worded; negative item wording denotes reverse scoring.

Table 7.1

The 36 items of the DAAS Maternal

Item Number	Item	Item wording		Dimension
		Neg	Pos	
M1	I don't feel comfortable opening up to my mother	✓		Avoidant
M2	My mother treats me like a young child	✓		Anxious
M4	Sometimes my mother changes her feelings about me and I can't tell why	✓		Anxious
M7	When I go to my mother for help I still feel confused	✓		Anxious

Table 7.1. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
M9	My mother can tell when I'm upset about something		✓	Secure
M12	I feel comfortable depending on my mother	✓		Avoidant
M13	My mother encourages me to talk about my problems		✓	Secure
M14	I find it hard to let myself depend on my mother		✓	Anxious
M15	My mother has her own problems, so I don't bother her with mine		✓	Anxious
M16	I find it hard to trust my mother		✓	Avoidant
M17	My mother helps me to understand myself better		✓	Secure
M20	I need a lot of reminding that I am loved by my mother		✓	Anxious
M21	I often feel angry with my mother and I don't know why		✓	Anxious
M23	I often worry that my mother doesn't really love me		✓	Anxious
M24	I talk things over with my mother	✓		Avoidant
M25	My mother is around to give me advice or help when I want it		✓	Secure
M26	I talk to my mother when I am having a problem		✓	Secure
M27	My mother has no idea what I am feeling or thinking		✓	Avoidant

Table 7.1. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
M28	I tell my mother just about everything	✓		Avoidant
M29	My mother pays attention to me		✓	Secure
M30	I trust my mother		✓	Secure
M31	My mother really understands me and my needs	✓		Avoidant
M32	I try to stop getting too close to my mother		✓	Avoidant
M33	My mother has trust and confidence in me		✓	Secure
M34	I usually discuss my problems and worries with my mother	✓		Avoidant
M35	I want to get close to my mother, but I keep pulling back		✓	Anxious
M36	I wish I had a different mother		✓	Anxious
M37	My mother only seems to notice me when I'm angry		✓	Anxious
M38	I'm sure that my mother will listen to me		✓	Secure
M39	I'm sure that my mother will try to understand my feelings		✓	Secure
M40	My mother is sensitive to my feelings and needs		✓	Secure
M42	It helps to turn to my mother in times of need	✓		Avoidant
M44	It makes me feel good to be able to do things for my mother		✓	Secure
M46	Just when my mother starts to get close I find myself pulling away		✓	Avoidant

Table 7.1. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
M47	My mother makes me doubt myself		✓	Anxious
M48	I don't show my mother how I feel deep down		✓	Avoidant

Data screening

See Study 1A for a discussion on data screening for the assumptions of CFA. Data screening revealed violations of univariate and multivariate normality (Mardia's coefficient of multivariate kurtosis = 372.976, $p < .001$). Table 7.2 demonstrates that several variables show significant skewness and kurtosis values (± 3.29 , $p = .001$). Inspection of histograms and box-plots revealed several univariate outliers. Most notably, examination of Mahalanobis d-squared values showed eight univariate outliers, which were removed from further analysis.

Table 7.2

Absolute and standardised skewness and kurtosis values of the DAAS Maternal Section

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
M1	.872	7.207	-.356	-1.477
M2	1.012	8.364	.078	0.324
M4	1.010	8.347	-.105	-0.436
M7	.622	5.140	-.672	-2.788
M9	-.566	-4.678	-1.037	-4.303
M12	-.921	-7.612	-.328	-1.361
M13	-.523	-4.322	-.954	-3.959
M14	.844	6.975	-.431	-1.788
M15	.501	4.140	-.814	-3.378

Table 7.2

Absolute and standardised skewness and kurtosis values of the DAAS Maternal Section

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
M16	1.641	13.562	1.534	6.365
M17	-.168	-1.388	-1.129	-4.685
M20	1.392	11.504	.786	3.261
M21	.987	8.157	-.277	-1.149
M23	2.169	17.926	3.569	14.809
M24	-.238	-1.967	-1.120	-4.647
M25	-.733	-6.058	-.570	-2.365
M26	-.137	-1.132	-1.192	-4.946
M27	.742	6.132	-.453	-1.880
M28	.056	0.463	-1.277	-5.299
M29	-.932	-7.702	-.056	-0.232
M30	-1.445	-11.942	.875	3.631
M31	-.650	-5.372	-.784	-3.253
M32	1.253	10.355	.580	2.407
M33	-1.159	-9.579	.441	1.830
M34	-.127	-1.050	-1.171	-4.859
M35	1.511	12.488	1.456	6.041
M36	2.805	23.182	7.367	30.568
M37	1.888	15.603	2.822	11.710
M38	-1.113	-9.198	.216	0.896
M39	-.981	-8.107	-.055	-0.228
M40	-.504	-4.165	-.822	-3.411
M42	-.469	-3.876	-1.012	-4.199
M44	-.847	-7.000	-.399	-1.656
M46	1.250	10.331	.564	2.340
M47	1.689	13.959	1.849	7.672
M48	.537	4.438	-.987	-4.095

The bivariate correlations, means and standard deviations for each item of the DAAS Maternal are presented in Appendix 7B. The variance-covariance matrix data of the sample was then analysed using CFA.

Violations of normality assumption when using CFA: Solutions

See Study 1A for a discussion of this issue and details pertaining to bootstrapping. The original sample of 409 was bootstrapped to 500 replications and the 90% confidence interval (CI) of the parameter estimates were examined for all CFA analyses. Comparison of the parameter estimates of the original sample of the 90% CIs of the bootstrapped empirical sample distribution revealed all parameter estimates (i.e., factor loadings and covariances) in the original sample fell within the CIs of the bootstrapped data (see Appendix 7C). Thus, the parameter estimates of the original sample were realistic and the dataset was amenable to CFA.

DAAS Maternal confirmatory analysis

A number of competing factor structures of the DAAS Maternal were tested using CFA. As with the DAAS General, Model 1 (Figure 7.2) is a first order, three factor structure of attachment, resulting from *a priori* hypothesised factors (see Table 7.1). This model was a poor fit to the data, χ^2 (591, $N=409$) = 2497.457, $p < .001$; CFI = .801; TLI = .788; GFI = .686; AGFI = .647; RMSEA = .089. It is evident that the overall fit statistics are less than desirable. Additionally, the model is compromised by a very strong correlation between the three factors: avoidant and secure ($r=.954$), avoidant and anxious ($r=-.779$), secure and anxious ($r=-.723$).

In order to further investigate the structure of the DAAS Maternal, an EFA analysis was conducted. Maximum Likelihood estimation (ML) with oblique rotation (Direct Oblimin) was performed to investigate the underlying structure of the 36 DAAS Maternal items. The scree plot (Figure 7.1) and eigenvalues for the Maternal section suggest a three-factor solution however on examination of the

pattern matrix, the third factor is largely unsubstantiated (five items load on the third factor and the highest factor loading is .355). Four and five factor solutions were also unsubstantiated. A two-factor solution was thus generated (see Table 7.3). Two factors account for 52.8% of variance. The factor correlation matrix indicated that Factor 1 and 2 are correlated at $-.583$. Items loading on the first factor are indicative of a secure attachment relationship, characterised by trust, support, availability and responsiveness; items loading on the second factor indicate an insecure attachment relationship, characterised by uncertainty, avoidance, and preoccupation.

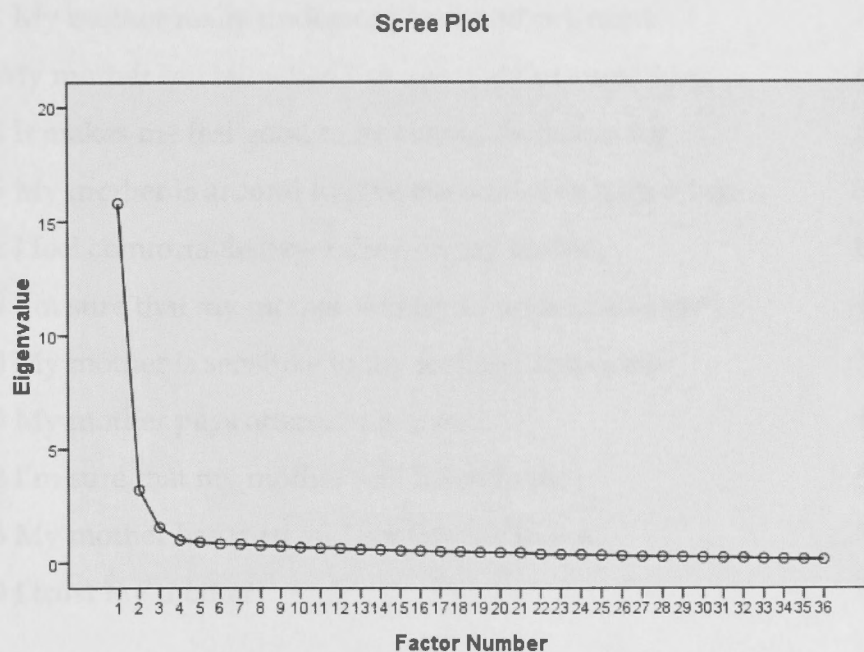


Figure 7.1

Scree plot from ML Estimation of remaining 36 Maternal DAAS items

Table 7.3

ML estimation two-factor solution pattern matrix for 36 Maternal DAAS items

Items	Factor 1	Factor 2
34 I usually discuss my problems and worries with my ...	.872	
26 I talk to my mother when I am having a problem	.860	
24 I talk things over with my mother	.845	
28 I tell my mother just about everything	.832	
13 My mother encourages me to talk about my problems	.759	
17 My mother helps me to understand myself better	.759	
42 It helps to turn to my mother in times of need	.716	
31 My mother really understand me and my needs	.690	
9 My mother can tell when I'm upset about something	.688	
44 It makes me feel good to be able to do things for ...	.681	
25 My mother is around to give me advice or help when ...	.635	
12 I feel comfortable depending on my mother	.632	
39 I'm sure that my mother will try to understand my ...	.621	
40 My mother is sensitive to my feelings and needs	.577	
29 My mother pays attention to me	.541	
38 I'm sure that my mother will listen to me	.528	
33 My mother has trust and confidence in me	.521	-.339
30 I trust my mother	.493	-.431

Table 7.3. *cont.*

Items	Factor 1	Factor 2
23 I often worry that my mother doesn't really love me	.	.785
46 Just when my mother starts to get close I find myself ...		.717
4 Sometimes my mother changes her feelings about me ...		.678
20 I need a lot of reminding that I am loved by my mother		.676
21 I often feel angry with my mother and I don't know why		.673
47 My mother makes me doubt myself		.664
35 I want to get close to my mother, but I keep pulling back		.655
32 I try to stop getting too close to my mother		.624
37 My mother only seems to notice me when I'm angry		.608
16 I find it hard to trust my mother		.606
7 When I go to my mother for help I still feel confused		.569
36 I wish I had a different mother		.556
2 My mother treats me like a young child		.538
48 I don't show my mother how I feel deep down		.486
15 My mother has her own problems, so I don't bother ...		.470
27 My mother has no idea what I am feeling or thinking		.469
14 I find it hard to let myself depend on my mother		.449
1 I don't feel comfortable opening up to my mother		.360
Subscale reliabilities (Cronbach's alpha)	.958	.925

Thus, EFA suggests a two-factor solution for the DAAS Maternal. While there are some minimal crossloadings between the two factors, the two-factor solution is quite clear. Both factors demonstrate very high internal consistency. Although three factors were hypothesised and items were sampled from secure, avoidant and anxious attachment domains, when entered into the EFA items grouped as per secure and insecure. It appears that the avoidant items split between the insecure and secure factors based on whether they were positively or negatively worded (i.e., negatively worded avoidant items load on the secure

factors, positively worded avoidant items load on the insecure factor). When secure items were removed from the solution and an EFA was run on the 24 insecure items, a two factor solution was found however items distributed themselves between the two factors in the same way as in the three factor solution with all 36 items, namely, the negatively worded avoidant items formed their own factor and the positively worded avoidant items grouped with the anxious items.

The two-factor model derived from the EFA was tested using CFA (Figure 7.3). It resulted in a marginally fitting model, $\chi^2(593, N=408) = 2131.732$ $p < .001$; CFI = .839; TLI = .829; GFI = .725; AGFI = .692; RMSEA = .080. Compared with the three-factor model, the two-factor model shows statistically significantly improved model fit, $\Delta\chi^2(\Delta df = 2) = 365.725$, $p < .001$. The standardised factor loadings show strong loading of each item on the respective factor. Loadings on the secure factor are slightly higher (i.e., $>.800$) than on the insecure factor, however, the lowest factor loading on either factor is relatively high. Where items were constrained to cross-load on both factors, there are instances where the factor loading to the second factor is low (i.e., M1 loads on the insecure factor at .413 and at $-.183$ on the secure factor; M38 loads on the insecure factor at $-.327$ and at .415 on the secure factor; M30 loads on the insecure factor at $-.400$ and on the secure factor at .426), therefore, these crossloadings were removed from the model. The two factors are correlated at $-.738$.

Due to the strong correlation between the secure and insecure factors in Model 2, a one-factor model was considered. There is no existing theoretical basis for testing a one-factor model of maternal attachment. Furthermore, the EFA scree plot above clearly demonstrates the presence of multiple factors. For this reason, a one-factor model was not considered further.

Modification indices for Model 2 suggested three pairs of correlated error terms. Upon scrutiny of these items it was evident that items 38 and 39 both refer to maternal availability/understanding ($MI = 106.686$, $EPC = .274$); and items 26 and 34 both refer to discussing "problems" ($MI = 86.370$, $EPC = .312$). Finally, the

error covariances for item 28 and 34 were freely estimated as both refer to disclosing information with one's mother ($MI = 81.951$, $EPC = .343$).

These modifications were made sequentially and the model re-estimated following each alteration. Freely estimating the error variance between items 38 and 39 improved model fit, $\chi^2 (592, N=408) = 2012.713$, $p < .001$; CFI = .852; TLI = .842; GFI = .742; AGFI = .710; RMSEA = .077. Secondly, freely estimating the error variance between items 26 and 34 further improved all fit statistics, $\chi^2 (591, N=408) = 1932.011$, $p < .001$; CFI = .860; TLI = .851; GFI = .760; AGFI = .730; RMSEA = .075. Finally, freely estimating the error covariance between items 28 and 34 improved model fit, $\chi^2 (590, N=408) = 1887.542$, $p < .001$; CFI = .865; TLI = .855; GFI = .766; AGFI = .736; RMSEA = .073. This final respecified model (Modified Model 2) constitutes statistically significantly improved model fit compared with the original Model 2, $\Delta\chi^2(\Delta df = 1) = 609.915$, $p < .001$, see Table 7.4 for the final standardised factor loadings.

Table 7.4

CFA standardised factor loadings for the DAAS Maternal

	Model 1			Model 2	
	Secure	Avoidant	Anxious	Secure	Insecure
17	.687			.699	
13	.642			.652	
9	.793			.600	
44	.723			.725	
25	.725			.722	
26	.777			.809	
40	.717			.703	
39	.854			.830	
33	.726			.712	
38	.808			.782	
29	.763			.757	
30	.814			.796	
34		.799		.805	
28		.759		.759	
24		.769		.782	
42		.793		.797	
12		.783		.785	
31		.754		.767	
1		-.609			.616
27		-.580			.630
48		-.528			.607
16		-.690			.746
32		-.584			.699
46		-.583			.740
23			.743		.718
21			.696		.690

Table 7.4. *cont.*

	Model 1			Model 2	
	Secure	Avoidant	Anxious	Secure	Insecure
37			.607		.594
20			.577		.541
47			.706		.691
36			.651		.647
35			.554		.571
4			.675		.638
2			.536		.556
7			.644		.633
14			.623		.629
15			.554		.576

Thus, results of Study 1B indicate that Maternal attachment as measured using the DAAS is best conceptualised as a two-factor model. Results of this study will be considered further in Study 2B with the use of a replication sample.

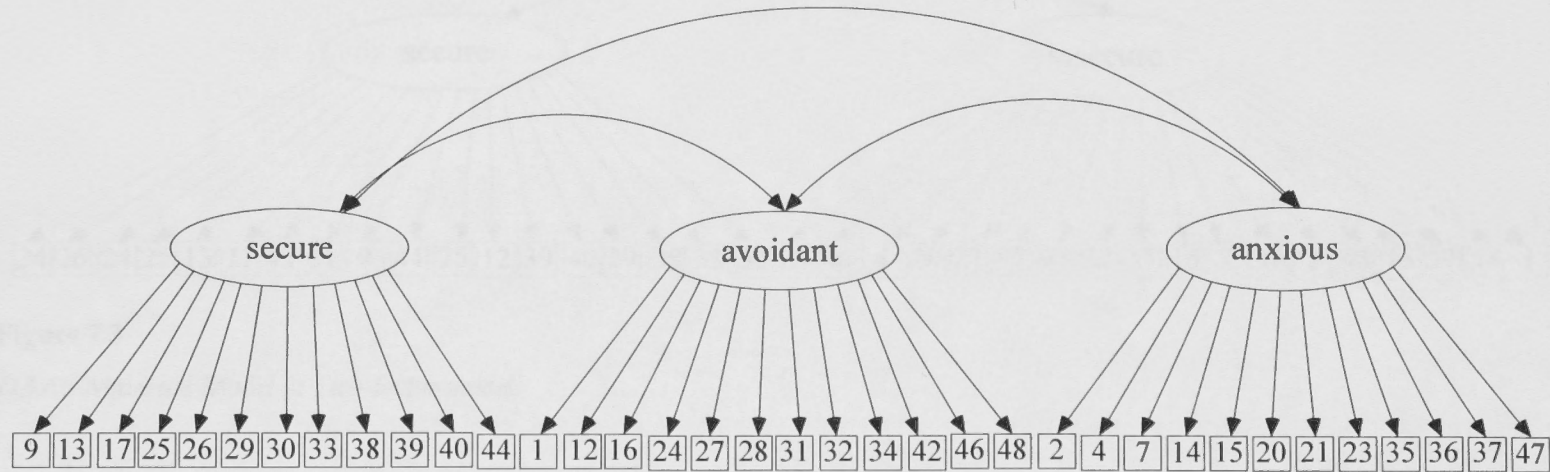


Figure 7.2

DAAS Maternal Model 1: Three-factor model.

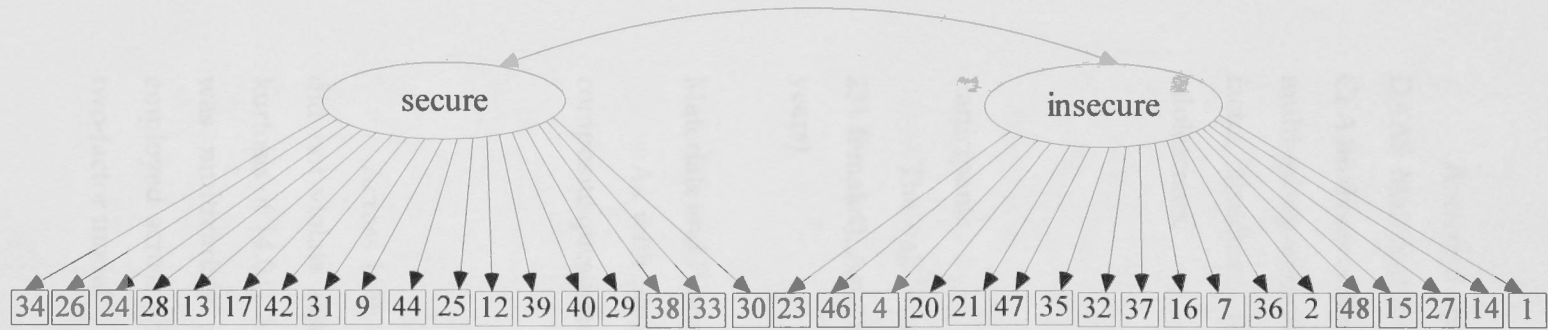


Figure 7.3

DAAS Maternal Model 2: Two-factor model.

STUDY 2B: DAAS MATERNAL REPLICATION STUDY

A second study was undertaken to replicate the factor structure for the DAAS Maternal found in Study 1B. Amos Version 16.0 was used to conduct CFA analyses of the models retrieved in Study 1B using a second data set and a multi-group invariance analysis procedure. The invariance test compared the factor structure, factor loadings and covariances across two samples of adolescents.

METHOD

Participants

The validation sample comprised 408 high school students (174 males, 231 females). Ages ranged between 10 and 18 years ($M = 14.70$ years, $SD = 1.26$ years).

Materials and Procedure

As with Study 2A, the DAAS Maternal was administered as part of a composite questionnaire. See Study 2A for further details.

RESULTS

Across both cross-validation samples, the items of the DAAS Maternal did not violate assumptions of univariate normality (skewness of $|2.0|$ and kurtosis of $|4.0|$). Mardia's multivariate statistic for kurtosis suggested the data was multivariate normal and thus Maximum Likelihood Estimation was employed across all analyses. See Study 1B for details of the DAAS Maternal two-factor model.

Multigroup-Factorial Invariance: Two-factor model

A baseline unconstrained model was fitted to the data and resulted in acceptable fit $\chi^2(1170, N = 408)$. This model was then compared to a partially constrained invariant model to identify any factor loadings differing significantly across the groups (for a detailed description of multigroup invariance testing see Byrne, 2004). The constrained parameters were factor loadings, factor variances and factor covariances. The partially constrained invariant model provided acceptable fit to the data, $\chi^2(1216, N = 408) = 3679.140, p < .05$; CFI = .865; TLI = .860; GFI = .764; AGFI = .742; RMSEA = .050. There was a statistically significant difference between the two models $\Delta\chi^2(\Delta df = 46) = 78.401, p > .05$. Systematic chi-squared difference testing revealed four statistically significant factor loadings (Items 23, 21, 20 and 46 on the Insecure factor). All factor variances and covariances were equal across the two samples. The factor loadings for the final model are presented in Table 7.5.

Table 7.5

*CFA standardised factor loadings for the DAAS Maternal two-factor model
(Replication sample)*

Item	Secure	Insecure
17	.685	
13	.629	
9	.644	
44	.712	
25	.747	
26	.795	
40	.651	
39	.742	
33	.700	
38	.679	
29	.718	

Table 7.5 *cont.*

30	.762
34	.784
28	.720
24	.774
42	.756
12	.742
31	.759
1	.572
27	.664
48	.615
16	.732
32	.644
46	.581
23	.676
21	.634
37	.687
20	.627
47	.687
36	.629
35	.496
4	.602
2	.573
7	.520
14	.652
15	.526

¹ See Chapter Nine for a general discussion of the limitations of this study.

DISCUSSION: STUDIES 1B AND 2B³

Studies 1B and 2B, the process for investigating the factor structure of the DAAS Maternal was detailed. An extensive psychometric investigation was undertaken. A number of alternative models of maternal attachment were hypothesised. It appears that the modified Model 2 demonstrates the best conceptualisation of maternal attachment, that is, a two-factor model. The two factors are highly internally consistent and are replicated in the second sample using a multi-group invariance test. Although items were sampled from the three hypothesised domains of security, anxiety, and avoidance; these three factors were not discernible with either EFA or CFA. The avoidant items did not form a coherent factor but split between the secure and insecure factors. Maternal attachment in the current study is best characterised as a secure factor and an insecure factor.

The analysis undertaken in this chapter is somewhat unique in the literature. While extensive factor analytic studies have been undertaken for a number of general and romantic attachment measures in adulthood (i.e., Bartholomew & Horowitz, 1994; Feeney et al., 1994), this has not occurred for a measure of maternal attachment in adolescence. When the IPPA was developed, the parental items were subject to exploratory factor analysis (Armsden & Greenberg, 1987) but this has not been published for a maternal version of the IPPA Parent scale. Results of this chapter demonstrate the fundamentally different nature of attachment in adolescence when one moves from a general attachment orientation to a specific attachment bond.

The findings demonstrate that the measurement of attachment in adolescence is dependent on the relationship under consideration, and that the structure of attachment found in childhood and adulthood may not necessarily be extrapolated to other life stages, i.e., the model of anxiety/avoidance is

³ See Chapter Nine for a general discussion of the DAAS psychometric studies and the limitations of this study.

largely ubiquitous in the adult romantic attachment literature however it does not appear to offer an accurate picture of attachment in adolescence.

CHAPTER EIGHT

DAAS PATERNAL PSYCHOMETRIC ANALYSIS

Introduction

The third section of the DAAS to be analysed is the Paternal section. Of the attachment relationships measured using the DAAS, Paternal attachment is the most exploratory. It has received a small proportion of the research attention focussed on general and maternal attachment bonds. Each person has a biological father and most spend up to the first two decades of life living in the same residence as their father. In the first instance, a father is as necessary as a mother. Following conception, the equal importance of the father, when compared with the mother, is not necessarily the case.

Several authors highlight the influence of culture on the role of fatherhood, arguing that fatherhood is much more culturally determined than is motherhood (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Goodman, 1959). For some families within industrialised societies, the key role of fatherhood is providing for the family economically, and according to some authors, providing care indirectly to the children by providing emotional support to one's wife (Goodman, 1959). Within the United States and other Western, developed societies, Cabrera et al. (2000) highlight the influence cultural factors such as women's increased labour force participation, increased absence of non-residential fathers in their children's lives, increased involvement of fathers in intact families and increased cultural diversity in many societies i.e., North America, Britain, Australia. Cabrera et al. (2000) argue that the gap between involved and uninvolved fathers is widening, that is, involved fathers are becoming more involved as mothers increasingly take on paid employment and the mother moves from being a primary caregiver to being a "coparent"; conversely, uninvolved fathers are becoming even less involved, with more children growing up in single-parent (i.e., single-mother) homes than ever before.

This paints an interesting context for the consideration of the role of fathers in the lives of their adolescent children. In a study on the emotional ecology of adolescent-father relationships, Larson (1993) argues that

Many fathers still see parenting as discretionary. They relate to their adolescent children on their own terms; if the father had a bad day at work or if things are not going well with the child, father and adolescent often separate. Sometimes the father's anger triggers a separation; sometimes the father simply opts out. Because of the demands in their lives, fathers are unable or unwilling to compromise their own needs for those of the adolescent. (Larson, 1993, p. 21-22).

There remains an impasse between the body of research on the nuclear family suggesting that fathers provide a primarily economic role in the family i.e., as the 'breadwinner', or through the payment of child support (Cabrera et al., 2000; Larson, 1993); and those who consider the father to play a key attachment role.

While there is a body of literature suggesting the unique nature of the adolescent-parent relationship, attempts to measure paternal attachment comprise rewording existing scales of general, parental or maternal attachment for fathers. While paternal attachment bonds exist at the same level as maternal bonds i.e., relationship-domain attachment models (Overall et al., 2003), they are not interchangeable bonds. The differences between maternal and paternal attachment relationships is clearly highlighted in the attachment network and hierarchy literature where fathers are a primary attachment figure much less frequently than mothers (Trinke & Bartholomew, 1997). This chapter presents exploratory and confirmatory analysis for the DAAS Paternal and follows a similar process to Chapters Six and Seven.

STUDY 1C: DAAS PATERNAL

METHOD

Participants

See Study 1A. Participants included high school and college students (Years 7-12) in the Australian Capital Territory and New South Wales. Participants were recruited from five government high schools and colleges and three Catholic High Schools. Data was collected between March and November 2008.

Data was collected using two questionnaires (see Appendix 6A for details) during two instances of data collection. A total of 880 individuals volunteered to participate in the study. Approximately 63 questionnaires were discarded due to incorrect completion. Therefore, a total of 817 surveys were retained for analysis, Participants' mean age was 14.61 ($SD= 1.46$) years, with a range from 9.75 to 18.25 years.

Design

See Study 1A.

Materials

The following materials were contained within a composite questionnaire designed specifically for this study.

Demographic characteristics See Study 1A.

Domains of Adolescent Attachment Scales. The DAAS is a new measure of adolescent attachment with a self-report questionnaire format. See Chapter Five for details of the development of this measure. The DAAS is structured in four independent section sections: general attachment orientation, attachment to mother, father, and best friend. This is to measure a global attachment style, and attachment to the theorised three primary attachment figures in an adolescent's attachment network. There are 36 items for each section and the

response format is a five-point Likert scale response format (“Not at All” to “Very Much”). The four sections of the DAAS were counterbalanced in the questionnaire to counter any response bias based on order.

Procedure

See Study 1A.

RESULTS

DAAS Paternal psychometric investigation

DAAS Paternal psychometric investigation was undertaken using a random 50% of the total sample. The remaining 50% of the sample is used in the replication study, Study 2C below.

The initial sample comprised 401 high school students (162 males, 236 females). Ages ranged between 9 and 18 years ($M = 14.71$ years, $SD = 1.30$ years).

Exploratory analysis

See Study 1A for details on reducing the number of items in the DAAS Paternal. A list of deleted paternal items is contained in Appendix 8A.

Table 8.1 below contains each item in the DAAS Paternal, the item name, the *a priori* hypothesised attachment construct of each item and whether the item is positively or negatively worded; negative item wording denotes reverse scoring.

Table 8.1
The 36 items of the DAAS Paternal

Item Number	Item	Item wording		Dimension
		Neg	Pos	
F1	I don't feel comfortable opening up to my father		✓	Avoidant
F2	My father treats me like a young child		✓	Anxious
F4	Sometimes my father changes his mind about me and I can't tell why		✓	Anxious
F7	When I go to my father for help I still feel confused		✓	Anxious
F11	I don't show my father how I feel deep down		✓	Avoidant
F12	My father cares about me		✓	Secure
F13	I feel comfortable depending on my father	✓		Avoidant
F15	I find it hard to let myself depend on my father		✓	Anxious
F17	I find it hard to trust my father		✓	Avoidant
F18	My father helps me understand myself better		✓	Secure
F21	I need a lot of reminding that I am loved by my father		✓	Anxious
F22	I often feel angry with my father and I don't know why		✓	Anxious
F23	My father is never there when I need him		✓	Avoidant
F24	I often worry that my father doesn't really love me		✓	Anxious

Table 8.1. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
F25	I talk things over with my father	✓		Avoidant
F26	My father is around to give me advice or help when I want it		✓	Secure
F27	I talk to my father when I am having a problem		✓	Secure
F28	My father has no idea what I'm thinking or feeling		✓	Avoidant
F29	I tell my father just about everything	✓		Avoidant
F30	My father pays attention to me		✓	Secure
F31	I trust my father		✓	Secure
F32	My father really understands me and my needs	✓		Avoidant
F33	I try to stop getting too close to my father		✓	Avoidant
F34	My father has trust and confidence in me		✓	Secure
F35	I usually discuss my problems and worries with my father	✓		Avoidant
F36	I want to get close to my father, but I keep pulling back		✓	Anxious
F37	I wish I had a different father		✓	Anxious
F38	My father only seems to notice me when I'm angry		✓	Anxious
F39	I'm sure that my father will listen to me		✓	Secure
F40	I'm sure that my father will try to understand my feelings		✓	Secure

Table 8.1. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
F41	My father is sensitive to my feelings and needs		✓	Secure
F42	If my father doesn't show interest in me, I get upset or angry		✓	Anxious
F43	It usually helps to turn to my father in times of need	✓		Avoidant
F44	My father protects me from danger and trouble		✓	Secure
F45	It makes me feel good to be able to do things for my father		✓	Secure
F48	My father makes me doubt myself		✓	Anxious

Data screening

See Study 1A for a discussion on data screening for the assumptions of CFA. Data screening revealed violations of univariate and multivariate normality (Mardia's coefficient of multivariate kurtosis = 331.056, $p < .001$). Table 8.2 demonstrates that several variables show significant skewness and kurtosis values (± 3.29 , $p = .001$). Inspection of histograms and box-plots revealed several univariate outliers. Most notably, examination of Mahalanobis d-squared values showed seven univariate outliers, which were removed from further analysis.

Table 8.2

Absolute and standardised skewness and kurtosis values of the DAAS Paternal Section

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
F1	.386	3.164	-.947	-3.897
F2	.992	8.131	-.195	-0.802
F4	.1337	1.096	.630	2.593
F7	.513	4.205	-.727	-2.992
F11	.059	0.484	-1.335	-5.494
F12	-1.739	-14.254	1.801	7.412
F13	-.727	-5.959	-.637	-2.621
F15	.705	5.779	-.696	-2.864
F17	1.303	10.680	.280	1.1523
F18	.062	0.508	-1.098	-4.519
F21	1.286	10.541	.364	1.498
F22	.865	7.090	-.622	-2.560
F23	1.366	11.197	.712	2.930
F24	1.956	16.033	2.661	10.951
F25	.128	1.049	-1.028	-4.230
F26	-.476	-3.902	-1.016	-4.181
F27	.355	2.910	-.927	-3.815
F28	.569	4.664	-.812	-3.342
F29	.628	5.148	-.682	-2.807
F30	-.694	-5.689	-.546	-2.247
F31	-1.206	-9.885	.220	0.905
F32	-.418	-3.426	-.838	-3.449
F33	1.216	9.967	.516	2.123
F34	-.969	-7.943	-.268	-1.103
F35	.405	3.320	-.744	-3.062
F36	1.559	12.779	1.643	6.761
F37	2.070	16.967	2.911	11.979
F38	1.646	13.492	1.608	6.617

Table 8.2. *cont.*

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
F39	-.904	-7.410	-.283	-1.165
F40	-.785	-6.434	-.514	-2.115
F41	-.157	-1.287	-1.114	-4.584
F42	.996	8.164	.038	0.156
F43	-.129	-1.057	-1.152	-4.741
F44	-1.109	-9.090	.128	0.527
F45	-.773	-6.336	-.604	-2.486
F48	1.481	12.139	.872	3.588

The bivariate correlations, means and standard deviations for each item of the DAAS Paternal are presented in Appendix 8B. The variance-covariance matrix data of the sample was then analysed using CFA.

Violations of normality assumption when using CFA: Solutions

See Study 1A for a discussion of this issue and details pertaining to bootstrapping. The original sample of 401 was bootstrapped to 500 replications and the 90% confidence interval (CI) of the parameter estimates were examined for all CFA analyses. Comparison of the parameter estimates of the original sample of the 90% CIs of the bootstrapped empirical sample distribution revealed all parameter estimates (i.e., factor loadings and covariances) in the original sample fell within the CIs of the bootstrapped data (see Appendix 8C). Thus, the parameter estimates of the original sample were realistic and the dataset was amenable to CFA.

DAAS Paternal Confirmatory Analysis

A number of competing factor structures of the DAAS Paternal were tested using CFA. The hypothesised model of Paternal Attachment was tested using CFA. As with the DAAS General, Model 1 (Figure 8.2) is a first order, three factor structure of attachment, resulting from *a priori* hypothesised factors

(see Table 8.1). This model resulted in a poorly fitting model, χ^2 (591, $N=401$) = 2606.221, $p < .001$; CFI = .795; TLI = .782; GFI = .668; AGFI = .626; RMSEA = .092. It is evident that the overall fit statistics are less than desirable. Additionally, the model is compromised by a very strong correlation between the three factors: avoidant and secure ($r=-.947$), avoidant and anxious ($r=-.755$), secure and anxious ($r=-.743$).

In order to further investigate the structure of the DAAS Paternal, an EFA analysis was conducted. Maximum Likelihood estimation (ML) with oblique rotation (Direct Oblimin) was performed to investigate the underlying structure of the 36 DAAS Paternal items. The scree plot (Figure 8.1) and eigenvalues for the Paternal section suggest a four-factor solution (see Table 8.3). Four factors account for 61.2% of variance. The factor correlation matrix indicated that Factor 1 and 2 are correlated at .362, Factor 1 and 3 are correlated at -.314, Factor 1 and 4 are correlated at -.609, Factor 2 and 3 are correlated at -.339, Factor 2 and 4 are correlated at -.646, and Factor 3 and 4 are correlated at .405.

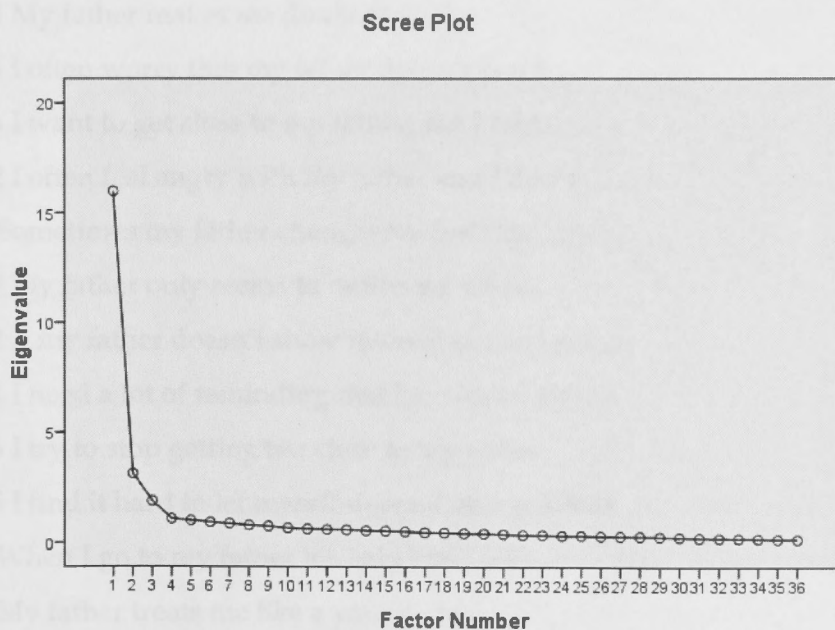


Figure 8.1

Scree plot from ML Estimation of remaining 36 Paternal DAAS items.

Table 8.3

ML estimation four factor solution pattern matrix for 36 Paternal DAAS items

Items	F1	F2	F3	F4
12 My father cares about me	.601			
37 I wish I had a different father	-.526		.336	
31 I trust my father	.443			-.321
17 I find it hard to trust my father	-.441		.405	
23 My father is never there when I need him	-.420		.417	
44 My father protects me from danger and trouble	.411			-.407
13 I feel comfortable depending on my father	.409	.314		
35 I usually discuss my problems and worries ...		.884		
29 I tell my father just about everything		.868		
27 I talk to my father when I am having a problem		.828		
25 I talk things over with my father		.811		
18 My father helps me to understand myself better		.602		
43 It helps to turn to my father in times of need		.557		
1 I don't feel comfortable opening up to my father		-.378		
48 My father makes me doubt myself			.625	
24 I often worry that my father doesn't really ...			.620	
36 I want to get close to my father, but I keep ...			.586	
22 I often feel angry with my father and I don't ...			.584	
4 Sometimes my father changes his feelings ...			.560	
38 My father only seems to notice me when ...			.532	
42 If my father doesn't show interest in me, I get ...			.511	
21 I need a lot of reminding that I am loved by ...			.496	
33 I try to stop getting too close to my father			.468	
15 I find it hard to let myself depend on my father			.415	
7 When I go to my father for help I still feel ...			.403	
2 My father treats me like a young child			.398	
11 I don't show my father how I feel deep down		-.356	.379	

Table 8.3. *cont.*

Items	F1	F2	F3	F4
28 My father has no idea what I am thinking or ...		-.353	.356	
40 I'm sure that my father will try to understand ...				-.976
39 I'm sure that my father will listen to me				-.782
41 My father is sensitive to my feelings and needs				-.685
30 My father pays attention to me				-.503
32 My father really understands me and my needs		.378		-.445
45 It makes me feel good to be able to do things ...				-.429
34 My father has trust and confidence in me	.344			-.413
26 My father is around to give me advice or help ...	.322	.324		-.333
Subscale reliabilities (Cronbach's alpha)	.929	.923	.914	.947

Note. Loadings <.300 are not shown.

EFA suggests a four-factor solution for the DAAS Paternal. The solution includes a number of crossloadings between items. The internal reliability of all four factors is very high. The first factor appears to measure security of attachment. Items refer to the father caring about the adolescent and the adolescent being able to trust their father. The second factor also appears to measure secure attachment however it focuses on the availability of the father and opportunities for communication i.e., discussing problems with one's father, telling one's father everything. The third factor is an insecure factor. All a priori anxious items load on this factor, as well as some avoidant items. The highest loading items on the third factor reflect a fearful/ preoccupied attachment orientation. The final factor appears to measure avoidance/ dismissing attachment. The items on the final factor concentrate on the indifference, unavailability and unreponsiveness of the father however.

The four-factor model derived from the EFA was tested using CFA⁴. Model 2 tested the four-factor structure of the DAAS Paternal (Figure 8.3). It resulted in a model with acceptable fit statistics, $\chi^2(577, N=401) = 1515.660$, $p < .001$; CFI = .896; TLI = .886; GFI = .813; AGFI = .785; RMSEA = .064. The four-factor model demonstrates statistically significantly improved model fit compared with the three-factor model, $\Delta\chi^2(\Delta df = 14) = 1090.561$, $p < .001$. Table 8.4 presents the factor correlation matrix for the four-factor model. The standardised factor loadings show strong loading of each item on the respective factor (see Table 8.5).

Table 8.4

Factor correlations for Model Three.

	Secure	Approachability	Anxious Fearful	Father Responsiveness
1.	<i>.929</i>	.362	-.314	-.609
2.		<i>.923</i>	-.339	-.646
3.			<i>.914</i>	.405
4.				<i>.947</i>

Note. Cronbach's alpha in italics on the diagonal.

⁴ The two-factor model found for the Maternal section was tested using the Paternal items. Most items for the Maternal and Paternal sections are the same (i.e., 32 of the 36 items are identical, reworded for Mother or Father). This model retrieved a very poor fit for the Paternal section, $\chi^2(598, N=401) = 3950.087$, $p < .001$; CFI = .696; TLI = .680; GFI = .605; AGFI = .560; RMSEA = .112. It demonstrates statistically significantly poorer fit than the three-factor model, $\Delta\chi^2(7, N = 401) = -1343.866$, $p < .001$.

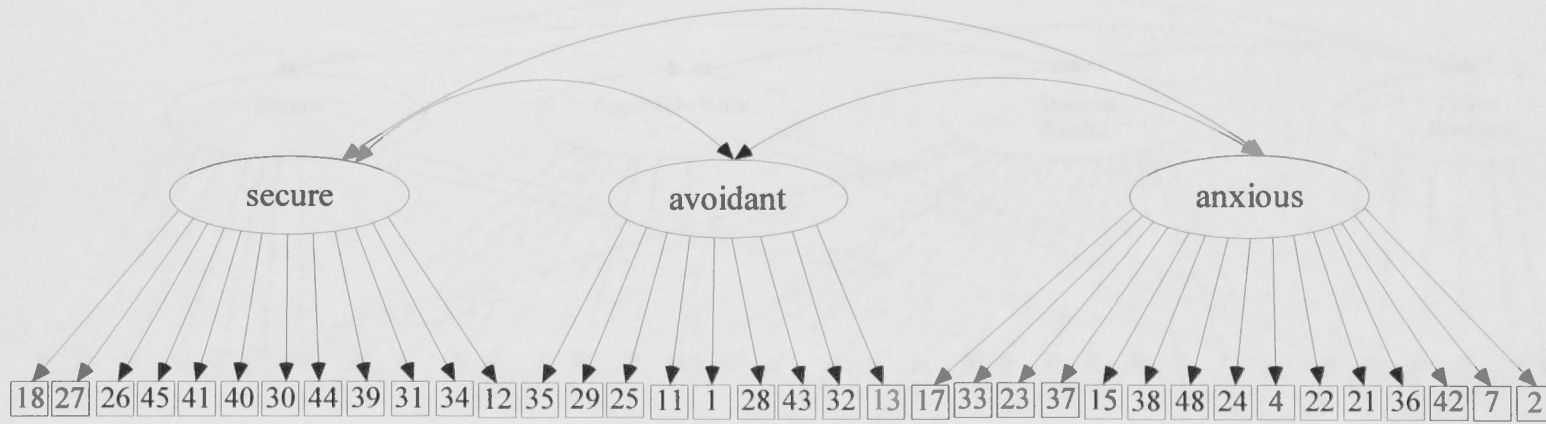


Figure 8.2

DAAS Paternal Model 1: Three-factor model.

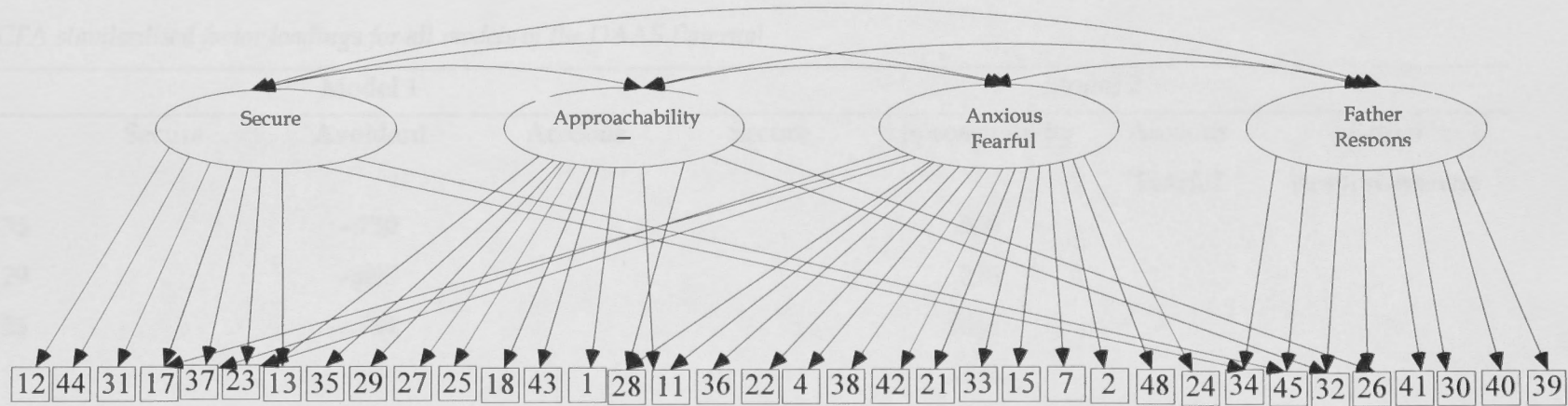


Figure 8.3

DAAS Paternal Model 2: Four-factor model.

Table 8.5

CFA standardised factor loadings for all models of the DAAS Paternal

	Model 1			Model 2			
	Secure	Avoidant	Anxious	Secure	Approachability	Anxious Fearful	Father Responsiveness
35		-.730			.860		
29		-.663			.796		
25		-.744			.844		
1		.468			-.460		
28		.534			-.274	.373	
43		-.790			.796		
13		-.738		-.532	.308		
32		-.845			.246		.665
11		.542			-.314	.352	
18	.667				.732		
27	.721				.881		
26	.790				.233		.593
45	.763			-.122			.661
41	.709						.722

Table 8.5. *cont.*

	Model 1			Model 2			
	Secure	Avoidant	Anxious	Secure	Approachability	Anxious Fearful	Father Responsiveness
40	.824						.849
30	.835						.848
39	.822						.844
31	.846			-.478			.431
44	.737			-.138			.620
34	.796			-.353			.490
12	.772			-.868			
17			.704	.787			
23			.655	.460		.335	
37			.706	.737		.087	
33			.563			.670	
15			.626			.643	
38			.696			.680	
48			.756			.760	
24			.699			.717	

Table 8.5. *cont.*

	Model 1			Model 2			
	Secure	Avoidant	Anxious	Secure	Approachability	Anxious Fearful	Father Responsiveness
4			.681			.678	
22			.733			.729	
21			.590			.579	
36			.446			.483	
42			.261			.278	
7			.593			.585	
2			.553			.542	

Thus, results of Study 1C indicate that Paternal attachment as measured using the DAAS is best conceptualised as a four-factor model. Results of this study will be considered further in Study 2C with the use of a replication sample.

STUDY 2C: DAAS PATERNAL REPLICATION STUDY

A second study was undertaken to replicate the factor structures for the DAAS Paternal found in Study 1C. Amos Version 16.0 was used to conduct CFA analyses of the models retrieved in Study 1C using a second data set and a multi-group invariance analysis procedure. The invariance test compared the factor structure, factor loadings and covariances across two samples of adolescents.

METHOD

Participants

The validation sample comprised 401 high school students (189 males, 208 females). Ages ranged between 12 and 18 years ($M = 14.63$ years, $SD = 1.30$ years).

Materials and Procedure

As with Study 1C, the DAAS Paternal was administered as part of a composite questionnaire. See Study 1C for further details.

RESULTS

Across both cross-validation samples, the items of the DAAS Paternal did not violate assumptions of univariate normality (skewness of $|2.0|$ and kurtosis of $|4.0|$). Mardia's multivariate statistic for kurtosis suggested the data was multivariate normal and thus Maximum Likelihood Estimation was employed across all analyses. See Study 1D for details of the three and two factor models.

Multigroup-Factorial Invariance: Four-factor model

A baseline unconstrained model was fitted to the data and resulted in acceptable fit $\chi^2(1168, N = 401) = 3504.689, p < .05$; CFI = .876; TLI = .782; GFI = .782; AGFI = .752; RMSEA = .050. This model was then compared to a partially

constrained invariant model to identify any factor loadings differing significantly across the groups (for a detailed description of multigroup invariance testing see Byrne, 2004). The constrained parameters were factor loadings, factor variances and factor covariances. The partially constrained invariant model provided acceptable fit to the data, $\chi^2(1213, N = 401) = 3560.481, p < .05$; CFI = .876; TLI = .871; GFI = .780; AGFI = .758; RMSEA = .049. As a result, there was no statistically significant difference between the two models $\Delta\chi^2(\Delta df = 45) = 55.792, p > .05$. The factor loadings for the four-factor model are presented in Table 8.6.

Table 8.6

CFA standardised factor loadings for the DAAS Paternal four-factor model (Replication sample)

	Secure	Approachability	Anxious Fearful	Father Responsiveness
35		.826		
29		.792		
25		.792		
1		-.501		
28		-.289		
43		.781		
13	-.607	.240		
32		.389		.446
11		-.442	.150	
18		.738		
27		.846		
26		.338		.461
45	.914			1.600
41				.644
40				.814
30				.780

Table 8.6. *cont.*

	Secure	Approachability	Anxious Fearful	Father Responsiveness
39				.826
31	-.634			.257
44	.523			1.250
34	-.293			.499
12	-.786			
17	.801			
23	.267		.479	
37	.591		.155	
33			.625	
15			.649	
38			.604	
48			.654	
24			.780	
4			.646	
22			.714	
21			.350	
36			.529	
42			.402	
7			.567	
2			.465	

* See Chapter Nine for a general discussion of the study's strengths and limitations and the limitations of this study.

DISCUSSION: STUDIES 1C and 2C⁵

In Studies 1C and 2C the process for investigating the factor structure of the DAAS Paternal was detailed. An extensive psychometric investigation was undertaken. A number of alternative models of paternal attachment were hypothesised. The DAAS Paternal appears to be best conceptualised with a four-factor model derived from EFA. Although the Paternal items are almost identical to those used in the Maternal section, i.e., 32 of the 36 items are identical, reworded for Mother or Father; however, the items do not perform in the same manner and the structure of the two measures is different.

Of the four sections in the DAAS, Paternal attachment is the most exploratory and has the smallest body of theoretical and empirical literature. There are no purpose developed scales for the measurement of paternal attachment in the literature. It is most common for researchers to take a measure designed for parental relationships (i.e., the IPPA) and reword the items for mother and/or father, creating two reworded scales (see Chapter Four for a summary of the most frequently used measures of attachment in adolescence). Although the theoretical and general adolescent literature has begun to recognise the distinction between mother-adolescent and father-adolescent relationships (i.e., i.e., Buist et al., 2002; Drill, 1987; Ducharme et al., 2002; McCurdy & Scherman, 1996; Paterson et al., 1994; Russell & Saebel, 1997; Youniss & Ketterlinus, 1987), this has not, as of yet, lead to a consideration of the impact of this for measurement.

It is arguable that future research needs to focus on the way in which attachment to mother and father is different, enabling a more complete body of literature from which to develop measurement instruments. There remains a body of research on the nuclear family suggesting that father provide a primarily economic role in the family i.e., as the 'breadwinner', or through the payment of

⁵ See Chapter Nine for a general discussion of the DAAS psychometric studies and the limitations of this study.

child support (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Larson, 1993). It is entirely possible in these cases that the father may not be an attachment figure for adolescents in all circumstances. The performance of the items in the DAAS Paternal offers important information about the measurement of this particular attachment bond. It demonstrates the uniqueness of Paternal attachment and the implications of this for measurement.

CHAPTER NINE

DAAS BEST FRIEND PSYCHOMETRIC ANALYSIS

Introduction

The fourth and final section of the DAAS to be analysed is the Best Friend scale. This section asks participants to think of their best friend, a person of a similar age to whom they feel the closest. This person may be a school friend, sibling, member of the extended family, neighbour, romantic partner or someone they know through a sporting group or other activity. Best friend attachment is theorised to be a key component of the attachment constellation in adolescence. It is during middle childhood that peers begin to serve some preliminary attachment functions as friendships increase in intimacy and influence. During adolescence this process continues and best friends continue to play an important role as attachment figures across the lifespan. As reviewed in Chapter Three, attachment to best friends plays influences a range of psychological health outcomes and measures of adjustment.

In the measurement of best friend attachment it is evident that this relationship is unique in comparison to the relationship with one's mother and father. When developing the DAAS this became apparent when choosing items and conceptualising the dimensions of security, avoidance and anxiety in the context of the best friend relationship. Thus, items in the DAAS Best Friend are different to the DAAS General, Maternal and Paternal. Prior to the psychometric analysis, demographic information is presented regarding who participants identify as their best friends. This is followed by exploratory and confirmatory analysis for the DAAS Best Friend.

STUDY 1D: DAAS BEST FRIEND

METHOD

Participants

See Study 1A. Participants included high school and college students (Years 7-12) in the Australian Capital Territory and New South Wales. Participants were recruited from five government high schools and colleges and three Catholic High Schools. Data was collected between March and November 2008.

Data was collected using two questionnaires (see Appendix 6A for details) during two instances of data collection. A total of 880 individuals volunteered to participate in the study. Approximately 63 questionnaires were discarded due to incorrect completion. Therefore, a total of 817 surveys were retained for analysis. Participants' mean age was 14.61 ($SD= 1.46$) years, with a range from 9.75 to 18.25 years.

Design

See Study 1A.

Materials

The following materials were contained within a composite questionnaire designed specifically for this study.

Demographic characteristics See Study 1A.

Domains of Adolescent Attachment Scales. The DAAS is a new measure of adolescent attachment with a self-report questionnaire format. See Chapter Five for details of the development of this measure. The DAAS is structured in four independent section sections: general attachment orientation, attachment to mother, father, and best friend. This is to measure a global attachment style, and attachment to the theorised three primary attachment figures in an adolescent's attachment network. There are 36 items for each section and the response format is

a five-point Likert scale response format (“Not at All” to “Very Much”). The four sections of the DAAS were counterbalanced in the questionnaire to counter any response bias based on order.

Procedure

See Study 1A.

RESULTS

Demographic characteristics

Data regarding the demographic details of best friends is presented in Table 9.1. Data was collected regarding how participants know their best friend, whether they are romantically involved with their best friend, the sex and age of their best friend. Mean age of best friends was 14.52 years ($SD=2.6$). 84.8% ($n=385$) of females have a female best-friend and 82.3% ($n=293$) of males have a male best friend. The majority of participants know their best friend from school. Almost one in ten (9.9%) participants report being romantically involved with their best friend.

Table 9.1

Demographic characteristics of participants' best friends

Variable	<i>f</i> (%)	(<i>n</i>)
How do you know your best friend?		
School	79.1	662
Boyfriend/Girlfriend	6.0	50
Neighbour	2.3	19
Sports group	2.0	17
Childhood friend	1.9	16
Brother/Sister	1.8	15
Family friend	1.6	13

Table 9.1. *cont.*

Variable	<i>f</i> (%)	(<i>n</i>)
How do you know your best friend? <i>cont.</i>		
Cousin	1.1	9
Friend	0.5	4
Church	0.4	3
Friend of a friend	0.2	2
Party, Holidays, Step-sibling, Online, Mall, Dance class, Home, Drama, Hospital	0.1	1
Romantic involvement		
No	87.9	736
Yes	9.9	83
Sex of best friend		
Male	44.4	372
Female	53.4	447

Note. 17 participants did not specify how they know their best friend; 18 participants did not indicate if they were romantically involved with their best friend; and 18 participants did not indicate the sex of their best friend.

DAAS Best Friend psychometric investigation

DAAS Best Friend psychometric investigation was undertaken using a random 50% of the total sample. The remaining 50% of the sample is used in the replication study, Study 2D below.

The initial sample comprised 419 high school students (188 males, 229 females). Ages ranged between 11 and 18 years ($M = 14.67$ years, $SD = 1.33$ years).

Exploratory analysis

See Study 1A for details on reducing the number of items in the DAAS Best Friend. A list of deleted best friend items is contained in Appendix 9A.

Table 9.2 below contains each item in the DAAS Best Friend, the item name, the *a priori* hypothesised attachment construct of each item and whether the item is positively or negatively worded; negative item wording denotes reverse scoring.

Table 9.2

The 34 items of the DAAS Best Friend

Item Number	Item	Item wording		Dimension
		Neg	Pos	
B1	When I have a bad day my best friend cheers me up		✓	Secure
B2	My best friend listens to what I have to say		✓	Secure
B4	Without this best friendship it would be very hard to cope when things are hard	✓		Avoidant
B7	I avoid discussing personal things with my best friend		✓	Avoidant
B8	My best friend really understands me and my needs		✓	Avoidant
B9	I can count on my best friend to help me when I have a problem		✓	Secure
B10	I don't turn to my best friend for support when things are hard		✓	Avoidant
B11	My best friend pays attention to me		✓	Secure
B12	My best friend understands me		✓	Secure
B13	I get angry at my best friend when they do not understand me		✓	Anxious
B14	I can talk things through with my best friend		✓	Secure
B15	My best friend cares about me		✓	Secure
B16	I can trust my best friend		✓	Secure
B17	My best friend makes me doubt myself		✓	Anxious

Table 9.2. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
B22	I feel close to my best friend		✓	Secure
B23	I feel comfortable depending on my best friend	✓		Avoidant
B24	I get angry at my best friend when I can't get in contact with them		✓	Anxious
B25	I get annoyed when my best friend is not around as much as I would like		✓	Anxious
B26	My best friend doesn't want to get as close as I want them to		✓	Anxious
B28	I know I can rely on my best friend		✓	Secure
B29	Sometimes best friends change their feelings about me and I can't tell why		✓	Anxious
B31	I like spending time with my best friend		✓	Secure
B32	I like the closeness I share with my best friend		✓	Secure
B33	I need a lot of reminding that I am liked by my best friend		✓	Anxious
B34	I often worry that my best friend doesn't really like me		✓	Anxious
B35	I seek out my best friend when things go wrong	✓		Avoidant
B38	My best friend only seems to notice me when I'm angry		✓	Anxious
B39	I turn to my best friend for many things, including comfort and support		✓	Avoidant
B41	I wish I had a different best friend		✓	Anxious

Table 9.2. *cont.*

Item Number	Item	Item wording		Dimension
		Neg	Pos	
B42	I would like my best friend to be more understanding		✓	Anxious
B44	I'm worried that once my best friend gets to know me they won't like who I really am		✓	Anxious
B45	It helps to turn to my best friend in times of need	✓		Avoidant
B46	It's easy for me to be close with my best friend	✓		Avoidant
B48	My best friend has no idea what I'm thinking or feeling		✓	Avoidant

Data screening

See Study 1A for a discussion on data screening for the assumptions of CFA. Data screening revealed violations of univariate and multivariate normality (Mardia's coefficient of multivariate kurtosis = 406.962, $p < .001$). Table 9.3 demonstrates that several variables show significant skewness and kurtosis values (± 3.29 , $p = .001$). Inspection of histograms and box-plots revealed several univariate outliers. Most notably, examination of Mahalanobis d-squared values showed ten univariate outliers, which were removed from further analysis.

Table 9.3

Absolute and standardised skewness and kurtosis values of the DAAS Best Friend Section

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
B1	-.933	-7.840	-.039	-0.164
B2	-1.1227	-9.434	.473	1.987
B4	-.408	-3.429	-1.112	-4.672

Table 9.3. *cont.*

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
B7	.765	6.429	-.505	-2.122
B8	-.766	-6.437	-.196	-0.824
B9	-1.104	-9.277	.459	1.929
B10	.991	8.328	-.020	-0.084
B11	-1.071	-9.000	.526	2.210
B12	-1.129	-9.487	.562	2.361
B13	.992	8.336	.168	0.706
B14	-.993	-8.345	.036	0.151
B15	-1.291	-10.849	.808	3.395
B16	-1.665	-13.992	2.252	9.462
B17	1.745	14.664	2.491	10.466
B22	-1.156	-9.714	.578	2.429
B23	-.949	-7.975	.001	0.004
B24	1.084	9.109	.288	1.210
B25	.836	7.025	-.090	-0.378
B26	1.490	12.521	1.321	5.550
B28	-1.232	-10.353	.849	3.567
B29	.849	7.134	-.333	-1.399
B31	-1.696	-14.252	2.601	10.929
B32	-.941	-7.908	-.117	-0.492
B33	1.172	9.849	.247	1.038
B34	1.403	11.790	.886	3.723
B35	-.363	-3.050	-.921	-3.870
B38	2.207	18.546	4.177	17.550
B39	-.570	-4.790	-.927	-3.895
B41	2.623	22.042	6.755	28.382
B42	1.237	10.395	.629	2.643
B44	1.689	14.193	1.797	7.550

Table 9.3. *cont.*

Item	Skewness	(z)Skewness	Kurtosis	(z)Kurtosis
B45	-.709	-5.958	-.606	-2.546
B46	-.988	-8.303	-.028	-0.118
B48	1.054	8.857	.189	0.794

The bivariate correlations, means and standard deviations for each item of the DAAS Best Friend are presented in Appendix 9B. The variance-covariance matrix data of the sample was then analysed using CFA.

Violations of normality assumption when using CFA: Solutions

See Study 1A for a discussion of this issue and details pertaining to bootstrapping. The original sample of 419 was bootstrapped to 500 replications and the 90% confidence interval (CI) of the parameter estimates were examined for all CFA analyses. Comparison of the parameter estimates of the original sample of the 90% CIs of the bootstrapped empirical sample distribution revealed all parameter estimates (i.e., factor loadings and covariances) in the original sample fell within the CIs of the bootstrapped data (see Appendix 9C). Thus, the parameter estimates of the original sample were realistic and the dataset was amenable to CFA.

DAAS Best Friend confirmatory analysis

A number of competing factor structures of the DAAS Best Friend were tested using CFA. The hypothesised model of Best Friend Attachment was tested using CFA. As with the DAAS General, Model 1 (Figure 9.2) is a first order, three factor structure of attachment, resulting from *a priori* hypothesised factors (see Table 9.2). This model resulted in a poorly fitting model, χ^2 (524, $N=419$) = 1705.575, $p < .001$; CFI = .859; TLI = .849; GFI = .793; AGFI = .765; RMSEA = .073. It is evident that the overall fit statistics are inadequate and as with preceding sections, the model is compromised by a very strong correlation between the avoidant and secure factors ($r = .945$).

An EFA was conducted in order to investigate a more interpretable structure for the DAAS Best Friend. Maximum Likelihood estimation (ML) with oblique rotation (Direct Oblimin) was performed to investigate the underlying structure of the 34 remaining DAAS Best Friend items. The scree plot (Figure 9.1) and eigenvalues for the Best Friend section suggest a three factor solution, however examination of the pattern matrix indicates that the three factor solution is not interpretable, particularly regarding the third (avoidant) factor. This factor is very short, has multiple crossloadings with the first and second factors, and most importantly, does not demonstrate reliability. Following this, both four and two factor solutions of the DAAS Best Friend were investigated. When the number of factors was not specified in the EFA analysis, four factors were retrieved with eigenvalues >1 . On examination of the pattern matrix for this solution, it is evident that the fourth factor contains only three items and does not consist of a discernible factor as such.

The two factor solution for the DAAS Best Friend demonstrates more promise (see Table 9.4). Two factors account for 51.18% of variance. The factor correlation matrix indicated that the two factors are correlated at $-.240$. Items loading on the first factor are indicative of a secure attachment relationship, characterised by trust, support, availability and responsiveness; items loading on the second factor indicate an insecure attachment relationship, characterised by uncertainty, avoidance, and preoccupation.

Scree Plot

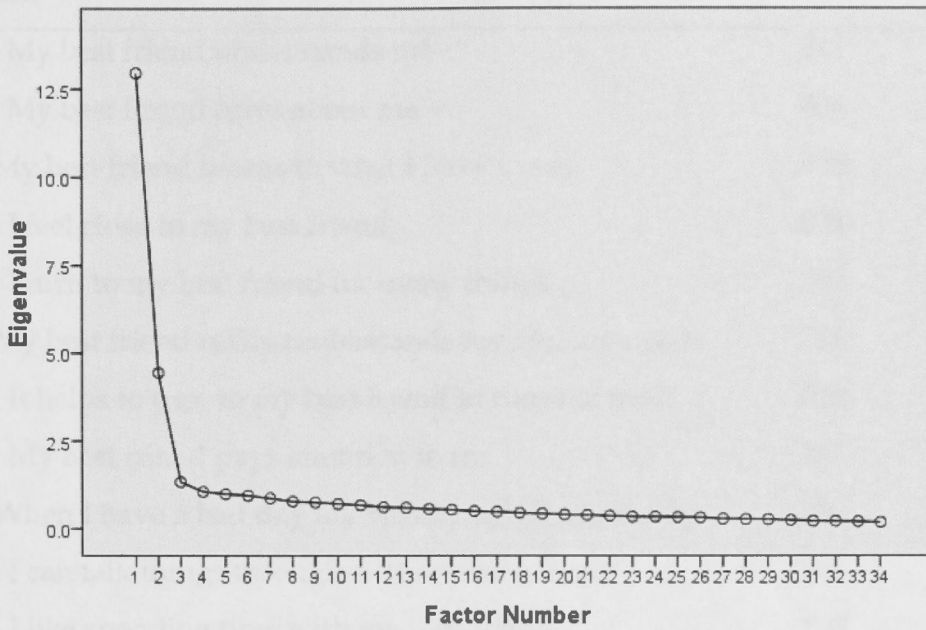


Figure 9.1

Scree plot from ML Estimation of remaining 34 Best Friend DAAS items.

Table 9.4

ML estimation two-factor solution pattern matrix for 36 Best Friend DAAS items

Items	F1	F2
12 My best friend understands me	.811	
15 My best friend cares about me	.806	
2 My best friend listens to what I have to say	.805	
22 I feel close to my best friend	.804	
39 I turn to my best friend for many things ...	.795	
8 My best friend really understands me and my needs	.781	
45 It helps to turn to my best friend in times of need	.770	
11 My best friend pays attention to me	.757	
1 When I have a bad day my best friend cheers me up	.750	
14 I can talk things through with my best friend	.742	
31 I like spending time with my best friend	.739	
23 I feel comfortable depending on my best friend	.734	
9 I can count on my best friend to help me when I ...	.733	
28 I know I can rely on my best friend	.731	
32 I like the closeness I share with my best friend	.730	
46 It's easy for me to be close with my best friend	.724	
16 I can trust my best friend	.712	
35 I seek out my best friend when things go wrong	.660	
4 Without this best friendship, it would be hard to ...	.612	
10 I don't turn to my best friend for support when ...	-.445	
7 I avoid discussing personal things with my best ...	-.430	.334
34 I often worry that my best friend doesn't really ...		.724
33 I need a lot of reminding that I am liked by my ...		.712
42 I would like my best friend to be more ...		.635
29 Sometimes best friends change their feelings ...		.635
44 I'm worried that once my best friend gets to ...		.622
26 My best friend doesn't want to get as close as ...		.570

Table 9.4. *cont.*

Items	F1	F2
17 My best friend makes me doubt myself		.532
38 My best friend only seems to notice me when ...		.514
41 I wish I had a different best friend		.508
25 I get annoyed when my best friend is not around ...		.507
24 I get angry at my best friend when I can't get in ...		.465
13 I get angry with my best friend when they do ...		.450
48 My best friend has no idea what I'm thinking ...		.437
Subscale reliabilities (Cronbach's alpha)	.923	.869

The two-factor EFA solution for the DAAS Best Friend demonstrates good reliability and a clear pattern of factor loadings. As with the DAAS Maternal, it appears that the avoidant items split between the insecure and secure factors based on whether they were positively or negatively worded (i.e., negatively worded avoidant items load on the secure factors, positively worded avoidant items load on the insecure factor).

Model 2, the two-factor structure of the DAAS Best Friend found in the EFA, was tested using CFA (Figure 9.3). It resulted in an acceptably well fitting model, $\chi^2(525, N=419) = 1656.692$ $p < .001$; CFI = .865; TLI = .856; GFI = .794; AGFI = .766; RMSEA = .072. The two-factor model shows statistically significantly improved model fit compared with the three-factor model, $\Delta\chi^2(1, N = 419) = 48.883$, $p < .001$. The standardised factor loadings show strong loading of each item on its respective factor. Loadings on the secure factor are slightly higher (i.e., $>.800$) than on the insecure factor. The two factors are correlated at $-.406$.

Modification indices for Model 2 suggested two pairs of correlated error terms. Upon scrutiny of these items it was evident that items 24 and 25 both refer to anxiety about the availability of one's best friend ($MI = 110.524$, $EPC = .624$); and items 31 and 32 both refer to closeness ($MI = 48.818$, $EPC = .150$). Finally, the error

covariances for item 35 and 39 were freely estimated as both refer to turning to one's best friend when support is needed ($MI = 71.559$, $EPC = .373$).

These modifications were made sequentially and the model re-estimated following each alteration. Freely estimating the error variance between items 24 and 25 improved model fit, $\chi^2(524, N=419) = 1530.080$, $p < .001$; $CFI = .880$; $TLI = .872$; $GFI = .808$; $AGFI = .782$; $RMSEA = .068$. Secondly, freely estimating the error variance between items 31 and 32 further improved all fit statistics, $\chi^2(523, N=419) = 1479.080$, $p < .001$; $CFI = .886$; $TLI = .878$; $GFI = .814$; $AGFI = .789$; $RMSEA = .066$. Finally, freely estimating the error covariance between items 35 and 39 improved model fit, $\chi^2(522, N=419) = 1402.522$, $p < .001$; $CFI = .895$; $TLI = .887$; $GFI = .828$; $AGFI = .804$; $RMSEA = .064$. This final respecified model (modified Model 2) constitutes statistically significantly improved model fit compared with the original Model 2, $\Delta\chi^2(\Delta df = 3) = 254.17$, $p < .001$. Table 9.5 presents the final standardised factor loadings for the DAAS Best Friend models.

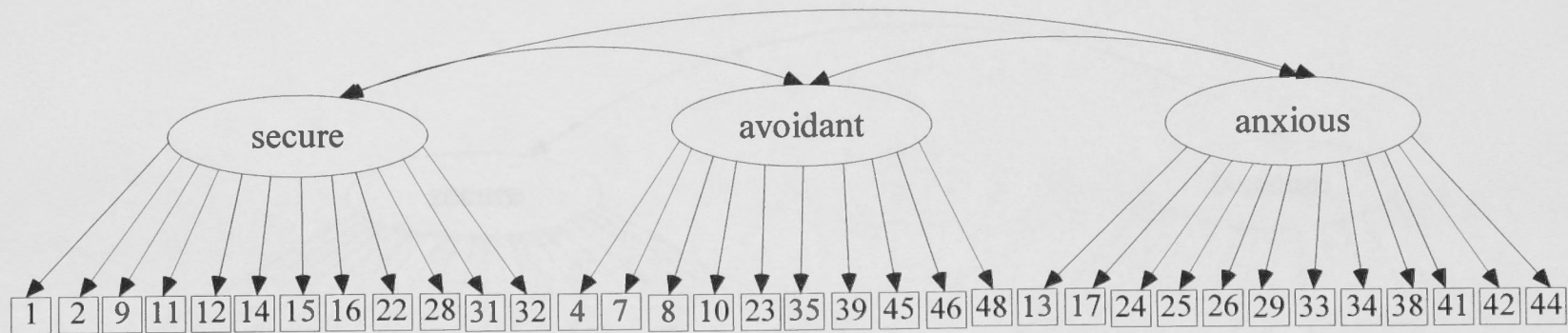


Figure 9.2

DAAS Best Friend Model 1: Three-factor model.

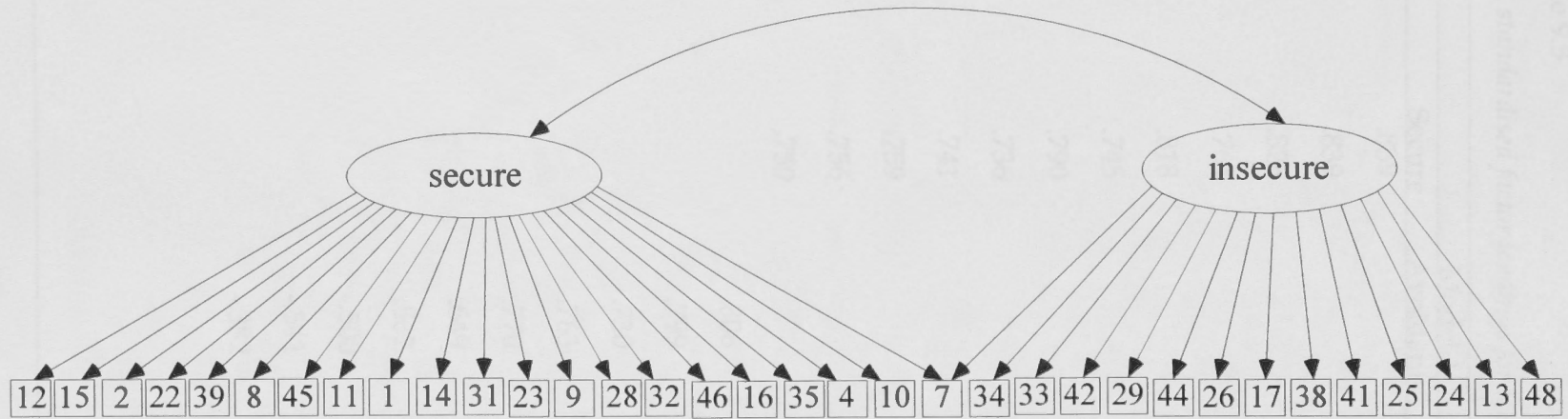


Figure 9.3

DAAS Best Friend Model 2: Two-factor model.

Table 9.5

CFA standardised factor loadings for the DAAS Best Friend

	Model 1			Model 2	
	Secure	Avoidant	Anxious	Secure	Insecure
15	.839			.834	
12	.839			.835	
22	.826			.825	
14	.764			.763	
2	.818			.811	
9	.745			.752	
11	.790			.783	
32	.736			.737	
28	.741			.742	
1	.759			.753	
31	.756			.750	
16	.750			.738	
39		.806		.764	
45		.799		.759	
23		.730		.733	
46		.763		.750	
8		.770		.777	
35		.649		.602	
4		.562		.531	
10		-.500		-.497	
7		-.541		-.378	.348
48		-.382			.542
25			.361		.348
33			.687		.668
29			.675		.675

Table 9.5. *cont.*

	Model 1			Model 2	
	Secure	Avoidant	Anxious	Secure	Insecure
42			.730		.720
44			.646		.660
24			.361		.351
34			.747		.746
17			.579		.593
13			.429		.422
26			.554		.565
38			.555		.568
41			.606		.594

Thus, results of Study 1D indicate that Best Friend attachment as measured using the DAAS is best conceptualised as a two-factor model. Results of this study will be considered further in Study 2D with the use of a replication sample.

Materials and Procedure

As with Study 1A, participants completed the DAAS and the Best Friend Attachment Composite questionnaire. See Study 1A for details.

Results

Across both cross-sectional studies, the results of the CFA analyses did not violate assumptions of multivariate normality (skewness of 1.00, kurtosis of 14.01). Multivariate normality was also supported by the fact that the data were multivariate normal and thus appropriate for CFA. The results of the CFA analyses across all analyses. See Study 1D for details of the CFA analyses and the two-factor model.

STUDY 2D: DAAS BEST FRIEND REPLICATION STUDY

A second study was undertaken to replicate the factor structure for the DAAS Best Friend found in Study 1D. Amos Version 16.0 was used to conduct CFA analyses of the models retrieved in Study 1D using a second data set and a multi-group invariance analysis procedure. The invariance test compared the factor structure, factor loadings and covariances across two samples of adolescents.

METHOD

Participants

The validation sample comprised 419 high school students (188 boys, 229 girls, 2 did not specify gender). Ages ranged between 15 and 19 years ($M = 17.07$ years, $SD = .07$ years).

Materials and Procedure

As with Study 1A, the DAAS Best Friend was administered as part of a composite questionnaire. See Study 1A for further details.

RESULTS

Across both cross-validation samples, the items of the DAAS Best Friend did not violate assumptions of univariate normality (skewness of $|2.0|$ and kurtosis of $|4.0|$). Mardia's multivariate statistic for kurtosis suggested the data was multivariate normal and thus Maximum Likelihood Estimation was employed across all analyses. See Study 1D for details of the DAAS Best Friend two-factor model.

Multigroup-Factorial Invariance: Two-factor model

A baseline unconstrained model was fitted to the data and resulted in acceptable fit $\chi^2(1044, N = 419) = 2970.006, p < .05$; CFI = .882; TLI = .873; GFI = .814; AGFI = .788; RMSEA = .047. This model was then compared to a partially constrained invariant model to identify any factor loadings differing significantly across the groups (for a detailed description of multigroup invariance testing see Byrne, 2004). The constrained parameters were factor loadings, factor variances and factor covariances. The partially constrained invariant model provided acceptable fit to the data, $\chi^2(1083, N = 419) = 2995.617, p < .05$; CFI = .883; TLI = .879; GFI = .812; AGFI = .794; RMSEA = .046. As a result, there was no statistically significant difference between the two models $\Delta\chi^2(\Delta df = 39) = 25.611, p > .05$. The factor loadings for the two-factor model are presented in Table 9.6.

Table 9.6

CFA standardised factor loadings for the DAAS Best Friend two-factor model (Replication sample)

	Secure	Insecure
12	.840	
15	.833	
2	.814	
22	.823	
39	.756	
8	.780	
45	.755	
11	.786	
1	.756	
14	.765	
31	.741	
23	.733	

Table 9.6. *cont.*

	Secure	Insecure
9	.754	
28	.743	
32	.725	
46	.748	
16	.741	
35	.586	
4	.528	
10	-.495	
7	-.370	.351
34		.748
33		.663
42		.722
29		.676
44		.662
26		.562
17		.594
38		.569
41		.596
25		.322
24		.326
13		.414
48		.546

DISCUSSION: STUDIES 1D AND 2D

In Studies 1D and 2D, the process for investigating the factor structure of the DAAS Best Friend was detailed. An extensive psychometric investigation was undertaken. A number of alternative models of best friend attachment were hypothesised. It appears that Model 2 demonstrates the best fit. The two factors are highly internally consistent and are replicated in the second sample using a multi-group invariance test.

The structure of best friend attachment is very similar to that of maternal attachment. Although items were sampled from the three hypothesised domains of security, anxiety and avoidance, these three factors were not discernible with either EFA or CFA. The avoidant items did not form a coherent factor but split between the secure and insecure factors. Best friend attachment in the current study is best characterised as a secure factor and an insecure factor.

GENERAL DISCUSSION: Summary of DAAS Psychometric Investigation

In this chapter and the preceding three chapters, a multi-stage approach for determining the psychometric properties and factor structure of the DAAS was detailed. The four sections of the DAAS (General, Maternal, Paternal, Best Friend) were subject to detailed analysis. In doing this, scales were created for the four DAAS sections: three subscales for DAAS General; two subscales for the DAAS Maternal and Best Friend; and four subscales for DAAS Paternal. The scales demonstrate high internal consistency and were replicated in Study 2.

Items were sampled from a range of hypothesised factors/dimensions of attachment found in the literature, i.e., anxiety, avoidance, model of self, model of other, and secure attachment. A three-factor structure was hypothesised for each of the DAAS sections, in line with previous research. With the exception of the General section, the three factor hypothesised model was poorly fitting. For the

Maternal and Best Friend sections, the avoidant items split between the secure and the anxious factors, creating a two-factor solution; thus, items grouped as secure and insecure. For the Paternal section a four-factor model best fits the data. For all sections of the DAAS, there were moderate to high correlations between factors. For the two factor solutions this is to be expected, as it is somewhat confusing to think a particular person having a high level of security and a high level of insecurity in their relationship with their mother, for example. While the dimensions of attachment anxiety and avoidance are at times found to be orthogonal (Brennan et al., 1998; Fraley et al., 2000), this is not to be expected for security and insecurity.

The DAAS General has a unique structure in comparison to the other three sections. It is possible that this occurs due to the contrast between measuring a specific attachment relationship, as opposed to one's general orientation towards attachment bonds. Overall et al., (2003) offer a detailed discussion of the relationship between general and specific attachment representations in adulthood. Overall et al. (2003) argue that attachment is best characterised by three levels of attachment:

An overarching global working model, leading to relationship-domain attachment models, which are in turn, connected to the bedrock psychological reality of specific or local relationships (Overall et al., p. 1492).

It is possible that the measurement of different levels of one's attachment internal working models may explain the differences in factor structure between the DAAS sections. The DAAS General is furthermore unique in the identification of fine-grained factors. Such fine-grained factors were not found for any other section of the DAAS. Other researchers (Carver, 1997; Chotai et al., 2005; Torquati & Raffaelli, 2004; Torquati & Vazonyi, 1999) have found fine-grained factors within the measurement of general attachment orientation, most notably in the

ASQ (Feeney et al., 1994). Though a three-factor solution was retrieved and replicated, the model fit was good, as opposed to very good or excellent, and as such, further investigation may be of benefit in refining the model.

There are strong similarities between the Maternal and Best Friend sections of the DAAS. Although the items in these sections are different, the structure of the scales is very similar i.e., negatively correlated secure and insecure subscales. The four-factor solution found for the Paternal section highlights clearly the unique nature of this attachment bond. This section is the most exploratory of the DAAS scales and will require further validation in subsequent studies. There remains some uncertainty regarding the most accurate way to conceptualise attachment to father and the nature of Paternal attachment requires further scrutiny.

A limitation of Studies One and Two was the length of the questionnaire. A number of participants did not finish the questionnaire due to the time required to complete the DAAS in its entirety. The first version of the DAAS included 48 items for each section, a total of 192 items. Nevertheless, this quantity of items was required in order to sample from the three hypothesised sub-scales for each section. The length of the DAAS was reduced by approximately a quarter, making it more manageable for adolescents. The DAAS sections were constructed as independent sections so that in both clinical and research setting it is not necessary for the four sections of the DAAS to be used every time if this is not vital. The following chapter tests the validity of the DAAS measures with a range of alternative attachment scales and presents the results of a multi-informant study.

CHAPTER TEN

VALIDATION

Introduction

Chapter Ten presents the results of Studies Three and Four and continues the validation of the DAAS. In Study Three the DAAS sections and sub-scales as established in Studies One and Two are investigated in relation to a number of measures of attachment in adolescence. In Study Four a multi-informant validation study is presented.

STUDY THREE: CONVERGENT VALIDATION WITH ATTACHMENT MEASURES

The present study

Study Three addresses two elements of attachment bonds in validating the DAAS: individual differences and normative processes. In the first part of the study, the DAAS is analysed in relation to a measure of attachment styles. In the second part of the study, the DAAS is analysed in relation to the attachment network, hierarchy and attachment functions.

Individual differences: Relationships Questionnaire

This study outlines validation of the DAAS using alternative measures of attachment in adolescence. The DAAS is compared with a categorical measure of attachment styles, and two measures of the adolescent's attachment network and functions. These alternative measures of attachment have been validated in the literature and it is informative to investigate how the new DAAS performs in relation to these measures. Hypotheses are made about the link between measures differing on their conceptualisation of attachment relationships and styles; the nature of attachment networks and hierarchies; and the use of attachment figures in fulfilling attachment functions.

Categorical measurement of attachment styles is frequently conducted using Bartholomew and Horowitz's (1991) Relationships Questionnaire. The RQ is a classic and much used measure of attachment style in adulthood and adolescence. The RQ provides validation for the DAAS as it allows for scrutiny regarding general attachment styles in relation to a dimensional measure. In the present study, the RQ was scored in two ways. First, participants were asked to rate each of the four descriptions for how much each attachment style was like them, using a 7 point Likert scale. Following this, they were asked to nominate which attachment style was most like them. This allows for both correlational analyses (using the Likert scale ratings), and categorical analysis using a series of MANOVAs (using the forced choice rating).

Thus, the following hypotheses are proposed for this study:

- 1a. Attachment style ratings reported in the RQ correlate significantly and positively with the corresponding DAAS sub-scale (i.e., RQ Secure correlates significantly and positively with DAAS General Secure etc).
- 1b. The correlation between attachment style ratings reported in the RQ correlate most strongly with the DAAS General section in comparison with the DAAS Maternal, Best Friend and Paternal sections.
- 1c. RQ Secure individuals have a statistically significantly higher mean score for DAAS General Secure sub-scale than RQ Dismissing, Preoccupied and Fearful individuals. The reverse pattern is observed for the DAAS General Avoidant and Anxious sub-scales.
- 1d. RQ Secure individuals have a statistically significantly higher mean score for DAAS Maternal Secure sub-scale than RQ Dismissing, Preoccupied and Fearful individuals. The reverse pattern is observed for the DAAS General Avoidant and Anxious sub-scales.
- 1e. RQ Secure individuals have a statistically significantly higher mean score for DAAS Paternal Secure sub-scale than RQ Dismissing, Preoccupied and Fearful

individuals. The reverse pattern is observed for the DAAS General Avoidant and Anxious sub-scales.

1f. RQ Secure individuals have a statistically significantly higher mean score for DAAS Best Friend Secure sub-scale than RQ Dismissing, Preoccupied and Fearful individuals. The reverse pattern is observed for the DAAS General Avoidant and Anxious sub-scales.

Normative attachment processes: Attachment networks and functions

The second attachment construct in this study is that of attachment networks. The notion of attachment networks arose from the observation that most individuals throughout the lifespan have a number of attachment figures (Doherty & Feeney, 2004; Trinke & Bartholomew, 1997). Such attachment networks are thought to be arranged hierarchically (Collins & Read, 1994) with those at the top of the network constituting primary attachment figures and in most cases providing all or a majority of the four attachment functions: separation protest, proximity seeking, safe haven and secure base (Doherty & Feeney, 2004).

In order to measure attachment networks and functions, Doherty & Feeney (2004) have modified the WHO-TO (Hazan & Zeifman, 1994) and the Attachment Network Questionnaire (Trinke & Bartholomew, 1997). The revised ANQ adapts previous interview methods and expands on the number of questions administered in the original Trinke and Bartholomew (1997) version. This measure has been used on participants as young as 14 (Goh & Wilkinson, 2007) and was developed on participants as young as 16 in the original study (Doherty & Feeney, 2004).

The ANQ provides validation for the DAAS as it is an additional method for having participants report on their attachment relationships. Data from this measure provides information about the composition and hierarchy of one's attachment network with documented differences between those of different attachment styles in both the number of people reported in the network and the

number of attachment functions fulfilled by different attachment figures (Doherty & Feeney, 2004; Rowe & Carnelley, 2005).

A further self-report measure of attachment networks is the Bull's Eye hierarchical mapping technique (Rowe & Carnelley, 2005). This technique is an alternative way of assessing one's attachment network. It is thought to elicit qualitatively different information than verbal measures as it is diagrammatic and therefore not as reliant on verbal ability as more traditional measures (Rowe & Carnelley, 2005). Research has found that secure-style relationships are placed closer to the core than insecure type relationships and that secure participants report a higher number of network members (Rowe & Carnelley, 2005). Thus, the measure is sensitive to both global attachment style differences and relationship specific attachment styles, which is particularly relevant in terms of validation of the new measure. The Bull's Eye has been tested with mid-adolescents (Rowe & Carnelley, 2005) and a similar technique is used with adolescents in interpersonal psychotherapy in order to gather an interpersonal inventory, an indication of the client's interpersonal network and close relationships (Mufson, Dorta, Moreau, & Weissman, 2004).

Thus, following this review, the following hypotheses are proposed for this study:

- 2a. A statistically significant correlation between number of individuals in the attachment network and attachment security as measured by DAAS General, Maternal, Paternal, Best Friend Secure sub-scales.
- 2b. A statistically significant negative correlation between number of individuals in the attachment network and attachment insecurity as measured by DAAS General Avoidant, General Anxious; and Maternal, Paternal, Best Friend Insecure sub-scales.
- 2c. A statistically significant positive correlation between number of full-blown attachments and attachment security as measured by DAAS General, Maternal, Paternal, Best Friend Secure sub-scales.

- 2d. A statistically significant positive correlation between mean level of attachment strength and attachment security as measured by DAAS General, Maternal, Paternal, Best Friend Secure sub-scales.
- 2e. Secure individuals (as measured by DAAS General, Maternal, Paternal, Best Friend Secure sub-scales) will place attachment figures closer to the centre of the Bull's Eye (mean distance score) compared with Insecure individuals.

METHOD

Participants and procedure

Data for this study was collected as part of both data collection instances as explained in Chapter Six. The RQ and the ANQ/Bull's Eye were on different composite questionnaires and thus come from different high schools with different sample sizes. For the RQ, a total of 527 individuals volunteered to participate in the study. There were 206 males and 320 females (one participant did not state their sex). Participants' mean age was 14.66 ($SD= 1.37$) years, with a range from 10.92 to 18.25 years. For the ANQ/Bull's Eye, a total of 136 individuals volunteered to participate in the study. There were 62 males and 74 females. Participants' mean age was 15.05 ($SD= 0.97$) years, with a range from 12.42 to 17.00 years.

Design

The study was a cross-sectional questionnaire design. Data was collected using two composite questionnaires (see Appendix 6A for details) during two instances of data collection. The following variables used in analysis in this chapter were measured using the composite questionnaires: attachment to mother, father and best friend; general attachment style; attachment networks and functions; and demographic characteristics.

Measures

The questionnaire included the following measures: the Domains of Adolescent Attachment Scales (Appendix 6L); Adolescent Relationships Questionnaire (Scharfe & Bartholomew, 1995; Appendix 10A); the Attachment Networks and Functions Questionnaire (Doherty & Feeney, 2004; Appendix 10B); and the Bulls Eye Hierarchical Mapping of Attachment Networks (Rowe & Carnelley, 2005; Appendix 10C).

Demographic characteristics. See Chapter Six for details of the demographic characteristics of the current sample.

Domains of Adolescent Attachment Scales. The DAAS is a new measure of adolescent attachment with a self-report questionnaire format. See Chapter Five for details of the development of this measure.

Adolescent Relationships Questionnaire. Attachment style was assessed using the Adolescent Relationships Questionnaire (A-RQ) (Scharfe & Bartholomew, 1995). This scale is a modified version of the original Relationships Questionnaire developed by Bartholomew and Horowitz (1991) and is reworded for younger participants. Participants are asked to read four descriptions of relationship attitude matching four-categories of attachment style: Secure, Fearful, Dismissing, and Preoccupied. They are asked to rate each descriptor for how much it is like them using a seven-point scale, ranging from "not at all like me" (1) to "very much like me" (7). They are then asked to nominate one style that is "most like them". Test-retest reliability is considered adequate with correlations of .44 to .68 over a four-year period as reported by Herzberg et al. (1999) and between .47 and .83 as reported by Zhang and Labouvie-Vief (2004). The RQ has been used extensively with adolescents and corresponds with friend ratings of attachment style and a range of outcome variables (Steinberg, Davila & Fincham, 2006; Weimer, Kerns, & Oldenburg, 2004).

Attachment Networks and Functions Questionnaire. The ANQ was developed by Doherty and Feeney (2004) and is based on earlier measures by Trinke and

Bartholomew (1997) and Feeney, Hohaus, Noller and Alexander (2001). The ANQ comprises two sections. The first section measures the individual's attachment network and provides space for participants to list up to 15 people in their life (along with their relationship to the participant and their sex) with whom they feel a strong positive, negative or mixed emotional tie. The second section measures the targets of attachment behavior using attachment functions. It asks participants to list up to five people from the list in the first section, in order of importance, against the four attachment functions. Section 2 includes a total of eight questions, two for each of the four functions: proximity seeking, separation protest, safe haven and secure base. Example items include "Who do you feel you can count on no matter what?" (secure base); "Who do you not like to be away from?" (separation protest). A scoring system was used, based on that of Doherty and Feeney (2004), to determine strength of attachment. For the second section, relationship domains (i.e., mother, best friend) nominated first on any given item were scored with a 3, those second given a score of 2 and any subsequent nominations given a score of 1. Each relationship type reported was only scored once for each item (the score reported was the highest score for any given relationship on any given item; i.e., if two friends were listed against the same item, the score for the highest ranked friend was recorded). Data was analysed such that only those who had any given relationship available to them in their attachment network listed in Section 1 were included in the analysis for that particular relationship, for example, if a participant did not list a boyfriend/girlfriend in their attachment network, they were not included in analysis of Strength of attachment to boyfriend/girlfriend. Strength of attachment for each relationship (i.e., mother, father, etc) was calculated as the mean score across the eight items. Full-blown attachments were defined as those in which the significant person fulfils all four of the attachment functions with a score of at least 2 in each of the four attachment functions. The measure adequate reliability and validity (Doherty & Feeney, 2004).

Bulls Eye Hierarchical Mapping of Attachment Networks. Participants were given a page with three concentric circles with the word "me" written in the centre of the smallest circle. Participants were directed to write the initials of those people identified as being in their attachment network (as written on the ANQ, see above) within the Bull's Eye. Participants were instructed such that "The people in the circles closest to the centre are those people with whom you feel closest or most connected, even if it isn't all positive. People in the larger circles further away are people who are important to you but to whom you may not feel as close. The scoring procedure was slightly modified from Rowe and Carnelley's (2005) original scoring strategy. Rowe and Carnelley (2005) scored by measuring the distance from the centre of the Bull's Eye to each person in the attachment network in millimetres. In the current study, Bull's Eye attachment hierarchies were calculated by dividing the Bull's Eye into six concentric circles using a transparent sheet. Each individual placed in the Bull's Eye was then scored from 0 to 6 where 0 was outside the largest circle and 6 was inside the smallest circle (closest to the centre). A higher score indicates being placed higher in the attachment hierarchy. Where more than one best friend or other relationship type was included in the Bull's Eye, the score for the individual closest to the centre of the Bull's Eye was recorded. Bull's Eye network size was calculated as the total number of people placed on the Bull's Eye page and a Bull's Eye total score was calculated by summing the score for each individual on the page. Rowe and Carnelley (2005) report that the measure demonstrates good validity, it is able to discriminate between individuals with different global attachment styles and in terms of the "composition and organisation of their attachment networks" (Rowe & Carnelley, 2005, p. 517).

RESULTS

Overview of results

Results for this study are presented in the following sections. First, the DAAS is analysed in relation to attachment styles as measured by the RQ. A number of descriptive statistics are reported followed by a series of bivariate correlations and MANOVAs. Following this, attachment networks and functions, as measured by the ANQ, are analysed in relation to the DAAS. Descriptive statistics outline a number of elements of the attachment network and the various attachment functions; this is followed by investigation of the correlations between Strength of attachment and the DAAS. Finally, the Bull's Eye measure of the attachment network is analysed in relation to the ANQ and the DAAS. Various descriptive and correlational analyses are reported.

Relationship with attachment styles

Attachment style was measured using the RQ. Figure 10.1 presents a descriptive overview of the distribution of attachment styles in the sample. Proportions of participants endorsing each attachment style are commensurate with previous research (Bartholomew & Horowitz, 1991). Almost two-thirds of participants endorse a Secure attachment style, followed by Fearful and Preoccupied. The least frequently endorsed style is Dismissing.

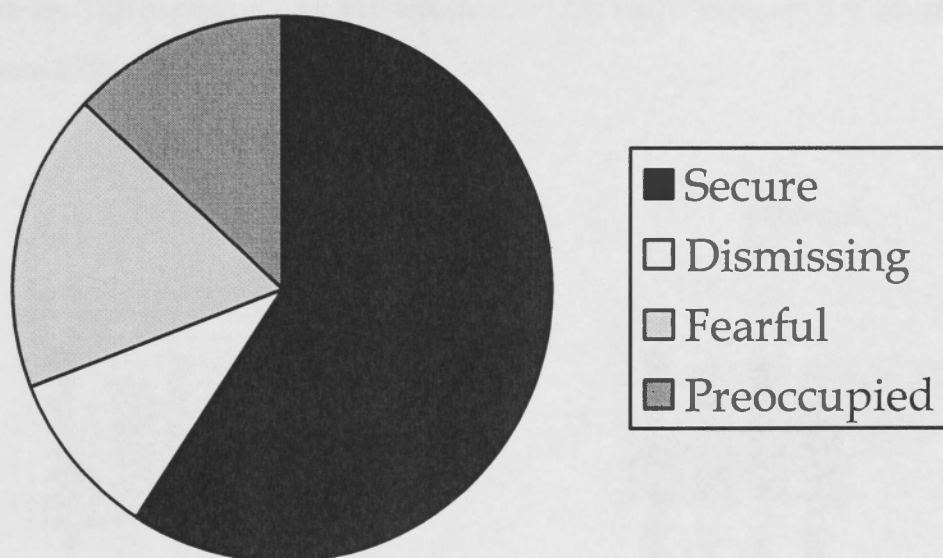


Figure 10.1

Distribution of relationship styles.

Means and standard deviations for the DAAS scales by RQ attachment style (Secure $n= 312$; Fearful $n= 93$; Preoccupied $n= 69$; Dismissing $n= 53$) are presented in Figure 10.2.

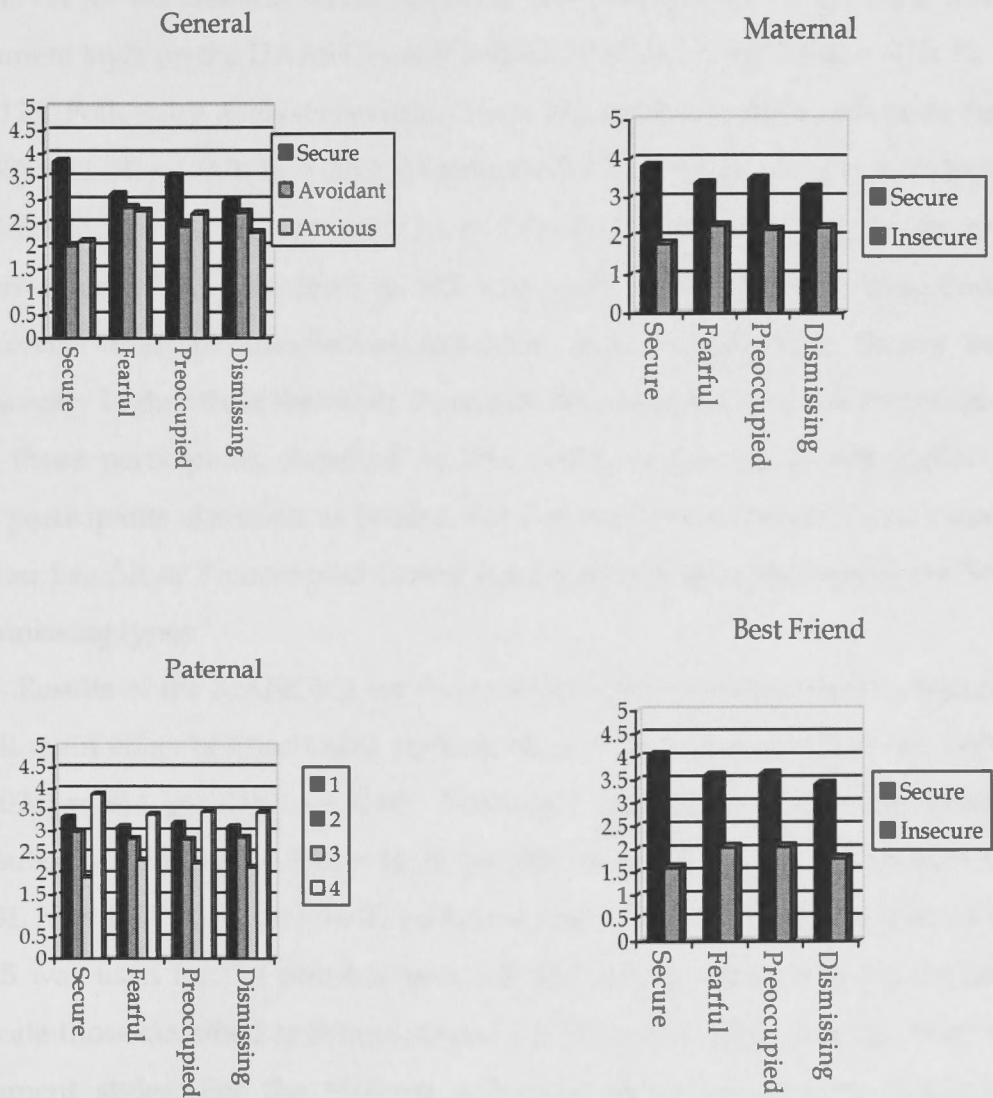


Figure 10.2

DAAS sub-scale means by Relationship Questionnaire attachment style classification

Four multivariate analysis of variance tests were conducted in order to analyse the pattern of mean DAAS subscale levels by RQ attachment style. This analysis provides information as to whether participants endorsing different attachment styles score differently on the DAAS subscales. Results of the MANOVA for the General Section demonstrate a significant overall main effect of attachment style on the DAAS General subscales, Wilk's L $F(9,1305) = .670, p < .001, h_2 = .125$. Follow-up analysis revealed main effects for all three subscales: Secure $F(3,538) = 41.84, p < .001, h_2 = .189$; Avoidant $F(3,538) = 42.93, p < .001, h_2 = .193$; and Anxious $F(3,538) = 31.42, p < .001, h_2 = .149$. To control for Type I error rate, a Bonferroni adjusted alpha level of .017 was used for the post-hoc tests. Post-hoc tests reveal that for the Secure sub-scale those classified as Secure scored significantly higher than the other three attachment styles. For the Avoidant sub-scale, those participants classified as Dismissing or Fearful scored higher than those participants classified as Secure. For the Anxious sub-scale, those classified as either Fearful or Preoccupied scored significantly higher than either the Secure or Dismissing types.

Results of the MANOVA for the Maternal Section demonstrate a significant overall main effect of attachment style on the DAAS Maternal subscales, Wilk's L $F(6, 1074) = .914, p < .001, h_2 = .044^6$. Follow-up analysis revealed main effects for both subscales: Secure $F(3,538) = 11.39, p < .001, h_2 = .060$; Insecure $F(3,538) = 14.93, p < .001, h_2 = .077$. To control for Type I error rate, a Bonferroni adjusted alpha level of .025 was used for the post-hoc tests. Post-hoc tests reveal that for the Secure sub-scale those classified as Secure scored significantly higher than the other three attachment styles. For the Insecure sub-scale, those participants classified as Dismissing, Preoccupied or Fearful scored significantly higher than those

⁶ For the Insecure Subscale, Levene's Test of Equality of Error Variances was statistically significant, suggesting a violation of the assumption of equality of variance for this variable. Therefore, a more conservative alpha level of 0.01 was employed (Tabachnick & Fidell, 2007).

participants classified as Secure. There were no significant differences between the Dismissing, Preoccupied and Fearful participants on the Insecure subscale.

Results of the MANOVA for the Paternal Section demonstrate a significant overall main effect of attachment style on the DAAS Paternal subscales, Wilk's L $F(12, 1376.082) = 3.424, p < .001, h_2 = .026$. Follow-up analysis revealed main effects for three subscales: Secure $F(3,523) = 8.276, p < .001, h_2 = .045$; Anxious Fearful $F(3,523) = 7.461, p < .001, h_2 = .041$; and Father Responsiveness $F(3,523) = 8.174, p < .001, h_2 = .045$. To control for Type I error rate, a Bonferroni adjusted alpha level of .013 was used for the post-hoc tests. Post-hoc tests reveal that for the Secure subscale those classified as Secure scored significantly higher than the Dismissing and Fearful styles; there was no significant difference between the Secure and Preoccupied styles. For the Anxious Fearful sub-scale, those participants classified as Preoccupied or Fearful scored significantly higher than those participants classified as Secure; there was no significant difference between the Secure and Dismissing styles. For the Father Responsiveness sub-scale, those classified as Secure scored significantly lower than the Dismissing, Fearful and Preoccupied styles. There were no significant differences between the Dismissing, Fearful and Preoccupied styles on the Father Responsiveness sub-scale.

Results of the MANOVA for the Best Friend Section demonstrate a significant overall main effect of attachment style on the DAAS Best Friend subscales, Wilk's L $F(6, 1076) = .834, p < .001, h_2 = .087$. Follow-up analysis revealed main effects for both subscales: Secure $F(3,538) = 21.70, p < .001, h_2 = .108$; Insecure $F(3,538) = 19.78, p < .001, h_2 = .099$. To control for Type I error rate, a Bonferroni adjusted alpha level of .025 was used for the post-hoc tests. Post-hoc tests reveal that for the Secure sub-scale those classified as Secure scored significantly higher than the Preoccupied and Fearful styles. For the Insecure sub-

⁷ For the Secure and Insecure Subscales, Levene's Test of Equality of Error Variances was statistically significant, suggesting a violation of the assumption of equality of variance for these variables. Therefore, a more conservative alpha level of 0.01 was employed (Tabachnick & Fidell, 2007).

scale, those participants classified as Preoccupied or Fearful scored significantly higher than those participants classified as Secure. There were no significant differences between the Dismissing and Secure participants on the Insecure and Secure subscales; or between the Dismissing and Preoccupied/Fearful styles on the Insecure or Secure subscales.

The second portion of analysis for the RQ comprises correlational analysis between the RQ Likert scale ratings for each score and the DAAS subscales. Correlations between the DAAS scales and RQ Attachment Style are presented in Table 10.1. Correlations range from weak to quite strong (i.e., .565 between RQ Fearful and DAAS General Avoidant; .494 between RQ Fearful and DAAS General Anxious). All correlations are in the expected direction and relative magnitude. For the DAAS General section, DAAS Secure correlates most highly with RQ Secure; and DAAS Anxious correlates most highly with RQ Preoccupied. DAAS Avoidant correlates most highly with RQ Fearful. This indicates that the DAAS Avoidant scale captures the negative model of self and others operationalised by the RQ Fearful subscale (predominately measuring social avoidance and fear of intimacy), as opposed to the RQ Dismissing operationalisation of a positive model of self with a negative view of others (marked by dismissal of intimacy). Although all correlations are in the expected direction and *relative* magnitude, some absolute correlations were higher than expected i.e., General Avoidant and RQ Preoccupied $r=.276$; General Anxious and RQ Dismissing $r=.128$.

For the DAAS Maternal and Best Friend, correlations are moderate in magnitude and all RQ styles relate to DAAS Secure and Insecure in the hypothesised direction. For the DAAS Paternal, the Secure subscale correlates most highly with RQ Secure and negatively with the RQ Insecure styles. The Paternal Approachability sub-scale correlates positively with RQ Secure and negatively with the RQ Insecure sub-scales. The Paternal Anxious Fearful sub-scale correlates most highly with the RQ Fearful and Preoccupied styles. When comparing the pattern of correlations between DAAS sections, it is evident that the

DAAS General Secure correlates most highly with the RQ Secure compared with the other DAAS Secure sub-scales. The DAAS Best Friend and Maternal Insecure sub-scales correlate in an almost identical pattern with the RQ styles.

Table 10.1

Correlations of DAAS with Relationship Questionnaire attachment style ratings

DAAS Scale	Secure	Fearful	Preoccupied	Dismissing
General				
Secure	.472**	-.343**	-.074	-.366**
Avoidant	-.408**	.565**	.276**	.372**
Anxious	-.310**	.494**	.496**	.128**
Maternal				
Secure	.296**	-.301**	-.249**	-.269**
Insecure	-.226**	.364**	.334**	.256**
Paternal				
Secure	.249**	-.198**	-.086*	-.202**
Approachability	.180**	-.133**	-.146**	-.121**
Anxious Fearful	-.193**	.285**	.276**	.167**
Father	.249**	-.220**	-.177**	-.184**
Responsiveness				
Best Friend				
Secure	.437**	-.264**	-.145**	-.297**
Insecure	-.287**	.365**	.374**	.205**

Note. * $p < .05$; ** $p < .01$.

To summarise, analysis comparing the DAAS with the RQ indicates that the participants who endorse different attachment styles on the RQ are able to be differentiated based on their scores for the DAAS. The MANOVAs demonstrate that individuals with various attachment styles have statistically significant mean

levels on the DAAS sub-scales, in the hypothesised direction i.e., RQ Secure participants have a higher mean score on the DAAS General Secure compared with RQ Dismissing, Preoccupied and Fearful individuals. Furthermore, correlational analysis between RQ Likert scale ratings and DAAS sub-scale scores show that the RQ ratings correlate significantly and in the expected direction with their corresponding DAAS sub-scale i.e., RQ Secure correlates most strongly with DAAS General Secure.

Networks and functions analysis

Following analysis of the RQ, the ANQ and Bull's Eye measures are analysed in relation to the DAAS. The nature of the attachment network, hierarchies and functions for the sample are detailed, followed by a consideration of these variables in light of the DAAS.

The results of the statistical analyses regarding the relationship network, attachment functions, primary attachments, the attachment hierarchy and full-blown attachments are presented below. Table 10.2 presents descriptive statistics of the variables measured in the ANQ.

Table 10.2

Descriptive Statistics for attachment variables

	<i>N</i>	<i>M</i> (<i>SD</i>)	Actual Range	Possible Range	Skewness	Kurtosis
Size of Relationship Network	112	11.54 (4.93)	3-35	0-	1.05	3.90
Total Attachment Strength	132	1.05 (0.32)	0-1.66	0-3	-0.66	0.42
Number of Full- Blown Attachments	135	1.33 (0.87)	0-3	0-5	0.46	-0.73

Relationship network

The relationship network was measured using the Attachment Network Questionnaire (ANQ; Doherty & Feeney, 2004) and the Bull's Eye Measure (Rowe & Carnelley, 2005). Network size was calculated by counting the number of people placed on the Bull's Eye map. It is important to note that the ANQ was completed prior to the Bull's Eye due to the layout of the composite questionnaire, thus, there may be a priming effect for network size due to the layout of the ANQ where participants are given space to list 15 individuals.

A wide range of relationship types were recorded. 82.5% of participants listed members of the nuclear family (mother, father, sibling), 17.4% listed extended family members (e.g., aunts, uncles, grandparents, step-parents, step-siblings etc) and 98.3% listed best friends/peers. A small number of participants listed coaches, teachers, doctors, pets etc., however these relationships were not included in the analysis due to the minimal number of times they were listed and a lack of research evidence indicating that these bonds constitute attachment relationships (i.e., Ainsworth, 1991). Overall, an average of 11.18 ($SD = 4.15$) relationships were nominated ($n = 111$) with a range of one to 21⁸. A priming effect is evident regarding network size. As previously stated, in the composite questionnaire participants completed the ANQ prior to the Bull's Eye with the ANQ allowing space for 15 network members and the Bull's Eye giving no limit for network size. Despite this, many participants elected to list more or less than 15 network members. Figure 10.3 shows the frequency of network sizes reported.

⁸ Two participants listed 27 and 35 people in their attachment networks respectively. As univariate outliers, these cases were not included in the analysis.

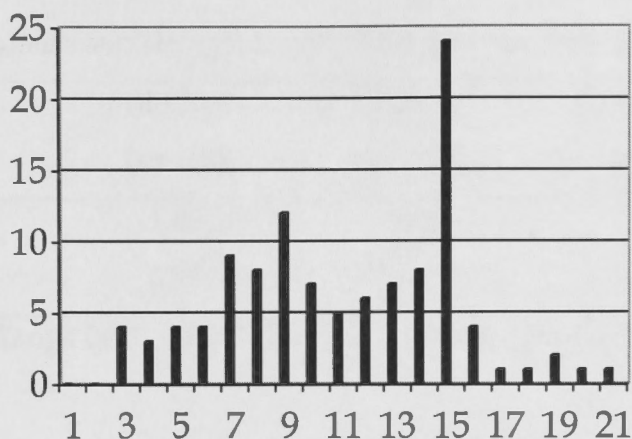


Figure 10.3

Relationship network distribution

Network size was analysed according to sex and age. Females ($M = 12.25$, $SD = 4.03$) reported significantly more people in their relationship network than males ($M = 9.92$, $SD = 3.98$); $t(111) = -2.33$, $p < .005$. Network size was uncorrelated with age ($r = .002$).

Attachment strength and attachment functions

Attachment strength to each of the five relationship types was examined (see method for scoring). Table 10.3 shows the mean attachment strength scores for the four relationship types. Participants reported strongest attachment to mother, followed by best friend, boyfriend/girlfriend, and father. The results indicate that relationships are hierarchically arranged in terms of preference regarding fulfilment of attachment needs.

Table 10.3

Mean attachment strength scores for the four most nominated relationships^a

	Mother (<i>n</i> =118)	Father (<i>n</i> =109)	Best Friend (<i>n</i> =126)	Partner (<i>n</i> =28)
<i>M</i>	1.68	1.01	1.58	1.42
<i>SD</i>	0.99	0.79	0.94	1.01

Note. Range 0-3. ^a Calculated if attachment figure available

Attachment strength was examined in terms of age. Pearson's correlations indicate that there was a non-significant, weak negative relationship between attachment strength and age, $r = -.102$, $p = .246$. Attachment strength was also examined in terms of sex differences (see Table 10.4). Independent t-tests reveal that males report significantly higher attachment strength to their father than females, $t(107) = 3.37$, $p < .001$. Furthermore, females report significantly higher attachment strength to best friends than males, $t(124) = -2.72$, $p < .01$.

Table 10.4

Mean scores of attachment strength for males and females^a

	Male <i>M</i> (<i>SD</i>) <i>n</i> = 63	Female <i>M</i> (<i>SD</i>) <i>n</i> = 70	Total <i>M</i> (<i>SD</i>) <i>n</i> = 111
Mother	1.60 (0.99)	1.74 (0.99)	1.68 (0.99)
Father	1.26 (0.82)***	0.77 (0.69)	1.01 (0.79)
Best Friend	1.35 (0.94)	1.79 (0.89)**	1.58 (0.94)
Partner	1.59 (0.97)	1.25 (1.06)	1.42 (1.01)

Note. *** $p < .001$; ** $p < .01$. ^a Calculated if attachment figure available

Fulfilment of attachment functions was measured by part two of the modified ANQ. This section of the ANQ includes eight questions, two for each of

the four attachment functions (see method for more detailed description). The five most frequently reported relationship types were mother, father, best friend, sibling, extended family, and boyfriend/girlfriend (partner). Other relationship types were also nominated against the attachment functions, however were not included in subsequent analyses due to minimal reporting. Of the relationship types analysed further in this section, Best Friend was the most frequently reported relationship (96.4%) followed by Mother (88.5%), Father (81.3%), and Romantic Partner (20.1%). As previously mentioned, other relationship types were listed in the ANQ but as with section one they were not used in analysis as a minimal proportion of participants reported them. Following Doherty and Feeney (2004), the most frequently listed relationship types were included in analysis, with the addition of Romantic Partner⁹. Due to different compositions of attachment networks where not all participants had all relationships available to them, reported differences between relationship types are descriptive rather than inferential, unless otherwise specified.

The extent to which participants turned to particular figures to have each of the four attachment functions met was examined. It is clear from Table 10.5 that adolescents prefer Best Friends and Romantic Partners for the Proximity Seeking function. This is as expected (Trinke & Bartholomew, 1997), particularly considering that data was collected in a school context. Furthermore, it is evident that adolescents prefer their mother for the Safe Haven and Secure Base Functions; and mothers and partners for the separation protest function. Few adolescents identify their romantic partner as a Secure Base. This pattern is quite different from that of Doherty and Feeney (2004) who used an older sample and found concentration of attachment functions with romantic partners.

⁹ Although a rationale is provided in Chapter 3 regarding the non-inclusion of boyfriend/girlfriend in the DAAS, the decision was made to analyse boyfriend/girlfriend category in the ANQ in order to explore the prevalence and role of such relationships in the broader attachment network and the relationship with general attachment orientation.

Table 10.5

Mean attachment function scores for each attachment figure^a

	Proximity Seeking <i>M (SD)</i>	Safe Haven <i>M (SD)</i>	Separation Protest <i>M (SD)</i>	Secure Base <i>M (SD)</i>
Mother	2.58 (2.21)	3.61 (2.27)	3.30 (2.43)	3.86 (2.26)
Father	1.47 (1.71)	1.95 (2.06)	2.05 (1.91)	2.50 (2.05)
Best Friend	3.93 (1.91)	3.26 (2.12)	2.60 (2.31)	2.86 (2.23)
Partner	3.79 (2.42)	2.68 (2.51)	3.32 (2.60)	1.36 (2.15)

Note. ^a Calculated if attachment figure available

Primary attachments

Relationship types with the highest composite score across the attachment functions were classified as the primary attachment figure for that individual. There were 7 participants (5.3%) whose composite score was the same for two attachment figures. It was not possible to determine the primary attachment figure for these participants and as such they were excluded from the following analyses. Table 10.6 illustrates the percentage of participants reporting any of the five relationships as their primary attachment figure. The results indicate that for the total sample, Mothers were relied upon most as primary attachment figures, followed by Best Friends, Partners, and Fathers. Percentages of males and females reporting each of the five figures as a primary attachment figure are also presented in Table 10.6 with results showing markedly different patterns for males and females. Where males had a partner available, they were likely to be the primary attachment figure (50%). Males report a similar rate of primary attachment to Best Friends and Mothers (34.4 and 39.6% respectively). Females are most likely to have their Mother as the primary attachment figure (50.8%); and where they have a partner available, they are much less likely than boys to consider this person their primary attachment figure (21.4%). An interesting difference is evident between

males and females regarding primary attachment to fathers. 11.3% of boys who have a father in their attachment network identify their father as the primary attachment figure, compared to just 1.3% of females.

Table 10.6

Percentages of different targets as primary attachment figures

	Percentage ^a reporting target as primary attachment figure		
	Male	Female	Total
Mother (<i>n</i> =126)	39.6	50.8	45.8
Father (<i>n</i> =113)	11.3	1.3	6.4
Best Friend (<i>n</i> =140)	34.4	44.6	39.7
Partner (<i>n</i> =28)	50.0	21.4	35.7

Note. ^a Percentages represent the proportion of participants with the target figure available.

Full-blown attachments

Full-blown attachments are defined as those in which the significant person fulfils all four of the attachment functions. Scoring for full-blown attachments followed the method used by Doherty and Feeney (2004) where an individual was considered to have a full-blown attachment if the significant person obtained a score of two or more for all four functions. Such conservative criteria have been used to limit the number of full-blown attachments that can be reported. The number of full-blown attachments reported by participants is depicted in Figure 10.4 and Table 10.7. Almost three quarters of the sample report having one or two full-blown attachment relationships. A small number of participants report no

full-blown attachments. Males and females report an average of 1.24 and 1.41 full-blown attachments (t is non-significant) respectively.

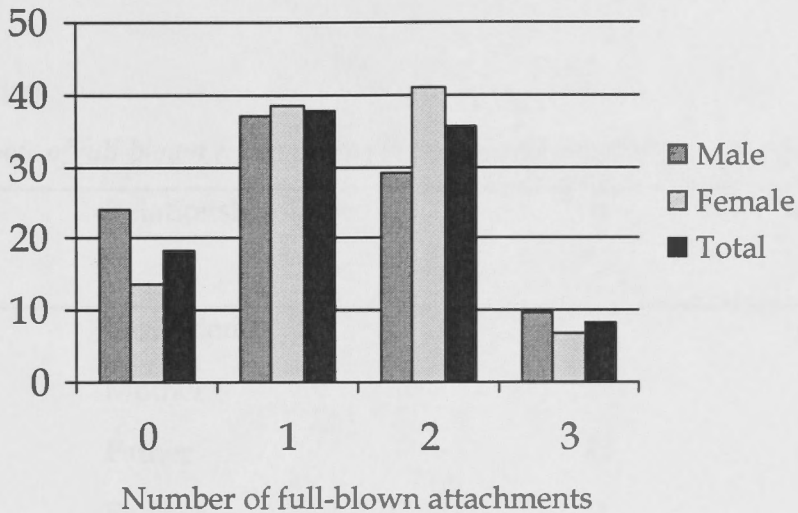


Figure 10.4

Percentage of full-blown attachments

Table 10.7

Percentage of full-blown attachments for each attachment figure^a

Relationship Present	n	% with full-blown attachment to that figure
Mother	67	54.9
Father	33	30.0
Best Friend	71	53.4
Partner	9	32.1

Note. ^a Percentage calculated if attachment figure available.

Table 10.8 shows the percentage of full-blown attachments for both males and females. There is no significant difference between males and females on full-blown attachment to mother or partner. Males (53.4%) are almost three times as

likely to have a full-blown attachment to their father than females (17.5%), $\chi^2(1) = 7.55, p < .01$. Females (65.3%) are statistically significantly more likely than males (39.3%) to have a full-blown attachment to their best friend $\chi^2(1) = 7.91, p < .01$.

Table 10.8

Percentage of full-blown relationships for males and females^a

Sex	Relationship Type	<i>n</i>	% Full-blown
Male	Best Friend	24	39.3**
	Mother	27	50.0
	Father	23	53.4**
	Partner	3	21.4
Female	Best Friend	47	65.3**
	Mother	40	58.8
	Father	10	17.5**
	Partner	6	42.9

Note. ^a Percentage calculated if attachment figure available; ** $p < .01$.

ANQ and the DAAS

Comparison of ANQ Strength of Attachment¹⁰ with the DAAS sub-scales for each section retrieves results consistent with the hypothesised patterns, see Table 10.9. Strength of attachment to mother is moderately positively correlated with DAAS Maternal Secure and moderately negatively correlated with DAAS Maternal Insecure. A different pattern is found for the Paternal sub-scales in that there are no significant correlations between the DAAS Paternal sub-scales and Strength of

¹⁰ ANQ Strength of attachment and full-blown attachment are strongly correlated, therefore, only Strength of attachment is analysed in relation to the DAAS sub-scales.

Attachment to Father on the ANQ. For the Best Friend variables, strength of attachment to Best Friend is moderately strongly positively correlated with DAAS Best Friend Secure but uncorrelated with DAAS Best Friend Insecure, this may possibly be due to the confounding high level of proximity seeking to Best Friends in the ANQ data. Interestingly, DAAS Best Friend Secure is negatively correlated with strength of attachment to Mother and Father. Strength of attachment to romantic partners is uncorrelated with all DAAS sub-scales. Total strength of attachment correlates significantly and in the expected direction (i.e., positively with security, negatively with insecurity) for all DAAS sub-scales except for Best Friend, with which it is uncorrelated.

Table 10.9

Correlations between ANQ strength of attachment and DAAS sub-scales

DAAS Scale	ANQ Strength of Attachment				
	Total	Mother	Father	Best Friend	Partner
General					
Secure	.271**	.164	-.053	.190*	.047
Avoidant	-.283**	-.232**	-.037	-.044	-.057
Anxious	-.216*	-.208*	-.015	-.005	-.049
Maternal					
Secure	.422**	.506**	.216*	-.172*	-.015
Insecure	-.340**	-.374**	-.116	.034	.036
Paternal					
Secure	-.083	-.043	.015	.033	-.147
Approachability	-.037	-.098	.095	-.031	.000
Anxious Fearful	.117	.119	.117	-.031	-.050
Father	-.050	-.062	-.004	.010	-.012
Responsiveness					

Table 10.9 *cont.*

DAAS Scale	ANQ Strength of Attachment				
	Total	Mother	Father	Best Friend	Partner
Best Friend					
Secure	.018	-.118	-.298**	.387**	.032
Insecure	-.132	-.090	.034	-.078	-.036

Note. ** $p < 0.01$; * $p < 0.05$.

Bull's Eye

Further validation regarding attachment networks and hierarchies can be gleaned from the Bull's Eye Hierarchical Mapping technique. The key variables analysed in this section are the number of attachment figures placed on the Bull's Eye (Network size) and the distance of attachment figures in relation to the self on the Bull's Eye (measured for each relationship domain and added to create total Bull's Eye score).

Table 10.10 presents bivariate correlations between the DAAS sub-scales and the Bull's Eye score for each attachment figure. The correlation table demonstrates a number of hypothesised findings (see correlation coefficients marked in bold). With regard to the DAAS sub-scales and the attachment network variables, the DAAS General Secure and Avoidant subscales correlate positively and negatively with Bull's Eye Mother, Father and Total respectively. The Bull's Eye Mother, Father and Total scores are uncorrelated with DAAS General Anxious. Bull's Eye Mother and DAAS Mother Secure and Insecure correlate positively and negatively, in the expected direction. The Father scales do not show a corresponding pattern and indeed no DAAS Paternal sub-scale correlates with the Bull's Eye Father score. Bull's Eye Best Friend and DAAS Best Friend Secure are significantly positively correlated; the correlation between Bull's Eye Best Friend and DAAS Best Friend Insecure is non-significant but in the expected direction.

The Bull's Eye Total correlates in the anticipated direction with all DAAS subscales i.e., positively with secure subscales, negatively with insecure subscales. The strongest Bull's Eye Total correlation is with the DAAS General Section subscales, compared with the specific DAAS subscales.

Results comparing the DAAS sub-scales and the Bull's Eye scores demonstrate that security of attachment to a particular person is reflected in their placement closer to the centre of the Bull's Eye. Insecurity of attachment is reflected in the placement of attachment figures towards the outside of the Bull's Eye. This pattern holds for General attachment, Maternal attachment and Best Friend attachment. The hypothesis was not supported for Paternal attachment.

Table 10.10

Correlations between Bull's Eye score for each attachment figure and DAAS sub-scales.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Bull's Eye																
1. Total	-	.18	.24*	.38**	.07	.37**	-.37**	-.12	.24*	-.41**	.03	.05	.06	-.02	.19	-.19*
2. Mother		-	.68**	-.04	-.04	.27**	-.24**	-.09	.46**	-.45**	.05	-.01	.15	-.03	.10	.04
3. Father			-	-.18	.05	.37**	-.21*	-.09	.37**	-.31**	.02	.01	.05	.04	-.05	.22*
4. B Friend				-	.09	.16	-.09	.05	.00	-.15	-.13	-.07	.04	-.11	.29**	-.18
5. Partner					-	.15	-.05	.06	.09	-.03	-.14	.00	-.06	-.05	.07	.07
DAAS																
6. General Secure						-	-.47**	-.06	.38**	-.23**	-.09	-.03	.10	-.06	.59**	-.16**
7. General Avoidant							-	.64**	-.36**	.48**	-.02	-.10	.02	-.10	-.31**	.46**
8. General Anxious								-	-.24**	.44**	-.01	-.05	-.04	-.07	-.07	.54**
9. Maternal Secure									-	-.74**	.06	.06	-.10	.11	.30**	-.18**
10. Maternal Insecure										-	-.03	-.05	.06	-.08	-.10*	.37**

Table 10.10. *cont.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
11. Paternal Secure											-	.66**	-.42**	.80**	-.02	.01
12. Paternal Approach												-	-.49**	.76**	.01	-.02
13. Paternal Anxious													-	-.74**	.07	-.17
14. Paternal Respons														-	-.03	.06
15. B Friend Secure															-	-.31**
16. B Friend Insecure																-

Note. ** $p < 0.01$; * $p < 0.05$.

Table 10.11 examines the relationship between the DAAS General sub-scale scores and the overall characteristics of the attachment network. A strong positive correlation is found between Security and both network size and the total score on the Bull's Eye (indicating that secure individuals place network members closer to the centre of their Bull's Eye). The reverse pattern is found for Avoidance, with avoidant individuals having a smaller, more diffuse attachment network. No significant correlation is found for Anxiety, indicating that anxious individuals do not demonstrate a clear pattern with regard to network size or concentration.

These findings build on evidence in Table 10.10 above that there is a valid and theoretically consistent relationship between the DAAS sub-scales and a graphical representation of the attachment network and hierarchy.

Table 10.11

Correlations between DAAS General sub-scale scores and characteristics of attachment network

DAAS Sub-scale	Network size	Bull's Eye total score
Secure	.287**	.372**
Avoidant	-.263**	-.365**
Anxious	-.081	-.120

Note. ** $p < 0.01$.

To ensure validity of the Bull's Eye, correlations were calculated for the distance from self on the Bull's Eye with strength of attachment as reported in the ANQ. Table 10.12 shows the correlations between Bull's Eye scores and ANQ strength of attachment. Table 10.12 demonstrates that between the ANQ variables, a strong pattern of positive correlations is found for ANQ Mother, Father, and Total. Similarly for the Bull's Eye variables, a strong positive relationship is evident between Bull's Eye Mother and Bull's Eye Father; and between Bull's Eye Best Friend and Bull's Eye Total score. Therefore, those participants who report a

strong, close relationship with their mother, father or best friend are likely to report a strong, close relationship with other key attachment figures and a high level of strength of attachment in general. Interestingly, the only significant relationship found for the Bull's Eye Partner score is with the ANQ Partner score.

Evidence for the validity of the ANQ and Bull's Eye in relation to each other is found by analysing the pattern of each relationship between the two measures i.e., there is a strong positive relationship between ANQ Mother and Bull's Eye Mother; ANQ Father and Bull's Eye Father; ANQ Best Friend and Bull's Eye Best Friend; and ANQ Partner and Bull's Eye Partner. There is no correlation between ANQ Total strength of attachment and Bull's Eye Total score however.

Table 10.12

Correlations between ANQ strength of attachment and Bull's Eye score for each attachment figure.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
ANQ										
1. Mother	-	.55**	-.48**	-.24**	.59**	.49**	.38**	-.30**	-.10	.10
2. Father		-	-.55**	-.17	.55**	.30**	.48**	-.33**	-.14	-.08
3. B Friend			-	-.13	-.27**	-.29**	-.35**	.53**	-.07	.07
4. Partner				-	.17*	-.13	.53**	.02	.85**	-.07
5. Total					-	.36**	.02	-.07	.27**	.06
Bull's Eye										
6. Mother						-	.68**	-.04	-.04	.18
7. Father							-	-.18	.05	.24*
8. B Friend								-	.09	.38**
9. Partner									-	.07
10. Total										-

Note. ** $p < 0.01$; * $p < 0.05$.

This section has outlined the characteristics of the adolescent attachment network, hierarchies and functions as measured by the ANQ. Results comparing the DAAS with the ANQ suggest that the General secure sub-scales correlates statistically significantly positively with total strength of attachment and statistically significantly negatively with the General Insecure sub-scales. For Maternal and Best Friend attachment the hypotheses were supported regarding the correlation between strength of attachment to mother and best friend and scores on the DAAS. This hypothesis was not supported for Paternal attachment as there were insignificant correlations between the DAAS Paternal subscales and strength of attachment to father.

DISCUSSION

In this study, the DAAS was investigated in relation to existing measures of attachment in adolescence: attachment styles, the attachment network, attachment functions and attachment hierarchies. The four sections of the DAAS were each considered in relation to these constructs and the sub-scales for each section were analysed for the first time. Generally speaking, results of this study provide initial evidence for the validity of the DAAS sections and subscales. The results demonstrate convergent validity for the DAAS through analysis of its relationship with three additional measures of attachment constructs in adolescence. The pattern of correlations between the DAAS and an additional measure of attachment style adequately discriminate between individuals endorsing different attachment styles. The DAAS corresponds with strength of attachment, quality of attachment and characteristics of the attachment network including size and average strength.

Relationship with the RQ

Considering first the RQ, all hypotheses were confirmed when the categorical attachment styles were analysed with the DAAS sub-scales. When the patterns of correlations were studied, it was evident that the DAAS sub-scales related in the expected magnitude and direction with the RQ styles. It correlates weakly to moderately with the RQ and all mean levels and group differences support hypotheses forwarded. All MANOVAs and post hoc tests are significant in the predicted directions.

The DAAS General section demonstrated the strongest relationship with the RQ styles, which is desirable as both are measures of general attachment. For the Best Friend and Paternal sections the DAAS showed slightly lower than desirable ability to distinguish between Dismissing and Secure participants. For the Best Friend and Paternal models, the DAAS sub-scales do not discriminate between RQ Dismissing and Secure styles in the MANOVA analysis. It is possible that due to the structure of the DAAS sub-scales, where the hypothesised avoidant items split between the Secure and Insecure factors (i.e., "My best friend really understands me and my needs" was hypothesised as a reverse scored avoidant item however loads on the Secure factor) that there is some overlap between the Dismissing and Secure elements. Furthermore, in Bartholomew and Horowitz's (1991) conceptualisation of the four attachment styles found in the RQ, Dismissing and Secure styles share a positive model of self, possibly explaining some similarities between the styles. For the remaining DAAS sections, General and Maternal, both sections were able to adequately distinguish between different attachment styles. Thus, when comparing DAAS subscale scores with ratings and classifications on the RQ, the DAAS performs as would be expected.

Relationship with the ANQ and Bull's Eye

For the ANQ and Bull's Eye measures of networks, hierarchies and functions the DAAS shows good preliminary validity. The DAAS General sub-

scales relate ideally with general characteristics of the attachment network. Network size and the Bull's Eye total score correlate strongly with DAAS General Secure, negatively with DAAS General Avoidant and are uncorrelated with Anxiety, reflecting a mixed pattern for those scoring highly on anxiety.

For the ANQ, total strength of attachment correlated significantly and in the expected direction (i.e., positively with security, negatively with insecurity) for DAAS General, and Maternal. ANQ strength of attachment was uncorrelated with the DAAS Best Friend subscales. This is possibly due to the impact of particularly high levels of proximity seeking for best friends compared with other relationship categories. Commencing in childhood, individuals report enjoying time spent with peers in recreation and various social activities (Heaven, 2001; McElhaney et al., 2009; Nickerson & Nagle, 2005). It is possible that in the domain of best friend attachment that proximity seeking as an attachment function may be confounded with the affiliative or sociable behavioural system regarding time spent with peers. Interestingly, DAAS Best Friend Secure correlated negatively with strength of attachment to Mother and Father. The DAAS Best Friend Insecure subscale was uncorrelated with strength of attachment to mother and father. This may suggest the transfer of attachment functions from parents to best friends for those who are securely attached to best friends. It is important to note a number of non-significant findings for the DAAS Paternal and the ANQ and the Bull's Eye. As previously stated, the Paternal section is the most exploratory of the DAAS sections and extensive further investigation will need to be conducted to further assess the performance of the scale.

There were a number of sex differences for ANQ variables. A number of sex differences were found both with respect to how the attachment network is structured and the comparable placement of various relationship types in the relationship hierarchy. In the area of parental attachment, males were more likely to place their father higher in the attachment hierarchy than females and were more likely to have a stronger relationship with their father as measured by

attachment strength and frequency of primary attachment to father. This is similar to the finding of Rowe and Carnelley (2005) who report that females are less likely to place their father closer to the centre of the Bull's Eye compared with males. These findings lend support to the argument that the mother-daughter, mother-son, father-daughter and father-son relationships are distinct and that key intricacies are missed when 'parental attachment' (rather than maternal attachment or paternal attachment) is under study (Allen et al., 1994; Buist et al., 2002; Drill, 1987; Ducharme et al., 2002; Kenny et al., 1998; McCurdy & Scherman, 1996; Paterson et al., 1994; Russell & Saebel, 1997; Youniss & Ketterlinus, 1987). Furthermore, in line with prior research (i.e., Wilkinson, 2006a) the nature of Best Friend attachment shows a pattern of gender differences in terms of the placement of best friends in the attachment network and their prioritisation in the hierarchy of females compared with males.

Data collected using the ANQ and the Bull's Eye allowed for some investigation of the role of romantic partners in adolescence in relation to the attachment network, hierarchy and functions. There were no significant correlations between the ANQ Partner Strength of Attachment and Bull's Eye Partner score and any DAAS sub-scale. There are a number of possible explanations for this finding. It is possible that the specificity of partner attachment is not measured in the DAAS General section or sections for specific relationships. It is also possible that a significant association between the two variables was not found due to the small subset of the sample who identified a partner in their Bull's Eye attachment network. Finally, it is possible that although some participants identified a partner as part of their attachment network, these relationships may not yet meet criteria for an attachment bond as measured by the DAAS General. Feeney (2004) argues that a partner only becomes a primary attachment figure after parents have receded as attachment figures. In this context, the argument becomes somewhat circular in that if a partner is the primary

attachment figure the parents have by definition faded as primary attachment figures.

One notable finding is the number of male participants with a romantic partner who identify this person as their primary attachment figure. Although only 14 males had a romantic partner available in their attachment network, half of these males nominated that person as their primary attachment figure. Viewed in light of the likelihood of the attachment process developing to this extent during adolescence (Bouchey & Furman, 2003; Fraley & Davis, 1997; Hazan & Zeifman, 1994; Kobak et al., 2007; Trinke & Bartholomew, 1997), this finding is intriguing. It is possible that this finding may reflect the likely stage of the relationship, for example, a pre-attachment with high levels of arousal and attention, 'butterflies in the stomach' (Feeney, 2004) rather than a "goal corrected partnership" so to speak. The very small cell size for this subset of the sample limits power and precludes one from drawing definitive conclusions. Further investigation of partner attachment for adolescents using both the Bull's Eye and the DAAS would be required to clarify which explanation best reflects the process of attachment transfer to romantic partners. Romantic partner attachment in adolescence is discussed further in Chapter Twelve.

Further direct comparisons with the results of Rowe and Carnelley (2005) using the Bull's Eye measure are difficult for a number of reasons. There are a number of methodological differences between the current study and that of Rowe and Carnelley (2005). Firstly, Rowe and Carnelley (2005) measured attachment using the ECR. There are a number of differences in the way attachment is measured using the ECR compared with the DAAS, the measures have different sub-scales, the ECR measured only a general attachment orientation, and security is not explicitly measured. Rowe and Carnelley (2005) placed the ANQ after, not before the Bull's Eye measure. In the current study a priming effect regarding network size can be observed and this could be overcome by changing the order of measures in the questionnaire. It is debatable whether this would be required

however, as previous research indicates that the majority of participants are unlikely to identify more than 10 people in their attachment network when unprompted (Trinke & Bartholomew, 1997). Furthermore, Rowe and Carnelley (2005) used an interval level scoring scale for the Bull's Eye whereas in the current study an ordinal scoring system was utilised. This altered the type of analysis available however is more onerous on participants i.e., Rowe and Carnelley (2005) used small stickers for each person on the Bull's Eye which were then labelled. In the current study, participants wrote the initials of each individual on the page and a scoring template was placed over the page in order to divide the space.

Possible methodological limitations and suggestions for future research

Limitations of the current study include the cross-sectional design and the sample size. Both restrict the hypotheses that are able to be addressed and the type of analysis undertaken. These shortcomings were somewhat unavoidable in the current study due to pragmatic restraints surrounding the time taken to complete the questionnaire and the availability of participants in a school context. The questionnaire was quite long as it was and efforts were made to reduce the burden on participants. It was relatively difficult to access participants within schools with school staff at times hesitant to have adolescents complete the questionnaire during class time. A longitudinal design would have considerably increased the amount of time and commitment needed from both schools and participants.

Whilst a number of shortcomings of the RQ are reviewed in Chapter Four, there is somewhat of a dearth of alternative options. The composite questionnaire was quite long to begin with and it was considered that it would be too onerous on participants, particularly young adolescents, to include another long multi-item scale. The IPPA was not chosen due to the aforementioned lack of correspondence with attachment dimensions included in the literature and indeed the dimensions used in the content validation and development of the DAAS. Future research may benefit from the use of Fraley's Relationship Structures Questionnaire to

measure relationship specific attachment. Although a three-factor model was hypothesised for the DAAS, the four factor RQ was used in this study as it offers the opportunity to investigate preoccupied, fearful and dismissing attachment as opposed to anxious and avoidant. This study offers promising results for the validity of the DAAS in relation to existing measures of various attachment constructs. Further scrutiny in the DAAS will be undertaken in subsequent studies.

STUDY FOUR: MULTI-INFORMANT VALIDATION

Introduction

Multi-informant designs play a large role in the validation of self-report instruments, both within the area of attachment relationships and in psychological research more generally, allowing researchers to control for common method variance and self-report biases (Griffin & Bartholomew, 1994; Kerns & Stevens, 1996; Onishi, Gjerde, & Block, 2001). Demonstration of a relationship between various sources of information regarding the nature of the attachment bond is an important source of convergent validity (Kerns & Stevens, 1996).

In addition to providing an additional source of substantiation, the idea of multi-informant validation resonates appropriately with the notion of attachment relationships (Johnson, Ketring, & Abshire, 2003). "Relationships, by definition, involve two people, each of whom brings his or her own expectations and behavior patterns to the relationship" (Kerns et al., 1996, p. 460). Therefore, the multi-informant methodology gives an appreciation of the dyadic nature of the relationship in question (Fuligni, & Eccles, 1993; Kerns et al., 1996). This research design has been used in a variety of contexts when studying attachment relationships, i.e., between romantic partners (Bradford et al., 2002; Feeney & Hohaus, 2001; Griffin & Bartholomew, 1994); between peers or best friends (Griffin & Bartholomew, 1994; Kerns et al., 1996; Kobak & Sceery, 1988); between teachers and students (Fuligni, & Eccles, 1993; Goodman et al., 2004); between trained observers (Onishi et al., 2001); within entire family units (Buist et al., 2004; Cook, 2000); and between parents and children (Johnson et al., 2003; Ridenour et al., 2006; Target et al., 2003).

Specifically regarding parents and children, Johnson et al. (2003), for example, created a revised version of the IPPA to assess parent attachment to their children. The authors found that the factor structure of the IPPA did not hold for the parent version (R-IPA). Furthermore, the authors do not report on the

correlation between parent and peer completed questionnaires. Ridenour et al. (2006) used parent reports of psychological health and did not collect data regarding parent attachment or parental view of adolescent attachment. Finally, Target et al. (2003) in developing the Child Attachment Interview, analysed predictive validity via the relationship between mother AAI and their child's CAI. Highly significant correspondence (64%) was found between mother and child attachment classifications (Target et al., 2003). The strongest prediction was found for insecurely classified children.

The present study

A large body of literature suggests that parental attachment style can be used to predict the attachment style of their offspring (McElhaney et al., 2009; van Ijzendoorn & Bakermans-Kranenburg, 1996). When attachment theory was extended beyond infancy, a primary method for establishing the validity of measures such as the AAI was the ability of the measure to predict a child's attachment style (McElhaney et al., 2009; van Ijzendoorn & Bakermans-Kranenburg, 1996). Furthermore, the characteristics of various attachment styles regarding communication, responses to conflict, responsiveness to others and consistency impact on both the marital relationship one has with one's partner; and the parenting style used and the nature of care provided to children (Feeney, 1999; Kobak & Sceery, 1988). Kolko and Kazdin (1993) suggest that levels of family functioning and stress impact on the amount of correspondence found between parent and child reports of symptomatology.

Attachment style is correlated with the amount of disclosure and closeness in the relationship between parent and child and the willingness of the child to discuss issues with their parents (Feeney, 1999; Markiewicz et al., 2001; Youniss & Ketterlinus, 1987). The degree of correspondence between various informants in a multi-informant research design can also be expected to vary between individuals of different attachment styles (Onishi et al., 2001). Secure individuals are expected

to have the highest level of correspondence due to their confidence in close relationships, resiliency, lack of anxiety and sociability. Insecure individuals are expected to have lower levels of correspondence compared with secure individuals due to anxiety and confusion (in the case of preoccupied individuals); self-serving bias or defensiveness (for dismissing individuals) or insecurity (for fearful individuals) (Onishi et al., 2001).

In the present study, parents and their adolescent children were given corresponding questionnaires to complete, allowing for the investigation of the nature of both parent and adolescent attachment characteristics, as well as comparison of the parent's perspective of their child's attachment with their child's self-reported attachment.

Thus, following this review, the following hypotheses are proposed for this study:

1. Higher correspondence (bivariate correlation) between parent and adolescent DAAS General Secure sub-scale scores for secure compared with correspondence between parent and self DAAS General Anxious and Avoidant sub-scales.
2. Statistically significant positive correlation between parent RQ Secure rating and adolescent DAAS General Secure sub-scale.
3. Statistically significant positive correlation between parent RQ Fearful, Preoccupied and Dismissing rating and adolescent DAAS General Insecure sub-scale.
4. Statistically significant positive correlation between parent RQ Secure rating and adolescent DAAS Maternal Secure sub-scale.
5. Statistically significant positive correlation between parent RQ Fearful, Preoccupied and Dismissing rating and adolescent DAAS Maternal Insecure sub-scale.

METHOD

Participants

Participants included a subset of parents from the sample used in Study One of this chapter. Approximately 500 parent questionnaires were distributed and 40 parents volunteered to participate in the study. Four questionnaires were discarded due to incorrect completion. Therefore, a total of 36 surveys were retained for analysis. The parent sample was comprised of 32 females (88.9%) and 4 males (11.1%). Parental age was not recorded. Of the 36 surveys retained for analysis, only 29 were able to be matched with their adolescent's questionnaire. This occurred for several reasons. Several adolescents declined to place their name on the questionnaire (despite the assurance of confidentiality), which did not allow some parent questionnaires to be matched to their adolescent responses. Moreover, due to the nature of data collection in schools, some parents completed and returned the questionnaires when the adolescent was sick at the time of data collection, fulfilling another commitment (i.e., excursion, sport), or declined to agree to participation in the research project.

Design

The study was a cross-sectional multi-informant questionnaire design. Adolescent participants and their parents completed separate questionnaires. Adolescent variables are detailed in Study One above. Parent variables measured were demographic characteristics regarding the composition of the family, parental education, gross family income; perceptions of their child's attachment style; parental psychological health and parental attachment style.

Materials

The questionnaire included the following measures: the Domains of Adolescent Attachment Scale: Parent Version (Appendix 10D); the Kessler-10

(Kessler et al., 2002; Appendix 10D); and Relationships Questionnaire (Bartholomew & Horowitz, 1991; Appendix 10F).

Demographic characteristics were collected at the commencement of the composite questionnaire. Parents were asked to indicate their sex, their relationship to their child (i.e., biological parent, step-parent); the presence of any other adult in the home and their relationship to the child; whether their family was a two parent family; the number of children present in the home, their dates of birth, sex and whether any of the children were step-siblings; level of parental education; and gross family income.

Domains of Adolescent Attachment Scales. The DAAS is a self-report measure of adolescent attachment relationships. See Chapter Five for details of the development of this measure. The version of the DAAS used in this study included only the section on general attachment orientation and parents were instructed to complete the items "as you feel their son/daughter would answer them". There are 36 items and the response format is a five-point Likert scale response format ("Not at All" to "Very Much").

Kessler-10. The K10 is a measure of non-specific global psychological distress (Kessler et al., 2002). The K10 samples from a range of depressive and anxiety symptoms including nervousness, psychological fatigue, and mood. Participants are asked to respond to the 10 items on a five-point Likert scale, based on their experiences over the past four weeks. Scores on the K10 can range from 10 (no distress) to 50 (high levels of distress). A range of cut-scores are generally used to indicate levels of psychological distress: 10-15 no distress; 16-29 medium level of distress; and 30-50 high level of distress; Australian norms suggest proportions of 78%, 20% and 2% in each respective category (Andrews & Slade, 2001). The K10 has been used extensively within research and clinical contexts (Andrews & Slade, 2001; Andrews, Sanderson & Beard, 1998; Kessler et al., 2002; Kessler et al., 2003) with strong evidence for reliability (Kessler et al., 2002) and validity against clinical diagnosis, interview schedules, and levels of mental health service access

(Andrews & Slade, 2001; Kessler et al., 2003). It demonstrates adequate sensitivity and specificity to identify likely cases in a community sample (Andrews & Slade, 2001).

Relationships Questionnaire. Parental attachment style was assessed using the Relationships Questionnaire (RQ; Bartholomew and Horowitz, 1991). Participants are asked to read four descriptions of relationship attitude matching four-categories of attachment style: Secure, Fearful, Dismissing, and Preoccupied. They are asked to rate each descriptor for how much it is like them using a seven-point scale, ranging from "not at all like me" (1) to "very much like me" (7). They are then asked to nominate one style that is "most like them". Reliability and validity for the RQ are detailed in Study One above.

Procedure

Prior to commencement of the study, approval was sought and granted from the relevant ethics committees (Appendix 6B). Data was collected over a two-month period during October and November 2008. Schools were approached via a letter addressed to the Principal (Appendix 6H). After gaining verbal consent from the school Principal, the researcher liaised with school staff to have the information sheet, informed consent form and questionnaires sent home to parents (Appendices 6I and 6J). Each parent was provided with a reply paid envelope so that questionnaire could be posted directly to the researcher. Parents were provided with reminders to return the questionnaire via messages from their children and reminder notices in the school newsletter. Parent and child questionnaires were matched by name by the researcher and de-identified following matching. In order to protect the anonymity and confidentiality of participants, completed de-identified questionnaires and signed consent forms were stored separately. All questionnaires were then checked and collated for an initial data analysis.

RESULTS

Demographic variables were analysed initially. 25 (86.2%) questionnaires were completed by the biological mother of the adolescent. Three (10.3%) were completed by the biological father and one (3.4%) by a grandparent. 72.4% of parents stated that their adolescent lives with both biological parents. 58.5% of parents reported a gross family income of greater than \$70,000 per annum.

Table 10.13 presents bivariate correlations between parent RQ ratings and adolescent DAAS sub-scale scores. There are very few statistically significant correlations between the adolescent DAAS sub-scales and the RQ ratings. None of the General DAAS sub-scales correlate with the parent RQ ratings and none of the Maternal DAAS sub-scales correlate with the parent RQ ratings. There are a number of significant correlations between the parent RQ ratings and the DAAS Paternal sub-scales and one significant correlation with the DAAS Best Friend Insecure sub-scale. These correlations were not hypothesised and further research is required before this pattern could be meaningfully interpreted.

Parent and adolescent DAAS sub-scale scores were investigated in order to examine the correspondence between parent and adolescent ratings on the attachment measure. Table 10.14 presents bivariate correlations between parent DAAS sub-scale scores and adolescent DAAS sub-scale scores. It is evident that the three parent DAAS sub-scales relate to each other differently than the three adolescent DAAS sub-scale scores in that the parent sub-scales are less correlated. For the parent DAAS sub-scales only the Avoidant and Anxious scales are correlated ($r = .41, p < .05$). Table 10.14 shows that none of the hypotheses are supported.

Further analyses of the parent data are limited by the small sample size, for example, it is not possible to factor analyse the Parent DAAS items or perform inferential statistics.

Table 10.13

Correlations between parent RQ and adolescent DAAS sub-scales (n=29)

	RQ Secure	RQ Fearful	RQ Preoccupied	RQ Dismissing
1. General Secure	-.01	.01	-.04	.06
2. General Avoidant	.13	-.26	-.22	.08
3. General Anxious	.16	-.02	-.14	.26
4. Maternal Secure	-.30	.25	.03	.07
5. Maternal Insecure	.18	-.19	-.04	.14
6. B Friend Secure	.26	-.27	-.15	-.41*
7. B Friend Insecure	-.23	.16	-.20	.13
8. Paternal Secure	-.14	.41*	.44*	.20
9. Paternal Approach	-.22	.02	.23	-.06
10. Paternal Anxious	.02	-.44*	-.31	-.11
11. Paternal Unavail	-.16	.44*	.35	.12

Note. ** $p < 0.01$; * $p < 0.05$.

Table 10.14

Correlations between parent and adolescent DAAS sub-scales (n=29)

	1	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
Parent variables														
1. General Secure	-	-.05	.27	.10	.12	.09	.27	-.00	.06	.06	-.03	-.26	-.08	-.10
2. General Avoidant		-	.41*	-.29	.16	-.18	-.06	-.01	.13	-.16	.32	.27	-.16	.37*
3. General Anxious			-	-.13	.21	.13	-.08	.18	.01	.28	-.06	.00	-.24	.14
Adolescent variables														
4. General Secure				-	-.66**	-.08	.50**	-.45**	.16	-.13	-.05	-.27	.01	-.12
5. General Avoidant					-	.36*	-.45**	.72**	-.14	.37*	-.25	-.02	.18	-.20
6. General Anxious						-	-.11	.36*	-.19	.77**	-.04	.01	-.17	.02
7. Maternal Secure							-	-.78**	.01	-.13	.07	-.23	-.04	-.02
8. Maternal Insecure								-	-.14	.46**	-.18	.07	.04	-.07
9. B Friend Secure									-	-.39*	-.23	-.23	.04	-.18
10. B Friend Insecure										-	-.03	.03	.14	.06
12. Paternal Secure											-	.58**	-.54**	.78**
13. Paternal Approach												-	-.56**	.76**
14. Paternal Anxious													-	-.82**
15. Paternal Unavail														-

Note. ** $p < 0.01$; * $p < 0.05$.

DISCUSSION

Results of the multi-informant study are largely uninformative. None of the hypotheses were supported and investigation of the pattern of correlations between the parent and adolescent attachment variables revealed that these sets of variables were essentially uncorrelated. While previous studies have used multi-informant designs to shed light on the validity and nature of various measures in the attachment and close relationships literature (i.e., Cook, 2000; Fuligni & Eccles, 1993; Kerns & Stevens, 1996; Kerns et al., 1996; Kobak & Sceery, 1988; Larson, Richards, Moneta, Holmbeck, & Duckett, 1996; van Ijzendoorn & Bakermans-Kranenburg, 1996), this approach did not appear to be successful in the present study.

In studying parent-adolescent conflict and autonomy, Steinberg (2001) draws attention to aspects of the parent-adolescent relationship which may bear on the results retrieved in the present study. Silverberg and Steinberg (1987) and Steinberg (2001) state that parents and their offspring may have very different perceptions of the quality of their relationship, particularly during the adolescent years. They explain that during adolescence parents "may become defensive or ambivalent about themselves and are likely to engage in a period of questioning and reassessment of themselves, their values and their present life situation" (Silverberg & Steinberg, 1987, p. 295-296). Specifically, Steinberg (2001) suggests that parents may have a more negative perception of the quality of the relationship with their adolescent son or daughter and that negative affect following conflict may last longer in the mind of the parent than the adolescent. Carlson, Cooper, and Spradling (1991) suggest that parent-adolescent views regarding their relationship may show little overlap due to differing perspectives on the adolescent's developing autonomy and aspects of parental control.

A key shortcoming of this study is the power limitations of the small sample size and possibly elements of the methodology itself. Accessing parents of school aged adolescents was a difficult task in terms of response rates and

the logistics of both getting the surveys to parents and having them returned to the researcher for collation. Due to the very small proportion of parents who returned their questionnaires, a prominent sampling bias is likely. The majority of questionnaires were returned by mothers and it is highly unlikely that the small proportion of parents who completed the questionnaire are representative. Furthermore, as outlined in the Participant section of the Method, a number of parent questionnaires could not be matched with adolescent questionnaires due to logistical constraints in the school environment.

A larger sample size would have enabled more extensive, edifying statistical analysis. There is evidence to suggest that the factor structure for the parent completed DAAS may be different to that of the participant completed DAAS. In modifying the IPPA for parent completion, Johnson et al. (2003) found a different factor structure compared with the original IPPA. They explain that these results may be due to parents answering the items such that "the revised scale is measuring something inherently different" or that characteristics of the parent sample (low income, low education levels) may impact on the factor structure (Johnson et al., 2003).

Research on child symptomatology and psychopathology utilising multi-informant designs highlights the frequency of divergence between reports from different informants such that "a convergence of the data is almost never achieved" (Kraemer et al., 2003, p. 1567). Studies of internalising and externalising symptoms suggest correlation coefficients between parent and child reports as not exceeding .20-.30 (Kolko & Kazdin, 1993; Kraemer et al., 2003). They suggest that low levels of agreement between self-reports and informant reports can originate in the context in which data is collected, the perspectives of the informants and measurement error (Kraemer et al., 2003). Nevertheless, Kolko & Kazdin (1993) suggest that both parent and child reports predict salient outcomes and are of use in contributing unique variance. Future research is required to determine which element of divergence best explains the current findings.

A further practical consideration pertains to the choice of parent attachment measure in the questionnaire. The RQ was chosen primarily for brevity however the ECR may have provided more insightful results regarding individual differences in parent and adolescent attachment.

These practical and logistic limitations do not negate the potential validity of this approach as such or provide evidence against the validity of the DAAS. It is evident that this study would need to be expanded upon and modified in future research, or that an alternative multi-methodology needs to be sought in the validation of the DAAS. The limitations of this study, particularly in relation to the small sample size and likely selection bias, are such that interpretation of the results is not recommended or expected to be fruitful.

CHAPTER ELEVEN

ATTACHMENT RELATIONSHIPS AND ADJUSTMENT IN ADOLSCENCE

Introduction

This Chapter presents the final two empirical studies. The first half of the chapter outlines Study Five, age and sex comparisons for the DAAS subscales. Analysis of age and sex provide important information in terms of validating the DAAS as a number of hypotheses are made about expected variation in the nature of attachment to mother, father and best friend across adolescence and between males and females.

Chapter Six contains analysis of psychological health variables in order to provide convergent and discriminant validation for the DAAS and to investigate the impact of attachment relationships on psychological health in adolescence more generally. A broad range of psychological health variables are analysed in relation to attachment to mother, father, and best friend; and to general attachment.

STUDY FIVE: AGE AND SEX COMPARISONS

The present study

Age and sex comparisons are important for a number of reasons. Sex is often investigated in relation to the measurement of attachment and a number of sex differences may be expected. While a clear pattern of sex differences in attachment relationships are not theorised in the literature (Mikulincer & Shaver, 2007) with regard to adults, a number of empirical studies report contrasts between males and females (Wilkinson, 2006). Some studies have found girls to be more secure than boys (i.e., Allen et al., 2003; Buist et al., 2002), with higher levels of dismissing/avoidance in males (i.e., Kobak, Rosenthal, Zajac, & Madsen, 1993). In relation to specific relationships, sex differences are consistently found. Across adolescence, girls report their fathers to be less

available than males as their age increases (Buist et al., 2002, Lieberman et al., 1999; Rice & Mulkeen, 1995); and girls report higher levels of attachment to their mother compared with males (Newman, 1989). Thus, sex differences are explored in relation to the DAAS in this study. It is expected that where sex differences are found, that girls will report higher levels of security and lower levels of insecurity compared with boys, with regard to their general attachment orientation. With regard to the specific relationships measured in the DAAS, it is expected that girls will report a higher level of maternal security compared with boys, and that boys will report a higher level of paternal security.

With regard to age, adolescence is clearly a time of great upheaval in terms of attachment bonds. The attachment network literature clearly highlights the impact of separation/individuation on attachment in adolescence (Fraley & Davis, 1997; Friedelmeier & Granqvist, 2006). A broad range of relationship categories may figure in the attachment network across adolescence (Doherty & Feeney, 2004; Feeney, 2004). The increasing role of extra-familial bonds in the attachment network as individuals move through adolescence is frequently referred to in both theoretical and empirical attachment literature (Ainsworth, 1990; Fraley & Davis, 1997; Friedelmeier & Granqvist, 2006; Markeiwicz et al., 2006; Wilkinson, 2006). Buist et al. (2002) summarise the variability in findings regarding the adolescent-parental relationship and age by suggesting that studies focussing on specific attachment relationships tend to find age differences and those studies focussing on general attachment orientations or internal working models find lower levels of change and higher levels of stability. In light of this, it is anticipated that the DAAS General sub-scales will remain stable across adolescence (that is, uncorrelated with age), in comparison with the DAAS Maternal, Paternal and Best Friend, which are expected to be more reflective of age related variations in the attachment system across adolescence. Thus, the relationship between age and sex in relation to the DAAS are investigated in the present study.

METHOD

Participants and procedure

See Chapter Six for details of participants and procedure.

Design

The study was a cross-sectional questionnaire design. Data was collected using two instances of data collection (see Chapter Six for a full explanation), using two composite questionnaires (see Appendix 6A for details). The following variables are used in the analysis for this study: attachment to mother, father and best friend; general attachment orientation; and demographic characteristics.

Measures

This study includes one measure from the composite questionnaire: the Domains of Adolescent Attachment Scales (Appendix 6L); and demographic characteristics.

Demographic characteristics. See Chapter Six for details of the demographic characteristics of the current sample.

Domains of Adolescent Attachment Scales. See Chapter Five for details of the development of this measure.

RESULTS

Sex and age differences were investigated in order to examine the variation in the DAAS sub-scales across these demographic variables.

The sub-scales of the DAAS are presented by sex in Table 11.1 below. Females report higher levels of security and lower levels of insecurity generally and across all relationships compared with boys. Several of these mean differences are statistically significant. Across all domains, the highest mean level for any sub-scale is for best friend security; the lowest mean level across

all sub-scales is for best friend insecurity. The lowest mean level of security for males and females is for fathers. One significant difference was found between males and females for the paternal sub-scales, with females scoring significantly higher on Paternal security.

Table 11.1

DAAS sub-scale means and standard deviations by sex

	Male	Female	Total
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
	<i>n = 236</i>	<i>n = 337</i>	<i>n = 575</i>
General			
Secure	3.33 (0.79)	3.77 (0.70)***	3.59 (0.77)
Avoidant	2.43 (0.78)	2.18 (0.77)***	2.28 (0.79)
Anxious	2.35 (0.76)	2.30 (0.73)	2.32 (0.74)
Maternal			
Secure	3.44 (0.94)	3.79 (0.96)***	3.64 (0.97)
Insecure	2.10 (0.76)	1.90 (0.79)*	1.99 (0.79)
Paternal			
Secure	3.16 (0.51)	3.29 (0.47)*	3.23 (0.49)
Approachability	2.91 (0.66)	2.90 (0.66)	2.91 (0.66)
Anxious Fearful	2.09 (0.83)	2.06 (0.82)	2.07 (0.82)
Father	3.58 (1.04)	3.72 (1.07)	3.66 (1.06)
Responsiveness			
Best Friend			
Secure	3.42 (0.77)	4.09 (0.59)***	3.82 (0.74)
Insecure	1.92 (0.73)	1.69 (0.59)***	1.78 (0.67)

Note. *** $p < .001$; * $p < .05$.

Table 11.2 presents correlations between the DAAS sub-scales and age. Two DAAS sub-scales correlated weakly, but statistically significantly, with age: Best Friend Insecure ($-.09, p < .05$) and Paternal Secure ($-.06, p < .05$). Thus, as

adolescents grow older they become less insecure with Best Friends and less secure with Fathers. No other significant associations between the DAAS sub-scales and age were found. The impact of age on the DAAS subscales shows a markedly different pattern for males and females regarding security of attachment to Mother and Father. For boys, there is a strong statistically significantly negative correlation between security of attachment to Mother and age. For girls there is a negative correlation between age and three of the Paternal sub-scales, Secure, Approachability and Responsiveness. The correlations between age and DAAS sub-scales for males and females were subject to the Fisher Z test to examine whether they are statistically significant. One correlation was statistically significant for males and females, the correlation between age and Maternal Secure ($z=2.447, p<.05$).

Table 11.2

Correlation of DAAS sub-scales with age for males and females

	Age		
	Males	Females	Total
General Secure	-.14	-.02	-.00
General Avoidant	.07	.02	.05
General Anxious	-.06	-.06	.04
Maternal Secure	-.29**	-.09	-.04
Maternal Insecure	.01	.05	-.00
Paternal Secure	-.02	-.16**	-.10*
Paternal Approach	.04	-.17**	-.08
Paternal Anxious	-.00	.02	.01
Paternal Responsiveness	-.02	-.13*	-.09*
B Friend Secure	-.05	-.09	.05
B Friend Insecure	-.13	-.01	-.09*

Note. * $p<.05$; ** $p<.01$.

Age may be examined via discrete cohorts in order to separate younger versus older adolescents. Age was dichotomised in this fashion to test the difference between younger and older adolescents and any potential qualitative differences between these stages of adolescence. 2x2 ANOVAs were conducted with Age (10 to 14.5 years, 14.5 to 18 years) and Sex (Male, Female) as independent variables and DAAS sub-scales as dependent variables (see Table 11.3). There were no significant main effects for age for any DAAS sub-scale. Several main effects for sex were retrieved with females scoring higher on General Secure $F(1, 572) = 47.46, p < 0.001$, Maternal Secure $F(1, 572) = 18.48, p < 0.001$, and Best Friend Secure $F(1, 572) = 47.46, p < 0.001$; and lower on General Avoidant $F(1, 572) = 138.05, p < 0.001$, Maternal Insecure $F(1, 572) = 9.43, p < 0.01$, and Best Friend Insecure $F(1, 572) = 18.00, p < 0.001$, than males. There were no significant sex differences for General Anxious or any Paternal sub-scale. Interaction effects were found for Paternal Secure ($F(1, 564) = 4.37, p < 0.05$); Paternal Approachability ($F(1, 564) = 8.68, p < 0.05$); and Best Friend Secure ($F(1, 564) = 5.00, p < 0.05$);

Table 11.3

DAAS means and standard deviations by sex and age^a

DAAS scale	Males		Females	
	10 to 14.5	14.5 to 18	10 to 14.5	14.5 to 18
	Years	Years	Years	Years
General				
Secure	3.30 (0.74)	3.36 (0.85)	3.82 (0.73)	3.73 (0.68)
Avoidant	2.43 (0.78)	2.42 (0.78)	2.09 (0.78)	2.25 (0.76)
Anxious	2.32 (0.72)	2.39 (0.80)	2.26 (0.76)	2.33 (0.70)
Maternal				
Secure	3.43 (0.95)	3.47 (0.93)	3.88 (0.94)	3.70 (0.98)
Insecure	2.17 (0.82)	2.03 (0.69)	1.84 (0.76)	1.96 (0.83)
Paternal				
Secure	3.14 (0.50)	3.18 (0.53)	3.36 (0.48)	3.22 (0.45)
Approachability	2.85 (0.67)	2.97 (0.67)	3.02 (0.68)	2.81 (0.63)
Anxious Fearful	2.08 (0.78)	2.08 (0.89)	2.01 (0.83)	2.10 (0.81)
Father Responsiveness	3.55 (0.97)	3.61 (1.11)	3.84 (1.09)	3.61 (1.04)
Best Friend				
Secure	3.33 (0.75)	3.52 (0.78)	4.13 (0.57)	4.06 (0.60)
Insecure	1.97 (0.76)	1.87 (0.70)	1.71 (0.63)	1.67 (0.56)

Note. ^a Younger age group is participants up to 173 months old; older age group is participants 174 months and older.

Thus, the DAAS sub-scales reflect a range of age and sex differences in attachment over adolescence. A number of descriptive and inferential statistics are reported in order to give an overview of these differences.

DISCUSSION

The aim of the current study was to analyse the relationship between the DAAS sub-scales and age and sex. A number of relevant findings were retrieved. Results of this study demonstrate differences in attachment between males and females and between younger and older adolescents.

Females are higher in attachment security generally and across the specific relationships measured; these differences were most prominent for General Secure and Avoidant; the Maternal sub-scales and the Best Friend sub-scales. These results are consistent with previous research (Allen et al., 2003; Buist et al., 2002; Wilkinson, 2006a; Wilkinson 2006b) demonstrating sex differences in attachment to various attachment figures in adolescence. Sex differences are discussed further in Chapter Twelve.

With regard to age, there is a decrease in Best Friend Insecurity and Paternal Security as adolescents grow older. For males, results show that the levels of Maternal security decrease over adolescence. For females, there is a significant correlation between age and three of the four Paternal sub-scales. These findings do not offer a clear pattern of agreement with prior research. Some studies have demonstrated a general decrease in levels of attachment to parents as adolescents grow older (i.e., Laible et al., 2000), others demonstrate unique patterns of change in parental attachment over adolescence for males and females. The findings regarding a decrease in attachment to father for males is consistent with the finds of Papini, Roggman and Anderson (1991), for example, who found that males report less attachment to fathers.

The significant correlations between the DAAS Paternal subscales and age for females has some support in the literature. Findings of various studies demonstrate changes in perceived availability and closeness, particularly with mothers and fathers, across adolescence for females (Paterson et al., 1994; Lieberman et al., 1999). Furthermore, this result may be indicative of attachment transfer (Burhmester, 1992; Doherty & Feeney, 2004; Trinke & Bartholomew, 1997). Further investigation is required to further elucidate the

reason for these findings. This could possibly occur in the context of a longitudinal study design or through further statistical analysis with a larger sample of females. Following this discussion of age and sex differences, Study Six presents an investigation of the relationship between the DAAS and psychological health.

STUDY SIX: THE DAAS AND PSYCHOLOGICAL ADJUSTMENT

Introduction

There is a large body of research suggesting diverse and numerous links between attachment relationships and overall functioning and adjustment (Buhrmester, 1990; Greenberg, Siegel, & Leitch, 1983; Hazan & Shaver, 1994; Larose & Bernier, 2001; Nickerson & Nagle, 2004). There are a number of ways to conceptualise and organise such a body of literature i.e., with regard to the type of relationship; the adjustment outcome concerned; from normative perspective; and in terms of attachment styles.

The broad construct of psychological or psychosocial adjustment is not well defined in the literature (Lent, 2004) and there are a number of theoretical and conceptual perspectives. It is relatively common in the literature to refer to “adjustment” in an article title or abstract and offer no definition of this term aside from the specific operationalisation contained in the measures administered in any given study (i.e., a self-report measure of life-satisfaction for example). Generally speaking, adjustment is used as an umbrella term, comprising a range of health, social and psychological outcome variables.

This study outlines the nature of attachment and adjustment in adolescence, primarily focusing on the type of attachment relationship under scrutiny and its relationship with observed variables relating to adjustment during this developmental stage. Chapter Three contains a detailed literature review detailing adjustment in adolescence.

The present study

The present study investigates the relationship between the DAAS scales and a range of adjustment and outcome variables for adolescents. The adjustment measures have been well validated in previous research and following from the literature review, a number of predictions can be made about how the DAAS should perform in relation to these measures.

Taking first the general attachment orientation, there is consensus in the literature that secure individuals exhibit higher levels of psychological adjustment and functioning in comparison with insecure individuals (Cooper et al., 1998; Mikulincer & Shaver, 2007; Rice & Cummins, 1996). For insecure individuals, research suggests that the highest level of distress and the highest symptom levels are observed in anxious individuals (Cooper et al., 1998). In this study it is hypothesised that DAAS General Secure should correlated positively with measures of psychological health and DAAS General Anxious and Avoidant should correlate negatively with measures of psychological health with the correlation being strongest for DAAS General Anxious. Moreover, it is hypothesised that the DAAS General sub-scales will predict the psychological health outcome variables.

A significant body of literature demonstrates the positive effect of a strong relationship with one's mother and father in adolescence on a range of psychological health outcomes including self-esteem, mood, and social skills (Batgos & Leadbeater; Doyle et al., 2003; Greenberg et al., 1983; Nada Raja et al., 1992; Nickerson & Nagle, 2004). Some studies have found that mothers have a stronger impact on psychological health compared with fathers (i.e., Batgos & Leadbeater, 1994; Youniss & Ketterlinus, 1987). Thus, in the current study, it is hypothesised that secure maternal and paternal attachment will correlate positively with psychological health and insecure maternal and paternal attachment will correlate negatively with psychological health. Furthermore, it is hypothesised that maternal and paternal attachment will predict levels of psychological health.

Best friends have a central influence on psychological health in adolescence. Research suggests that attachment to best friends is linked to self-esteem, social skills, prosocial behaviour, anxiety, depression and academic adjustment (Berndt et al., 1999; Burhmester, 1990; Parker & Asher, 1993; Wilkinson, 2004). Thus, the same hypotheses are forwarded for best friends attachment as for parental attachment. It is hypothesised that secure best friend attachment will correlate positively with psychological health and insecure best

friend attachment with correlate negatively with psychological health. Furthermore, it is hypothesised that best friend attachment will predict levels of psychological health.

Specific hypotheses concerning the relative influence of parents and peers on psychological adjustment are not forwarded due to disagreement in the literature. Both parent and peer attachment demonstrate an influence on psychological health (Laible et al., 2000; Laible et al., 2004; Wilkinson, 2004). However, some studies suggest parents and peers play a similar role in impacting psychological health (i.e., Laible et al., 2000); and some find that the influence of parents versus peers depends on the specific outcome variable or domain under study (i.e., Meeus et al., 2002; Wilkinson, 2004).

METHOD

Participants and procedure

See Study 1A for an outline of the participants and procedures for this study. Samples from both Data Collection A and B were used in this study.

Design

The study was a cross-sectional questionnaire design. Data was collected using two composite questionnaires (see Appendix 6A for details). The following variables used in analysis in this chapter were measured using the composite questionnaires: attachment to mother, father and best friend; general attachment orientation; self-esteem; social desirability; school attitudes; general adjustment; strengths and difficulties; and demographic characteristics.

Materials

The questionnaire included the following measures: the Domains of Adolescent Attachment Scales (Appendix 6L); Rosenberg Self-Esteem Scale (Rosenberg, 1965; Appendix 11A); Children's Social Desirability Scale (Baxter et al., 2004; Appendix 11B); School Attitudes Scale (Wilkinson & Kraljevic, 2004;

Appendix 11C); Kessler-10 (Kessler et al., 2002; Appendix 10F); Strengths and Difficulties Questionnaire (Goodman et al., 2000; Appendix 11D).

Demographic characteristics See Chapter Six for details of the demographic characteristics of the current sample.

Domains of Adolescent Attachment Scales. See Chapter Five for details of the development of this measure.

The *Rosenberg Self-Esteem Scale* (RSES) (Rosenberg, 1965) was used to measure self-esteem. This is a 10-item measure with a four point Likert scale response format ("Strongly Disagree" to "Strongly Agree"). Internal consistency of the scale in the current study was high ($\alpha=0.85$). The RSES was initially developed with a sample of high school students and measures unidimensional, global self esteem (Gray-Little, Williams, & Hancock, 1997; Robins, Hendlin, & Trzesniewski, 2001; Rosenberg, 1979). The RSES is one of the most frequently used measures of self-esteem (Blascovich & Tomaka, 1991) and Gray-Little et al. (1977) argue that the measure is reliable and valid and that it "deserves its widespread use and continued popularity" (p. 450). Numerous studies report high test-retest reliability with high school and university students over one week ($r=.82$; Fleming & Courtney, 1984) to one year ($r=.50$; McCarthy & Hoge, 1984) intervals. Construct validity of the RSES has been demonstrated via links with depression, anxiety, "perceived self", and school performance (Rosenberg, & Pearlin, 1978). In a summary of the RSES and other measures of self-esteem, Blascovich and Tomaka (1991) report that the RSES "has enjoyed widespread use and utility ... the standard against which new measures are evaluated" (p. 123).

Social Desirability was measured using a 14-item short form of Crandall, Crandall and Katovsky's (1965) Children's Social Desirability Scale (CSDS; Baxter et al., 2004). Social desirability measures the differing tendencies of subjects to give socially acceptable responses (Crandall et al., 1965). The CSD was based on the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960). Internal consistency of the scale in the current study was adequate ($\alpha=.77$). The scale uses a Yes/No response format. The CSDS has

been used with several child and adolescent samples and demonstrates good psychometric properties (Crandall et al., 1965). Baxter et al. (2004) report that the short form has high internal reliability and test-retest reliability with a sample of elementary school students. Validity data for the scale has been published via analysis of the impact of age, sex, IQ, social class, and ethnicity (Crandall et al., 1965).

School Attitudes Scale. This scale is designed to measure experiences at school, attitudes towards teachers, willingness to attend school and approach to academic work (Wilkinson & Kraljevic, 2004). The scale has 10 items with a four point Likert scale response format. Example items include 'I like being at school' and 'I find school work easy'. Scores are summed to form a total score; higher scores indicate a *more negative* attitude towards school. Wilkinson and Kraljevic (2004) report psychometric information regarding the scale. Internal consistency for the current sample was adequate ($\alpha=.75$).

Kessler-10. The K10 is a measure of non-specific global psychological distress (Kessler et al., 2002). See Study Four for details of this measure.

Strengths and Difficulties Questionnaire. The SDQ is a brief self-report behavioural screening questionnaire based on behaviour over the past 12 months. It is suitable for children aged from 7 to 17 years old. The SDQ has 25 items measuring 5 subscales: emotional symptoms (i.e., "Many worries or often seems worried"), conduct problems (i.e., "Often lies or cheats"), hyperactivity/inattention (i.e., "Thinks things out before acting" reverse scored), peer relationship problems (i.e., "Rather solitary, prefers to play alone"), and prosocial behaviour (i.e., "Considerate of other people's feelings"). The SDQ is summed by totaling subscale scores with the exception of prosocial behaviour, the range of scores is 0 to 40 with higher scores reflecting more difficulties. The SDQ has been used extensively in clinical, epidemiological and outcome research contexts and demonstrates excellent inter-rater, test-retest and internal reliability and validity (Goodman et al., 2000; Goodman & Scott, 1999; Mellor, 2005; Muris, Meesters, Eijkelenboom, & Vincken, 2004). The four SDQ sub-scale scores are not analysed separately in this study due to less than

desirable internal consistency (Emotional Symptoms $\alpha=.67$; Conduct Problems $\alpha=.55$; Hyperactivity $\alpha=.57$; Peer Problems $\alpha=.55$). Thus, the SDQ Prosocial sub-scale ($\alpha=.54$) and the SDQ Total score ($\alpha=.78$) are reported in this study. The Prosocial sub-scale was retained despite the low alpha value as it was the one of the only positively geared measures of psychological adjustment included in the study.

RESULTS

Overview of results

The results of this study are divided into three sections. First, an overview of descriptive characteristics of the variables measured is provided. Following this, the outcome variables are presented in two sections due to the data collection process. Self-esteem and social desirability were measured in one instance of data collection and the remaining adjustment variables were measured in the subsequent data collection, thus, results refer to different samples. Firstly, self-esteem and social desirability are investigated in relation to the DAAS. A number of descriptive and inferential analyses are presented including correlations and regression analysis. Thirdly, the adjustment variables are analysed in relation to the DAAS sub-scales. A series of multiple regression analyses follow descriptive statistics and correlations.

Preliminary analyses and descriptive statistics

Cases were deleted if they had completed less than 90% of any given measure/section in the questionnaire. Given the small number of remaining missing data after these cases were deleted (less than 3% of values on each variable), the mean substitution method was used for replacement purposes (Tabachnick & Fidell, 2001). Univariate outliers were checked by screening boxplots. Table 11.5 presents descriptive statistics of the variables measured in the current study.

Table 11.5
Descriptive statistics for adjustment variables

	<i>N</i>	<i>M</i> (<i>SD</i>)	Actual Range	Possible Range	Skewness	Kurtosis
RSES Total	524	19.19 (5.57)	2-30	0-30	-.293	-.055
CSDS Total	535	3.36 (2.85)	0-14	0-14	.765	-.055
SDQ Prosocial sub-scale	146	7.31 (1.82)	0-10	0-10	-.801	1.116
SDQ Total	146	16.11 (4.93)	0-31	0-10	.228	.509
School Attitudes Total	166	24.06 (3.76)	13-34	10-50	.402	.375
K10 Total	168	21.54 (8.57)	10-50	10-50	1.307	1.610

Note. RSES Rosenberg Self-esteem Scale; CSDS Children's Social Desirability Scale; SDQ Strengths and Difficulties Questionnaire; K10 Kessler 10.

Social desirability and self-esteem

The initial variables to be analysed in relation to the DAAS are social desirability and self-esteem. Table 11.6 presents means and standard deviations for these variables in relation to sex. Females had higher means for both social desirability and self-esteem however this was a non-significant difference for both variables. With regard to age, there is a weak but statistically significant correlation between age and social desirability ($r=-.094$); there is a non-significant correlation between age and self-esteem ($r=-.058$).

Table 11.6

Means and standard deviations by sex

	Males		Females		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Social Desirability	3.21	2.78	3.48	2.92	3.36	2.87
Self-Esteem	18.70	5.85	19.74	5.28	19.29	5.56

Table 11.7 presents bivariate correlations between social desirability, self-esteem and the DAAS sub-scales for the total sample. For social desirability, there is no correlation with the General DAAS sub-scales or the Best Friend sub-scales. There are significant, though small, correlations between social desirability and both Maternal sub-scales and all Paternal sub-scales. Self-esteem correlates strongly and statistically significantly with all DAAS sub-scales. These correlations are all in the expected direction with a positive correlation for secure sub-scales and a negative correlation for insecure sub-scales. Self-esteem and social desirability are weakly correlated ($r=.17$).

Table 11.7

Correlations between DAAS sub-scales, social desirability and self-esteem: Total sample

	SD Total	Self-esteem
DAAS		
General Secure	.07	.34**
General Avoidant	-.06	-.48**
General Anxious	-.05	-.50**
Maternal Secure	.18**	.40**
Maternal Insecure	-.12**	-.42**
Paternal Secure	.20**	.31**
Paternal Approach	.21**	.26**
Paternal Anxious	-.09*	-.41**
Paternal Responsive	.21**	.37**
B Friend Secure	.05	.24**
B Friend Insecure	-.05	-.34**
SD Total	.77	.17**
Self-esteem		.98

Note. ** $p < 0.01$; * $p < 0.05$. Cronbach's alpha in italics on the diagonal.

A regression analysis was conducted, in order to ascertain the utility of the various DAAS scales in the prediction of self-esteem. Sex and age were not entered into the regression equation, as there was no correlation between these variables and self-esteem. The DAAS sub-scales explained 41.1% of variance in self-esteem, $F(11, 487) = 30.947, p < .001$. Table 11.8 presents a summary of the regression analysis. A number of DAAS sub-scales made a significant contribution to the model. General Anxious made the largest contribution to the prediction of self-esteem ($\beta = -.366$), followed by General Secure ($\beta = .178$), Maternal Secure ($\beta = .152$). Paternal Secure and Anxious Fearful were approaching significance ($\beta = .129$ and $\beta = -.125$; $p = 0.64$ and 0.58 respectively).

Table 11.8

Multiple regression analysis for DAAS sub-scales predicting self-esteem

Variable	B	SE B	β
DAAS General Secure	1.283	.365	.178***
DAAS General Avoidant	-.174	.398	-.025
DAAS General Anxious	-2.733	.396	-.366***
DAAS Maternal Secure	.873	.356	.152*
DAAS Maternal Insecure	-.142	.456	-.020
DAAS Paternal Secure	1.452	.783	.129
DAAS Paternal Approach	-.283	.531	-.034
DAAS Paternal Anxious	-.841	.442	-.125
DAAS Paternal Responsive	.044	.547	.008
DAAS Best F Secure	.072	.360	.010
DAAS Best F Insecure	.015	.399	.002

Note. * $p < .05$; *** $p < .001$

Results demonstrate that the DAAS correlates in the hypothesised fashion with self-esteem – positive correlations between self-esteem and secure sub-scales; and negative correlations between self-esteem and insecure sub-scales. Furthermore, the DAAS can be used to predict self-esteem in adolescents. A range of psychological adjustment variables are next considered in relation to the DAAS.

Psychological adjustment variables

Table 11.9 presents means and standard deviations for the psychological adjustment outcome variables analysed in the present study. Investigation of mean levels revealed that the mean SDQ Prosocial sub-scale is significantly higher for females compared with males $t(144) = -3.146, p < .01$. There were no sex differences on SDQ Total, School Attitudes or K10 Total. The adjustment variables were uncorrelated with age.

Table 11.9

Means and standard deviations by sex

	Males		Females		Total	
	M	SD	M	SD	M	SD
SDQ Prosocial sub-scale	6.82	1.93	7.75**	1.64	7.29	1.84
SDQ Total	16.55	5.55	15.83	4.32	16.17	4.94
School Attitudes	23.60	5.00	23.39	4.54	23.49	4.76
K10 Total	21.88	8.76	21.22	8.39	21.60	8.56

Note. * $p < .05$; ** $p < .01$.

Correlations

Table 11.10 presents bivariate correlations between the psychological adjustment outcome variables and the DAAS sub-scales. Initial information regarding validity can be gleaned from this table. Turning first to the General sub-scales, it is evident that almost all correlations are statistically significant and all are in the expected direction. General Secure attachment is negatively correlated with SDQ Total, School Attitudes (where a higher score indicates a more negative attitude toward school), and K10 Total. For the Maternal sub-scales, the Maternal Secure sub-scale is very similar to the General secure sub-scale, with correlations of a similar magnitude. For the Maternal insecure sub-scale, a similar pattern is observed. The correlation with SDQ Total is not as strong as it is for the General Anxious and Avoidant sub-scales, however the Maternal Insecure correlations with School Attitudes and K-10 Total. No Paternal sub-scale demonstrates significant correlation with any of the three adjustment variables. This was not hypothesised. Best Friend Secure shows no correlation with the adjustment variables. Best Friend Insecure correlates significantly with SDQ Total and K-10 Total but not with School Attitudes.

Table 11.10

Correlations between DAAS sub-scales and adjustment outcome variables: Total sample

	SDQ Total	School Attitudes	K10 Total
DAAS			
General Secure	-.29**	-.21**	-.25**
General Avoidant	.50**	.39**	.53**
General Anxious	.57**	.37**	.56**
Maternal Secure	-.21*	-.28**	-.24**
Maternal Insecure	.41**	.39**	.52**
Paternal Secure	-.08	.07	-.00
Paternal Approach	-.05	.12	.09
Paternal Anxious	.13	-.02	-.03
Paternal Responsive	-.14	.04	.00
B Friend Secure	-.09	-.06	-.13
B Friend Insecure	.29**	.06	.38**
Adjustment Variables			
1. SDQ Total	.78	.30**	.55**
2. School Attitudes		.75	.44**
3. K10 Total			.89

Note. ** $p < 0.01$; * $p < 0.05$. Cronbach's alpha in italics on the diagonal.

Regression analyses

A series of standard multiple regression analyses were conducted, in order to ascertain the utility of the various DAAS scales in predicting each adjustment outcome variable. The SDQ Total, K10 and School Attitudes scale were the dependent variables considered in this section. The independent variables in each regression equation were the DAAS sub-scales. Data were screened for the presence of multicollinearity and singularity (using SPSS collinearity diagnostics) given the correlations present between the DAAS sub-

scales. Multicollinearity was not detected based on the indices provided in Brace, Kemp and Snelgar (2003).

For SDQ Total, the DAAS sub-scales explained 39.3% of variance in SDQ Total, $F(11,92) = 5.416$, $p < .001$. Table 11.11 presents a summary of the regression analysis. The only DAAS sub-scale to make a statistically significant contribution to the model was General Anxious ($\beta = .473$).

Table 11.11

Multiple regression analysis for DAAS sub-scales predicting SDQ Total

Variable	B	SE B	β
DAAS General Secure	-1.050	.799	-.155
DAAS General Avoidant	.910	.980	.140
DAAS General Anxious	2.986	.788	.473***
DAAS Maternal Secure	.111	.679	.020
DAAS Maternal Insecure	-.173	.975	-.027
DAAS Paternal Secure	-1.415	1.612	-.133
DAAS Paternal Approach	.882	.979	.115
DAAS Paternal Anxious	1.403	.851	.226
DAAS Paternal Responsive	.418	1.127	.084
DAAS Best F Secure	.332	.755	.041
DAAS Best F Insecure	.137	.742	.019

Note. * $p < .05$; *** $p < .001$

For School Attitudes, the DAAS sub-scales explained 25.5% of variance in School Attitudes, $F(11,105) = 3.260$, $p < .001$. Table 11.12 presents a summary of the regression analysis. No independent variable was statistically significant. General Anxious and Best Friend Insecure were approaching significance ($\beta = .249$, $p = .057$; and $\beta = -.205$, $p = .055$ respectively).

Table 11.12

Multiple regression analysis for DAAS sub-scales predicting School Attitudes

Variable	B	SE B	β
DAAS General Secure	.480	.799	.074
DAAS General Avoidant	1.419	.980	.227
DAAS General Anxious	1.515	.788	.249
DAAS Maternal Secure	-.548	.679	-.102
DAAS Maternal Insecure	.820	.975	.131
DAAS Paternal Secure	-.163	1.611	-.016
DAAS Paternal Approach	1.491	.979	.201
DAAS Paternal Anxious	.031	.850	.005
DAAS Paternal Responsive	-.109	1.126	-.023
DAAS Best F Secure	-.046	.755	-.006
DAAS Best F Insecure	-1.441	.742	-.205

For K10 Total, the DAAS sub-scales explained 42.0% of variance in general psychological health, $F(11, 104) = 6.849, p < .001$. Table 11.13 presents a summary of the regression analysis. Two DAAS sub-scales made a statistically significant contribution to the model, General Anxious ($\beta = .282$), and Paternal Approachability ($\beta = .237$). Interestingly, Paternal Approachability predicts higher K-10 totals indicating that there may be a discrepancy between approaching fathers for help and the effectiveness of this for addressing psychological distress.

Table 11.13

Multiple regression analysis for DAAS sub-scales predicting K10 Total

Variable	B	SE B	β
DAAS General Secure	.211	1.275	.018
DAAS General Avoidant	2.100	1.563	.187
DAAS General Anxious	3.092	1.257	.282*
DAAS Maternal Secure	.670	1.083	.069
DAAS Maternal Insecure	2.750	1.556	.244
DAAS Paternal Secure	-2.760	2.570	-.150
DAAS Paternal Approach	3.163	1.561	.237*
DAAS Paternal Anxious	.739	1.357	.069
DAAS Paternal Responsive	.343	1.797	.040
DAAS Best F Secure	-.285	1.205	-.020
DAAS Best F Insecure	1.170	1.184	.092

Note. * $p < .05$.

Results of this study demonstrate the validity of the DAAS sub-scales in terms of their ability to predict several aspects of psychological health and adjustment. Both the General and specific relationships measured in the DAAS correlate with and statistically significantly predict elements of self-esteem, school attitudes, strengths and difficulties and overall psychological health.

DISCUSSION

The aim of the current study was to examine the relationship between the DAAS subscales and a range of psychological outcome variables, in order to investigate the convergent and discriminant validity of the DAAS.

Social desirability were initially analysed in relation to the DAAS. Evidence for discriminant validity was found with a lack of correlation between any DAAS sub-scale and social desirability. This is significant considering that a key criticism levelled at self-report measures of attachment is an alleged social desirability bias (Leak & Parsons, 2001). Few studies to date have directly studied the link between attachment measures and social desirability. The findings of this study lend support to the validity of the DAAS in terms of measuring attachment in a manner uncompromised by inaccuracy due to socially desirable responding.

Self-esteem was analysed in relation to the DAAS scales. The DAAS subscales show strong correlations with self-esteem and when entered into a regression equation explain over 40% of variance in self-esteem. General Anxious was the strongest predictor of self-esteem followed by General Secure, Maternal Secure and Paternal Secure. The strong relationship between various attachment bonds and self-esteem is well established in the literature (Baumeister et al., 2003; Bush, 2000; Karcher, 2005; Laible et al., 2004; Lezin et al., 2004).

A further notable finding is that of the contribution made by three Secure sub-scales. Previous research has failed to find a link between secure attachment and psychological health, instead finding a more prominent relationship between attachment insecurity and psychological symptomatology (Wilkinson, 2006b; Wilkinson & Parry, 2004). The link between self-esteem and both general attachment security and attachment security with both parents demonstrates the unique contributions of various elements of the attachment hierarchy in influencing psychological health. These findings provide good evidence for convergent validity for the DAAS.

The second half of this study analysed the DAAS sub-scales in relation to a range of psychological adjustment variables. These results demonstrate that the DAAS relates in the hypothesised fashion with the psychological outcome variables. Those with higher levels of attachment security reported higher levels of psychological adjustment and functioning in comparison with those who report higher levels of attachment insecurity. Attachment insecurity was linked to poorer psychological health and higher levels of distress and symptomatology. This is consistent with previous research (Cooper et al., 1998; Mikulincer & Shaver, 2007; Rice & Cummins, 1996).

For each psychological adjustment outcome in this study, the DAAS scales predict between a quarter and almost a half (42%) of variation in these variables. The broad psychological outcome variables measured in this study were best predicted by the DAAS General sub-scales, with the strongest overall contribution made by General Anxious. The General Anxious sub-scale is the most consistent predictor of the outcome variables. This is commensurate with previous research on attachment styles and psychological health, demonstrating a strong link between attachment anxiety and psychological symptomatology and distress in both adolescence and adulthood (Cooper et al., 1998; Shaver & Mikulincer, 2007).

These results further correspond with previous research establishing the strong link between attachment to mother, father and best friend and psychological health. The General and Maternal sub-scales show a particularly strong pattern of correlations with the adjustment variables. The stronger link between maternal attachment and psychological health compared with paternal attachment and psychological health was confirmed in the present study (Batgos & Leadbeater, 1994; Youniss & Ketterlinus, 1987). Several DAAS Maternal, Paternal and Best Friend sub-scales retrieved high beta values in the multiple regression equations however did not reach statistical significance due to the smaller sample size for this instance of data collection. Had the sample size utilised included more participants more of the DAAS sub-scales would

have attained statistical significance in predicting the psychological health variables.

A central aim of developing the DAAS was recognition of the centrality of interpersonal bonds for psychological health during this life stage (Batgos & Leadbeater, 1994; Berndt et al., 1999; Buhrmester, 1990; Doyle et al., 2003; Kenny, 1987; Kobak et al., 2007; Nada Raja et al., 1992). The literature highlights the distinct role played by various attachment figures during this stage where the attachment network is in a state of flux (Friedlmeier & Grandqvist, 2006; Wilkinson, 2004). The promising results found in this initial investigation of the construct validity of the DAAS lend further support to this body of literature. Further scrutiny of the ability of the DAAS to predict psychological health will no doubt be required in further studies and with a variety of methodologies¹¹. The study of clinical samples and specific symptom clusters will further illuminate the role of individual differences in attachment bonds, across the attachment network, in the development of both psychological health and psychopathology.

¹¹ As part of Study Four, parents completed the SDQ in relation to their child. This multi-informant data regarding psychological adjustment would provide relevant data regarding additional facets of adolescent psychological health. Due to the small sample size and limitations discussed in Chapter Five, this data was not analysed in the current study.

CHAPTER TWELVE

GENERAL DISCUSSION

Introduction

This thesis explored the nature of attachment bonds in adolescence. In response to this, a new measure of these relationships in adolescence was developed and validated. The link between attachment relationships and psychological health during adolescence was investigated. Findings suggest that the nature of attachment during the adolescent life stage is nuanced. This influences measurement and highlights the marked differences between one's general attachment style and specific attachment relationships with mother, father and best friend. These variations are reflected in the scale characteristics and psychometric properties observed when measuring each attachment dyad. Furthermore, each specific attachment bond makes unique and distinct contributions to various elements of psychological health. Implications of these findings will be discussed in this chapter following a review of the rationale for the thesis and an overview of key results.

Overview of thesis

This dissertation examined attachment relationships in adolescence, the measurement of this construct, and the impact of these bonds on psychological health and adjustment. Adolescence is a developmental stage encapsulating rapid physical, cognitive, social and interpersonal change. The constellation of social relationships, and more specifically, attachment relationships is in a state of flux. A large body of literature demonstrates the importance of attachment relationships for psychological health across the lifespan. Academic knowledge of the role of attachment relationships in adolescence has been somewhat hampered by a lack of valid, theoretically coherent, age appropriate measurement tools. Due to a range of historical and methodological factors, it is arguable that the study of attachment in adolescence is somewhat behind that

of infants and adults, in part due to a paucity of adequate measurement instruments.

This thesis included five key objectives: i) to review existing measures of attachment in adolescence in order to organise and clarify the body of literature and develop necessary and sufficient conditions for a new measure of adolescent attachment relationships; ii) to examine the psychometric properties of the new measure of adolescent attachment relationships in order to provide initial content and construct validation; iii) to examine the relationship between the new measure of adolescent attachment relationships and a number of existing measures of attachment relationships, networks and functions in order to provide convergent and discriminant validation; iv) to further investigate the new measure of adolescent attachment relationships via multi-method validation; v) to examine the relationship between the new measure of adolescent attachment relationships and a range of measures of psychological health in order to provide validation and information regarding clinical utility.

In addressing the first objective of the thesis, Chapter Four presented a comprehensive review of existing measures of attachment in adolescence. It was found that almost 100 measures of the construct exist in the literature but that the vast majority have been used between one and three times. Of those used more frequently, the majority were not developed and validated for adolescents. Of those that were developed for adolescents, many either do not measure attachment bonds/relationships (i.e., they measure attachment representations or attachment states of mind), were not developed from the point of view of attachment theory, or are not commensurate with current theoretical conceptualisations of attachment found in the literature. This review suggested the need for a new measure of adolescent attachment. Therefore, a number of necessary and sufficient conditions were formulated in guiding the development of this new measure of attachment in adolescence, the Domains of Adolescent Attachment Scales (DAAS). The DAAS measures attachment to mother, father and best friend as well as general attachment orientation, in four separate sections.

With regard to the second objective, Studies One and Two (Chapters Six, Seven, Eight and Nine) addressed the initial psychometric validation of each section of the DAAS. Two samples of data were used in order to provide the opportunity for replication of the factor structures. Studies One and Two used a combination of exploratory and confirmatory factor analysis in addressing the research questions. Each section was analysed independently and a range of *a priori* and exploratory models were tested. Initially a three-factor structure (secure, anxious and avoidant factors) was hypothesised for each section, in line with previous research. For the General section, this hypothesised model was well fitting. In addition to the three-factor solution however, a set of smaller and more fine-grained factors were found, retrieving a six-factor solution. For the Maternal, Paternal and Best Friend sections, this three-factor structure was poorly fitting. For the Maternal and Best Friend sections, the hypothesised avoidant items split between the secure and anxious factors, creating a two-factor (secure/insecure) solution. The Paternal section offered a unique four-factor solution. For the Paternal scale, the secure items split to form a security factor and a factor concentrating on the approachability and availability of the father. The insecure items formed an anxious fearful factor and a factor reflecting indifference and Responsiveness of the father toward the adolescent. All factor structures retrieved in Study One were replicated in Study Two and the scales showed high internal reliability.

In addressing the third objective of the thesis, Study Three (Chapter Ten) validated the DAAS using a categorical measure of attachment style, the Relationships Questionnaire; and two measures of the attachment network, the Networks and Functions Questionnaire and the Bull's eye hierarchical mapping technique. Results of this study indicate that the DAAS has good convergent validity with the RQ and that scores on the DAAS are able to discriminate between individuals of different attachment styles. The DAAS corresponds as was hypothesised with strength of attachment, quality of attachment and characteristics of the attachment network including size and the placement of various individuals i.e., mother, father, and best friend.

Study Four (Chapter Ten) addressed the fourth objective of the thesis, multi-method validation. A multi-informant design was used with parents completing a questionnaire regarding their adolescent's general attachment orientation as well as the parent's own attachment style and psychological health. Results of this study were largely uninformative due to a number of methodological shortcomings. A very small sample size was available due to an inability to entice parents to complete the questionnaire and a very low response rate. The analyses available due to the sample size were very limited and no hypotheses were supported. In terms of future research relating to the DAAS, multi-method validation is a foremost priority. A modified multi-informant design may be considered or an entirely alternative methodology may be sought.

Studies Five and Six (Chapter Eleven) addressed the fifth and final thesis objective. Study Five examined sex and age differences on the DAAS. With regard to sex, a number of differences were found with females generally higher in attachment security across all sections of the DAAS compared with males. With regard to age, a number of changes in attachment relationships were observed. There is a decrease in best friend insecurity and paternal security across adolescence. When the DAAS sub-scales were correlated with age for males and females separately, some sex differences became evident. For males, there was a significant correlation between age and Maternal security and for females there was a significant correlation between age and three of the four Paternal sub-scales.

Study Six (Chapter Eleven) investigated the relationship between the DAAS and a number of psychological adjustment variables. The first variables to be analysed were social desirability and self-esteem. Evidence for discriminant validity was found with an absence of correlation between social desirability and any DAAS sub-scale. The DAAS sub-scales were all statistically significantly correlated with self-esteem in the expected directions. The Secure sub-scales correlate positively with self-esteem and the Insecure sub-scales correlate negatively with self-esteem. Regression analysis

demonstrates that the strongest predictors of self-esteem are General Anxious, General Secure and Maternal Secure. Two Paternal sub-scales (Anxious and Secure) approached significance. The subsequent psychological adjustment variables analysed were Prosocial Behaviour, School Attitudes, general Psychological Health, and Strengths and Difficulties. Results showed that the DAAS subscales are predictive of a number of psychological adjustment variables. Broadly speaking, the DAAS General Anxious sub-scale is the best predictor of psychological adjustment. Multiple regression analyses demonstrate that Best Friend Insecurity, Paternal Approachability, and Maternal Insecurity make unique contributions to aspects of psychological health.

A number of broader theoretical and empirical implications follow from the results discussed in this section. These implications will be considered subsequently.

Broader Research Implications

General and specific attachment relationships

A key theme addressed in this thesis is the issue of measuring general and specific attachment relationships. Evidence is accumulating to suggest that the ability to tailor measurement to encapsulate the unique and specific elements of different attachment dyads is of great benefit to understanding the attachment system (Collins & Read, 1990; Cozzarelli et al., 2000; Kerns & Stevens, 1996; LaGuardia et al., 2000; Mikulincer & Shaver, 2007; Rowe & Carnelley, 2005). Developments in attachment measurement to allow for the study of various general and specific relationships has aided in accurately measuring the complexity of this construct. In defining general and specific models, there are many and varying levels, i.e., others in general; romantic relationships in general; current and past relationships; and particular individuals (Klohnen et al., 2005).

Results demonstrate that when measuring attachment, various relationship types differ in several ways across the measurement process.

When developing the DAAS, it became immediately apparent that an item suitable for use on the Maternal or Paternal Scale would not be suitable on the Best Friend Scale for example. This observation has been made by previous researchers who tailor items for their suitability for various target relationships when re-wording scales (i.e., Buist et al., 2008; Nada Raja et al., 1992). Most authors conduct this item rewording such that the same set of items are deemed suitable for all relationships being studied (i.e., Nada Raja et al., 1992). In developing the DAAS it was taken to be axiomatic that in developing a longer multi-item scale for a number of relationship types, that items would specifically target the relationship in question and thus be different across the sections of the measure. This decision was somewhat vindicated when analysing the factor structure of each section of the DAAS in terms of the items which best captured each sub-scale and which items demonstrated the highest factor loadings.

The exception to including different items in each section of the DAAS was for the Maternal and Paternal scales. Initially the Maternal and Paternal Sections started with the same 48 items. Based on the literature review, there was no rationale for including different items for these two sections. There are no purpose developed measures of paternal attachment in the literature to guide item choice (which there are for general attachment, best friend attachment etc.) and most existing measures either refer to 'parents' or use the same item set for mother and father.

Following preliminary psychometric validation, it became immediately apparent that the items which best measured maternal attachment were not the items which best measured paternal attachment. Thus, the reduced item set in the final version of the DAAS includes different items for mother and father (with some overlap), due to varying success of the items in measuring the designated constructs. Following this initial investigation, the Maternal and Paternal items formed markedly different factor structures and are predictive of different psychological adjustment variables. The psychometric investigation of the maternal and paternal DAAS by no means offer definitive resolution as to

the most accurate way of measuring maternal and paternal attachment. These results do however mount evidence for an argument that item selection for different attachment relationships should occur in a targeted way, taking into consideration each relationship in question. These results also offer psychometric evidence for the broader argument that maternal and paternal relationships are quantitatively and qualitatively distinct (Allen et al., 1994; Buist et al., 2002; Drill, 1987; Ducharme et al., 2002; Kenny et al., 1998; McCurdy & Scherman, 1996; Paternson et al., Youniss & Ketterlinus, 1987).

A somewhat glaring shortcoming of attachment measurement to date remains the ability to distinguish between varying manifestations of attachment bonds and non-attachment. Whilst individuals may identify various individuals in their attachment network for example, the likelihood of all of these bonds meeting criteria for an attachment relationship is low. At present it is rather crudely assumed that all individuals are attached to their mother, father, a best friend and later in life a romantic partner, particularly if the relationship is of a two-year or greater duration. It is questionable as to whether these are valid assumptions for all cases.

The ANQ offers one method for distinguishing attachment from non-attachment through the method of measuring the extent to which a given bond provides attachment functions (Doherty & Feeney, 2004). Use of this measure in the current study raised the concern of the extent to which the measure is limited by the strong bias towards those bonds which manifest attachment security. While Doherty and Feeney (2004) present a comprehensive method for measuring the development of the four attachment functions, there is little consideration of the different trajectories found in the development of attachment bonds for those with secure versus insecure styles for example (Cooper et al., 1998). Thus, the ANQ has limited validity in distinguishing an anxious or avoidant attachment bond from the lack of an attachment bond. This is because it is unlikely that an individual with a highly avoidant attachment bond with their mother, for example, would choose to nominate her as a secure base or safe haven, leaving the researcher no information as to

whether the mother is not an attachment figure, or whether the mother-child relationship is an insecure attachment bond.

The measurement of attachment would be made much more accurate if there was a straightforward and accurate method for identifying a given relationship as an attachment relationship, secure or otherwise, prior to investigating the quality or nature of the attachment bond. A number of approaches for identifying attachment from non-attachment are possible, for example, Allen (2008) suggests considering the development of attachment processes, both secure and insecure; and Allen et al. (2005) used a study of expert consensus to classify items measuring attachment versus non-attachment.

Attachment styles and dimensions

The findings contained in this thesis speak to the ongoing uncertainty in the literature regarding the best conceptualisation of individual differences in attachment with regards to styles and dimensions. Within the adult attachment literature the two-dimensional anxiety/avoidance model dominates current theory and measurement. The popularity of this model for adult romantic relationships has seen it extended to other relationships in adulthood and to adolescence (Fraley & Shaver, 2000; Friedlmeier & Grandqvist, 2006; Shaver & Mikulincer, 2007). The current research demonstrates that the two-dimensional conceptualisation should not automatically be assumed to be the best fitting model of attachment relationships in all contexts. It is not surprising that no section of the DAAS exhibited a two-dimensional anxiety/avoidance model. There is no clear evidence that this conceptualisation explains attachment bonds outside of adult romantic relationships. Measures of attachment in childhood and adolescence continue to demonstrate three, four and five factor structures (Carver, 1997; Chotai et al., 2005; Feeney et al., 1994; Kerns et al., 2005).

It is also not surprising that the DAAS factors for each section are not orthogonal. Orthogonal factors are most commonly found in attachment

measures which use the anxiety/avoidance model and do not include secure items (Brennan et al., 1998; Fraley et al., 2000). All sections of the DAAS clearly retrieved secure attachment factors. Under the anxiety/avoidance conceptualisation of attachment, security has come to be defined as an absence of anxiety and an absence of avoidance. This does not fit with the seminal work of Bowlby and Ainsworth. According to the Strange Situation paradigm, the attachment style of the infant was observable according to the behaviour of the child. The anxious avoidant children ignored the mother, failed to cling to her when picked up, ran away when approached etc.; the anxious resistant children showed much distress, expressed ambivalence and uncertainty etc.; and the securely attached children explored freely and interacted with strangers while their mother was present, showed upset when their mother left etc. (Ainsworth et al., 1987). Ainsworth et al. (1987) did not define secure attachment as an *absence* of anxious or avoidant behaviour but instead described a set of behaviours and emotions demonstrated by the secure infants. There is no reason why a self-report measure of attachment in adolescence or adulthood should not also be able to describe emotions and behaviour demonstrated by secure individuals. Within clinical psychology it would be erroneous to assume that psychological health and resilience is indicated by a lack of reported or observed psychopathology (Campbell-Sills, Cohan, & Stein, 2006).

The DAAS General section was the only section to have a three-factor structure commensurate with classical models of attachment style (Hazan & Shaver, 1987). It had been anticipated that the DAAS Maternal may also resemble this archetypal structure as maternal attachment is the paradigmatic attachment bond (Bowlby, 1993; 1979/2005). It is possible that this was not the case for the DAAS due to the unique nature of adolescence as a life stage and the influence of the changes experienced during adolescence on maternal attachment. The process of separation individuation and the development of autonomy may be implicated in the finding of a general insecure factor for maternal attachment as opposed to an anxious factor and an avoidant factor. There were close similarities between the DAAS Maternal and DAAS Best

Friend and more investigation of the changes experienced in these bonds over adolescence, using specific attachment measures for each relationship, may shed further light on this question.

Romantic relationships in adolescence

The area of attachment to romantic partners during adolescence includes many unanswered questions. When given the opportunity in the current research, some adolescents identified partners in their attachment network. A number of adolescents (10%) identified their best friend as a romantic partner. For males particularly, where there is a romantic partner identified in the attachment network, this person is surprisingly likely to be a/the primary attachment figure. Considering that the primary attachment figure denotes the person 'you feel you can always count on, no matter what' and the person 'you feel will always be there for you, if you needed them' (Doherty & Feeney, 2004), and considering the impermanence of most adolescent romantic relationships (Bouchev & Furman, 2003; Kobak et al., 2007), this result is concerning. Many researchers maintain that an adolescent romantic relationship is unlikely to constitute an attachment bond (Freeman & Brown, 2001; Kobak et al., 2007).

There was a marked gender difference in terms of the likelihood of males placing romantic partners higher in the attachment hierarchy compared with females. This finding may be an early precursor to the results of Trinke and Bartholomew (1997) who report that for participants with a romantic partner, that partner was the primary attachment figure for 62% of participants. It is further commensurate with research on the attachment networks and hierarchies of older adults (Coupe, 2008). Males are much more likely to focus their attachment needs on a single person; for married males this person is overwhelmingly their wife (Coupe, 2008).

The question of romantic relationships in adolescence adds further urgency to the aforementioned lack of measurement tools for differentiating non-attachment from attachment bonds. Complexity is added by the strong influence of proximity seeking reported by adolescents towards close friends

and romantic partners. This proximity seeking may not necessarily constitute a strict attachment function in the same way as it does for infants and adults for example. This is due to the strong social and affiliative aspects of romantic relationships in adolescence. Further study of romantic relationships in adolescence will continue to illuminate the process by which they come to be attachment bonds. The impact of identity development, sexual relationships, cohabitation and marriage all form important variables to be included in such further study.

Self-report measurement

It will remain constructive to continue investigation into the validity and utility of self-report measurement. Results in this thesis indicate that the DAAS confirms a number of theoretical and empirical findings in the attachment literature, notwithstanding the self-report methodology. Self-report measures continue to demonstrate an ability to relate to and predict aspects of psychological health and demonstrate ample psychometric properties (Buist et al., 2004; Freeman & Brown, 2001; Shaver et al., 2000; Shaver & Mikulincer, 2002). The DAAS was uncorrelated with social desirability, an important step in demonstrating the validity of the chosen self-report methodology.

With regard to content, adolescents appear to be particularly sensitive to item wording and insinuations made within items measuring attachment. It was observed that, particularly for males, adolescents responded poorly to suggestions of physical closeness or physical intimacy with best friends of the same sex for example. Items which did refer to 'closeness' in the best friend section were often not answered. An understanding and appreciation of this phenomenon is important to the validity of the measurement instrument and demonstrates the importance of pilot testing.

The current study made use of the Bull's Eye technique, which requires less reading and verbal ability than traditional multi-item scales. This raises questions regarding whether long self-report measures containing many items are skewed to a particular type of participant i.e., emotionally articulate, high

reading ability. The Bull's Eye section of the composite questionnaires appears to have been well received by participants, with little missing data in this section. Results from this study demonstrate additional validity of the measure, in relation to both the DAAS and the ANQ, and supplement the promising results found by Rowe and Carnelley (2005). Results of the Bull's Eye technique are encouraging for further exploration of alternative self-report measures to enhance traditional questionnaire formats.

Paternal attachment

The father-child or father-adolescent relationship is perhaps the most neglected area of study within the area of attachment bonds in the nuclear family. The specific element of the father-adolescent bond, the father as an attachment figure, has received comparatively less study than has the adolescent-mother or adolescent-best friend relationship. Scrutiny of the ANQ data suggesting a much lower strength of attachment to fathers and the low incidence of fathers as primary attachment figures may lead one to conclude that though important, it is entirely possible that the father may not be an attachment figure for adolescents in all circumstances.

Bowlby's initial formulation of attachment in infancy highlights the role of both the mother *and* father, "a young child's experience of an encouraging, supportive, and cooperative mother, and a little later father, gives him a sense of worth; a belief in the helpfulness of others, and a favourable model on which to build future relationships" (Bowlby, 1982, p. 378). It is apparent that Bowlby highlighted the complementary and distinct roles of mother and father, both in a qualitative sense and in terms of temporal development of the bond.

Returning to early definitions of attachment bonds, Bowlby (1982) highlighted the provision of safety as the first and foremost goal of the attachment system. This was theorised to include both physical and psychological security. Main (1995) further highlights the role of physical security, highlighting the role of attachment bonds in providing protection from starvation, temperature changes, natural disasters, separation from the group.

Considering this view of attachment bonds, it is difficult to argue that the father is not vital and essential to ensuring this kind of safety. It appears that across the development of attachment theory that the provision of emotional and psychological security has been given primacy in the operationalisation of attachment bonds, over physical security.

Thus, it is possible that current conceptualisations of attachment bonds favour the consideration of those bonds which provide emotional security (for example maternal attachment), over those bonds which provide physical security (for example paternal attachment). It is possible to argue that physical security is a necessary precursor to emotional security. An example of this is evident in the realm of current clinical practice suggesting that it is counter-productive to provide psychotherapy to a client (in developing emotional security) if that client remains in an unsafe environment or is experiencing ongoing exposure to trauma (with ongoing threats to physical security) (Briere & Scott, 2006).

If paternal attachment is indeed unique to this extent, the implication for measurement is that paternal attachment needs to be operationalised from the ground up. This has not been previously attempted. There are no published papers specifically addressing the measurement of paternal attachment as a unique construct. In terms of measurement, the father-adolescent bond has primarily been measured by way of reworded parent-adolescent measures i.e., the IPPA, the RSQ, the AAS (see Appendix 4B). Further validation is thus required for the DAAS Paternal due to the exploratory nature of developing a specific measure of paternal attachment measure.

Sex differences

A number of sex differences were found across numerous studies in the current research. This is in contrast to a body of attachment literature suggesting few reliable sex differences in attachment, i.e., Simpson (1999) referred to the "paucity of systematic sex differences" (p. 122). Karantzas et al. (in press) argue that "this is not surprising given that from infancy, both sexes

tend to face the same survival threats and thus require the same attachment needs for comfort, care and security". Conversely, it is possible to contend that sex differences in attachment exist and thus should be evident in empirical results. Sex differences in attitudes towards relationships, communication styles, intimacy levels, the nature of friendship and contrasts between men and women as boyfriends and girlfriends, mothers and fathers, husbands and wives are well recognised both using common sense and within the realm of academic study (Martin & Ruble, 2010; Schmitt, Realo, Voracek & Allik, 2008; van Straaten, Engels, Finkenauer, & Holland, 2006). While it is in some respects not fashionable to discuss sex differences in contemporary society due to the perceived insinuation of inequality when discussing difference, the data clearly identifies statistically significant differences between males and females in the current study.

On the DAAS, males and females score significantly different mean levels on most DAAS sub-scales. These mean differences show that females report higher security and lower insecurity than males with regard to their general attachment, attachment to mother, attachment to best friend and on some of the paternal sub-scales. This is consistent with previous research suggesting that girls are higher in attachment security and lower in attachment insecurity than males (Allen et al., 2003; Buist et al., 2002; Kobak et al., 1993).

A number of sex differences are observed among characteristics of the attachment network and hierarchy. As previously stated in the section on romantic relationships, males are much more likely to place their romantic partner higher in the attachment hierarchy than females. Similarly, males identify their father as a full-blown attachment figure much more frequently when compared with females. Results contained in this thesis offer some support for the idea that it is most accurate to refer to mother-daughter, mother-son, father-daughter, father-son attachment bonds rather than parent-adolescent attachment bonds. Adolescents themselves do not consider their mother and father to be interchangeable. This notion has prominent support in the adolescent literature (Allen et al., 1994; Buist et al., 2002; Drill, 1987;

Ducharme et al., 2002; Kenny et al., 1998; McCurdy & Scherman, 1996; Paterson et al., 1994; Russell & Saebel, 1997; Youniss & Ketterlinus, 1987).

Possible methodological limitations and suggestions for future research

One important caveat in this thesis is that the research design utilised for multi-method validation did not retrieve useful results. This is due to a number of methodological and practical factors. It was difficult to access the parents of high school students and determine a means for having the questionnaires easily and confidentially returned to the researcher. A number of methods for giving the questionnaires to parents were attempted, for example, sending the questionnaires home to parents with their children (the usual method for sending school notices home). At one large school, questionnaires were given to parents in an envelope with their school fee notices, posted directly to parents. In all cases the School Principals were supportive of the research in question, teachers were asked to remind students to have their parents post the questionnaires to the researcher. Due to resource constraints it was not possible to offer an incentive to parents or students for the completion of the questionnaire.

Future research may endeavour to creatively address these limitations or to offer a rationale for an alternative research methodology to supplement the validation gained from self-report data. A number of alternative research methodologies are available in the literature i.e., priming and experimental designs; diary methodologies; interview methodologies.

Additionally, whilst a perennial suggestion for future research, a longitudinal research design may be particularly relevant for the types of research questions under scrutiny in this area of attachment research. A defining characteristic of adolescent attachment bonds, indeed adolescence more generally, is change. The kinds of research questions posed explicitly and implicitly often assume the role and mechanism of attachment transfer and it is evident that a longitudinal research design is best posed to address such investigations. The development of a validated, psychometrically sound

measure for adolescent attachment is a critical first step on the path to a much-needed extensive longitudinal study of the changes observable in adolescent attachment bonds over the second decade of life. The DAAS has particular strengths for attachment transfer research because it is able to measure a range of general and specific attachment bonds in adolescence.

In addition to longitudinal studies on attachment transfer, the DAAS has potential for further analysis of interesting findings from the attachment network literature. For example, future research with large samples of adolescents and the DAAS would allow for testing differences between adolescents who report parents versus friends as full-blown attachment figures and adolescents who do not. Such research may make use of multi-group invariance testing and investigate differences in general attachment style or psychological health for example.

As previously discussed, a key shortcoming of the attachment literature generally is an inability to distinguish attachment in its various guises and styles from non-attachment. At present it is assumed that most adolescents are attached to their mothers, fathers, and usually their best friends, based on the attachment network literature. It would be particularly enlightening to have the ability to identify insecure attachment bonds from the absence of an attachment bond. One instance in which this would be exceptionally advantageous is in the case of adolescent romantic relationships. It stands to reason that at some stage between late adolescence and adulthood that for the vast majority of individuals a romantic partner or spouse becomes a key attachment figure. At present there is no clear way for identifying when this has become the case and it is especially murky during adolescence.

A possible avenue for future research may be an additional DAAS scale for romantic relationships to be used following a screening tool allowing for the differentiation of attachment from non-attachment and for use with targeted populations. A further possible avenue for future research may be the development of measurement tools better able to capture the intersection of the attachment behavioural system with other behavioural systems. The influence

of the caregiving, sociable, fear and exploratory systems adds complexity to the nature of various attachment bonds (Cassidy, 2008) and a clear indication of these junctions may be edifying. Related to this, it would be advantageous to investigate the impact of relationship quality on differences in attachment strength for various specific attachment bonds. For example, relationship quality may partially explain the observed variation in attachment strength between mothers and fathers.

A final consideration relates to ongoing research in the adult literature regarding the nature of relationship specific versus general attachment measurement and the implications for this on the correlations between factors and the structure of attachment dimensions. Emerging evidence from the adult literature using the two-dimensional anxiety/avoidance model (i.e., Brumbaugh & Fraley, 2006) suggests that anxiety and avoidance may be more correlated for specific relationship measurement than general attachment orientation. This is a potentially fruitful investigation for adolescents and use of the DAAS may illuminate this issue. There remains significant controversy regarding the underlying dimensions and structure of attachment in various life stages and contexts.

More broadly, as previously stated, Mikulincer and Shaver (2007) have argued that “probably many of the landmark studies will need to be repeated, in improved forms, when new and better attachment measures are developed” (p. 115). This will be a time consuming pursuit considering the size of the attachment literature. Whilst the DAAS requires further investigation and use in a variety of research contexts in order for it to be considered a “new and better attachment measure”, initial results suggest that it may have this capability with further development.

Clinical Implications

The results contained in this thesis suggest that the DAAS is a potentially valuable means for investigating the nature of attachment relationships in adolescence. The DAAS has the advantage of being able to measure both

general attachment orientation and specific attachment bonds. The specificity of measurement possible when using the DAAS coupled with results suggesting that particular elements of various attachment bonds uniquely predict aspects of psychological health may allow for targeted investigation of the aetiology of symptoms and options for treatment, after the DAAS has been subject to further study using clinical samples. Evidence that attachment bonds directly relate to psychological health continues to grow and treatments targeted at the interpersonal sphere show good efficacy and effectiveness for adolescents (Mufson et al., 2004). Research in this area will be greatly aided by psychometrically sound measurement tools such as the DAAS for this age group.

Notably, the DAAS requires minimal training in comparison to alternative attachment measures and is efficacious with regards to time required for administration, scoring and interpretation. Such attributes are valuable in settings such as public mental health or contexts where time and/or resources are limited. Clinicians have identified that the routine assessment of attachment is common for infants and those in middle childhood but that this ceases for adolescents due to a lack of measurement tools.

The potential clinical utility of the DAAS General six-factor model requires further study. It holds promise for the development of clinical formulations for use in therapeutic contexts and it is hoped that this salient finding may encourage clinicians to tailor interventions according to particular areas of distress or dysfunction in the attachment domain.

All sections of the DAAS expressly measure secure attachment. As previously mentioned, a key shortcoming of the two-dimensional avoidance/anxiety conceptualisation of attachment relationships is disregard for the unique nature of attachment security (Bäckström, & Holmes, 2007) where attachment security is defined as a low score on avoidance and low scores on anxiety. In addition to measuring secure attachment, results suggest that attachment security contributes statistically significantly to the prediction of psychological health for adolescents. In a clinical context this information

may be used to build resiliency, and to identify strong relationships for use in treatment.

Conclusion

The importance of close interpersonal bonds in adolescence is well established in both theory and empirical literature. A review of existing research highlights the limitations placed on understanding these bonds when there is a lack of adequate measurement instruments. To begin to address this shortcoming in the literature, this thesis presented the development and validation of a new measure of adolescent attachment bonds, the Domains of Adolescent Attachment Scales. In constructing the DAAS a number of theoretical and psychometric issues have been addressed and discussed. It is hoped that further research utilising the DAAS will allow for continued comprehension and appreciation of the unique and important role of attachment bonds in adolescence.

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APPENDICES

APPENDIX 4A

SCALES CITED BETWEEN ONE AND THREE TIMES IN THE CURRENT REVIEW

<i>Scale name</i>	
14 Items Secure Base	Family Interaction Task
Adolescent Health	Father/Mother Attachment
Adolescent Attachment Interview	Questionnaire
Adolescent Separation Anxiety	Hirschi
Interview	Index of parent attitudes and the
Adolescent Unresolved Attachment	child's attitude towards mother
Questionnaire	scale
AH Style Classification Questionnaire	Inventory of Parent Attachment
Attachment Interview for Childhood	Inventory Schedule for Social
and Adolescence	Interactions
Adolescent Interpersonal Competence	Love Schemas Scale
Questionnaire	Measure of Attachment Security
Attachment and Object Relations	Maternal-Fetal Attachment Scale
Inventory	McGee & Williams, 1991
Attachment Prototype Questionnaire -	Mother Father Attachment Scale
Adolescent Version	Mother Father Peer Scale
Affective Quality of Attachment	Mother-Daughter Relationship
Attachment Questionnaire - M	Scale
Adult Relationship Scales	Observation Task
Questionnaire	Offer Self Image Questionnaire
Adolescent -Relationship Scales	Preschool Assessment of
Questionnaire	Attachment
Adolescent Separation Anxiety	Parental Attachment Scale
Interview	Parental Understanding Scale
Adolescent Separation Anxiety Test	Parents of Adolescents Separation
Attachment Style Inventory	Anxiety Scale
Attachment Behaviour Classification	Parent Child Relations
Procedure	People In My Life
Attachment Network Questionnaire	Perceptions of Family Closeness
Attachment Scale	Scale
Attachment Story Completion Task	Parent-Peer Attachment
Bartholomew Attachment Interview	Inventory
Behavioural Systems Questionnaire	Projective Measure
Brennan 1998 12 items	Revised Adult Attachment Scale
Brook et al, 1990	Revised Inventory of Parent

 Appendix 4A (cont.)

Behavior Style Questionnaire	Attachment
Bull's eye map	Relationship Questionnaire -
Child Attachment Scale - Mother,	Children
Father	Schaefer IRI
Child Attachment Interview	Strengths and Difficulties
Children in the Community Scale	Questionnaire - II
Clinical Pathlog	Secure Base Scale
Close Relationships Questionnaire	Separation Anxiety
Diary	Separation-Induced Anxiety Test of
Ecological Methodology	Attachment
EMBU-C (a Swedish acronym for 'Own	Spouse-Relationship
memories of parental rearing')	Social Network Model
Ethnographic	Strong-Signals
FACES-II	West and England, 1999
Family Attachment Interview	WIKI

Appendix 4A *cont.*

Behavior Style Questionnaire	Attachment
Bull's eye map	Relationship Questionnaire -
Child Attachment Scale - Mother,	Children
Father	Schaefer 1965
Child Attachment Interview	Strengths and Difficulties
Children in the Community Scale	Questionnaire - II
Clinical Rating	Secure Base Scale
Close Relationships Questionnaire	Separation Story
Diary	Separation-Individuation Test of
Ecological Methodology	Adolescence
EMBU-C (a Swedish acronym for 'Own	Space Between Us
memories of parental rearing')	Social Relations Model
Ethnographic	Strange Situation
FACES-III	West and Sheldon, 1988
Family Attachment Interview	WHOTO

APPENDIX 4B

PSYCHOMETRIC INFORMATION FOR FREQUENTLY CITED MEASURES OF ATTACHMENT

Adolescent Attachment Questionnaire (West)								
<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
West, Spreng, Rose & Adam, 1999	187	12-19	suicidal behaviour	general	Nil	original	cites original	cites original
West, Spreng, Sheldon-Keller & Adam, 1998	724	12-19	scale development	general	Nil	original	not stated	not stated
Domingo, Keppley, & Chambliss, 1997*	106	undergrads	early maternal employment					
Cawthorpe, West, & Wilkes, 2004	73	adolescents	depression	primary attachment figure	not stated; two scales: Angry distress & unavailability	subscale totals	not stated	cites original
Elgar, Knight, Worrall, & Sherman, 2003	68	15-18	behaviour problems, delinquency	parent	Nil	original	.80, .85, .59	cites West et al re correspondence with AAI
Olsson, Byrnes, Lotfi-Miri, Collins, Williamson, Patton & Anney, 2005	2032	15-24	genetics, anxiety, alcohol use	general	Nil	scored for secure/insecure	not stated	not stated
Bettmann, 2007	93	14-17	wilderness treatment	mother & father	not stated	not stated	not stated	not stated

Adult Attachment Scale (Collins & Read)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Torquati, & Vazonyi, 1999	73	18-22	affect, appraisal, coping	mother, father, romantic relationship	3 items added to assess attachment related emotions; cites Kobak et al., 1993	grouped into four styles using Collin's 1996 system; all insecure grouped for analysis	.69 to .88	not stated
Shapiro, & Levendosky, 1999	80	14-16	childhood sexual abuse	general	Nil	original	cites original	cites original
Hock, Eberly, Bartle-Haring, Ellwanger, & Widaman, 2001	129	M-14.15	separation anxiety	general	Nil	original	.78 to .87	not stated
Marcus, & Gray, 1998	101	14-18	violent & nonviolent delinquents	general	Nil	original	.75,.72,.69; test retest over 3 months, .68,.71,.52	cites original
Harvey, & Byrd, 1998	62	12-15	self esteem, family environment	friends & peers	altered from love partners to friends & peers	original	not stated	not stated
Greenberger, & McLaughlin, 1998	157	18-22	coping, explanatory style	non-parental others	Nil	original	not stated	not stated

Tacon, & Caldera, 2001	155	18-24	parental correlates, acculturation	general	Nil	subscale totals; grouped into 3 styles, regrouped individual items into H&S paragraphs	.73 to .92	not stated
Cook, 2000		12-19	family attachment security	mother, father, older sibling, younger sibling	modified AAS, fill in blank spaces		item total correlations range .55 to .69; internal consistency average .85	not stated
Levendosky, Huth-Bocks, & Semel, 2002	111	14-16	mental health functioning, domestic violence	general	18 items	mean score for each style	.70, .61, .75	cites original
Goodyear, Newcomb, & Locke, 2002	493	M=16.3	pregnant Latina teens	general	18 items	3 subscales	.60, .59, .77	not stated
Grandqvist, 2002	196	15-20	religiosity					
Torquati, & Raffaelli, 2004	69	undergrads	emotions, social context	general	3 items added to assess attachment related emotions; cites Kobak et al., 1993	grouped into four styles using Collin's 1996 system; all insecure grouped together for analysis	.64 to .74	cites original & others; compares proportion in each style with previous research
Grandqvist, & Hagekull, 2003	196	14-19	religious change	romantic partners	Nil	total	not stated	reports correlations with IPPA; cites original & others

Golder, Gilmore, Spieker, & Morrison, 2005	232	<17	substance use, risk	general	18 items	two dimensional - close & depend as avoidance & mean of existing anxiety scale	cites original	cites original
Gamble, & Roberts, 2005	134	M=16.2	perceptions of primary caregiver, cognitive style	general	reworded for general attachment	two factors - anxiety & discomfort with intimacy	.81 & .76	ML factor analysis
Friedlmeier, & Granqvist, 2006	196	14-18	attachment transfer	general	reworded for general attachment	two factor solution - anxiety & avoidance	.66 to .79	cites original
Kerns, & Stevens, 1996	112	17-25	social relationships, personality	mother & father	reworded for each parent	each subscale	.50 to .88	cites original
Reese-Weber, & Marchand, 2002	256	M=19.96	romantic relationships	romantic partners	6 item anxiety subscale used	total for anxiety subscale	.85	factor analysis to demonstrate uni-dimensionality; cites original & others

Attachment Questionnaire for Children (Muris, Meesters, van Melick, & Zwambag)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Muris, Meesters, & Spinder, 2002	280	11-15	anxiety symptoms, behavioural inhibition	general	Nil	global endorsement	not stated	cites original & Muris et al
Muris, Meesters, & van den Berg, 2003	742	12-18	internalising & externalising problems	general	Nil	global endorsement	not stated	cites original & Muris et al
Irons, & Gilbert, 2005	140	M=14.63	anxiety, depression	general	added categorical & dimensional scoring	style	not stated	cites adult literature on Hazan & Shaver
van Brakel, Muris, Bogels, & Thomassen, 2006	64	11-15	anxiety	general	Nil	3 styles	not stated	cites Muris et al. 2001 linking with IPPA

Attachment Style Questionnaire (Feeney, Noller & Hanrahan)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Barrett, & Holmes, 2001	161	17-20	cognitive interpretations, response bias	general	Nil	original	cites original	cites original
Sheehan, & Noller, 2002	174	15-18	differential parenting perceptions	general	Nil	5 factors	.71 to .81	cites original
Danov, & Bucci, 2002*	17	9-19	violence-prone adolescences					
Moller, Fouladi, McCarthy, & Hatch, 2003	241	18-34	social support, relationship breakup	general	40 items	5 factors	.71 to .87	cites original & others
Chotai, Jonasson, Hagglof, & Adolfsson, 2005	426	13-18	temperament, personality	general	40 items	two, three, four & five factor models	not stated	factor analysis
Ronnlund, & Karlsson, 2006	62	15-16	internalising & externalising problems	general	40 items	5 factors	cites original	cites original

Experiences in Close Relationships (Brennan, Clark & Shaver)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Dykas, Woodhouse, Cassidy, & Waters, 2006	44	11th grade	narrative assessment of attachment	romantic partners	Nil	dimensions	.92, .86	cites original & others
Gjerde, & Westenberg, 1998	87	23	dysphoric adolescents					
Cassidy, Ziv, Menta & Feeney, 2003	132	11-14	feedback seeking, depression	romantic partners	Nil	total score; both subscales summed for security of attachment	.90, .92	cites original & others
Weems, Hayward, Killen & Taylor, 2002	203	M=15.7	anxiety sensitivity	romantic partners	Nil	grouped into four styles & anxiety/avoidance dimensions	not stated	cites original & others
Moller, Fouladi, McCarthy, & Hatch, 2003	241	18-34	social support, relationship breakup	romantic partners	36 items	2 dimensions	.94, .93	cites original & others
Rowe, & Carnelley, 2005	129	18-37	attachment networks	general	36 item short version; four styles; general attachment	median split for two dimensions to make four styles	cites Crowell et al., 1999	cites Crowell 1999
Weems, Hayward, & Killen, 2002	203	M=15.7	anxiety sensitivity	romantic partners	36 items	grouped into four styles	cites original	
Jerome, & Liss, 2005	133	18-71	sensory processing style	romantic partners	Nil	two dimensions	not stated	
Berman, Weems, & Stickle, 2006	513	15-21	identity status	partner	Nil	anxiety & avoidance	cites original & others	

Inventory of Parent & Peer Attachment (Armsden & Greenberg)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Noom, Dekovic, & Meeus, 1999	400	12-18	autonomy, attachment	father, mother & peer	parents separated; 12 item subscales for each relationship	total for each relationship	.78 to .82	correlations between relationships reported
Eberly, & Montemayor, 1999	129	6-10th grade	affection, helpfulness	mother & father	28 item parent scale	total	.93 to .94	cites original
Simons, Paternite, & Shore, 2001	68	M=13.4	aggression	mother & father	25 items for each relationship	total for each relationship	.90 to .93	cites original & others
Felsman, & Blustein, 1999	147	17-22	career development	peer, mother & father	mother & father separate, 25 items for each	total	.87 to .92	cites original & others relating to career variables
Herzberg, Hammen, Burge, Daley, Davila, & Lindberg, 1999	129	16-19	social support	parent & peer	Nil	original	.80 to .93	not stated
Thompson, & Zuroff, 1999	54	12-15	self-criticism	mother	modified for mother	original	not stated	not stated
Shulman, Rosenheim, & Knafo, 1999	81	16-18	marital expectations	mother & father	Hebrew version	single factor obtained; total for mother & father	.79 for whole scale	not stated

Eberly, & Montemayor, 1998	129	11-16	prosocial behaviour	mother & father	28 items for each relationship	total for mother & father	.93, .94	convergent & discriminant validity correlations with various variables reported
Turner, & Barrett, 1998	203	M=13.5	perceived marital conflict	parent & peer	Nil	parent & peer total	not stated	not stated
Hock, Eberly, Bartle-Haring, Ellwanger, Widaman, 2001	129	M-14.15	separation anxiety	mother & father	modified for mother & father; 53 items	original	not stated	not stated
Lopez, & Heffer, 1998	660	18-23	childhood physical abuse	mother & father	Nil	averaged combined mother & father score total	.93	cites original & others
Mothersead, Kivlinghan, & Wynkoop, 1998	152	median=19	family dysfunction, parental alcoholism	parental	Nil	total	cites original	cites original
Fergusson, Horwood, 1998	1265	8 & 18	conduct problems	parental	Nil	mean total	.87	not stated
Black, & McCartney, 1997	36	15-18	security with parents, peer interactions	parent & peer	Nil	total for parent & peer	not stated	cites original & others
Ketterson, & Blustein, 1997	137	17-32	career exploration	mother & father	reworded for each parent; 25 items each parent	total for mother & father	not stated	cites original & others

Rainey, & Borders, 1997	276	12-15	career orientation/aspiration	mother-daughter	O'Brien & Fassinger's (1993) revision for mother	total	.93	cites original
Burge, Hammen, Davila, Daley, Paley, Lindberg, Herzberg, & Rudolph, 1997	137	M=18.17	adjustment	parent & friend	Nil	total for each subscale	.80 to .92	cites original & others
Burge, Hammen, Davila, Daley, Lindberg, & Herzberg 1997	134	M=18.25	college & work function	parent & peer	31 parent items; 29 peer items	total for parent & peer	.83 to .92	cites original
Noppe, & Noppe, 1997	95	13-20	meanings of death	parent & peer	Nil	total & subscales for each relationship total	not stated	cites original
Dekovic, & Meeus, 1997	508	12-18	peer relations	peers	12 items from Nada Raja	total	.82	not stated
Engels, Finkenauer, Meeus, & Dekovic, 2001	508	12-18	emotional adjustment, social skills	mother & father	only trust & communication subscales (4 items each) for mother & father	subscales totaled; parental results presented	.76, .79	cites original & others
Henrich, 2001	499	6-7th grade	interpersonal concerns/functioning	peer	only peer subscale	total	not stated	cites original & others
Gullone, & Moore, 2000	52	14-18	risk taking	parent & peer	Nil	subscale totals for parent & peer	.72 to .91	cites original

Formoso, Golzales, & Aiken, 2000	284	10-16	conflictual families	mother, father, peer	3 9 item scales for each relationship; parental instructions modified for those without mother or father to assess those that provide that role	total for each relationship	.91 maternal, .93 paternal, .89 peer	cites Gonzales & Jackson, 1999
Laible, Carlo, & Raffaelli, 2000	89	M-16	adjustment	parent & peer	12 item version for parent & peer; 4 items from each subscale	total for parent & peer	.85 parent, peer.84	cites original
McGee, Williams, Poulton, & Moffitt, 2000	948	15-21	cannabis use & mental health	parents	Nil	total; cut score for low attachment	not stated	Nada-Raja et al cited
Fergusson, Woodward, & Horwood, 2000	1265	15-21	suicidal behaviour	parental	Nil	total score original	.87	not stated
Woodward, Fergusson, & Belsky, 2000	1265	15-16	separation & attachment to parents in adolescence	parental	Nil	original	.87	cites original & others
Soucy, & Larose, 2000	158	16-20	adjustment to college	mentor	modified IPPA parent scale for "mentor"	total; ordinal scale used (rated between 1 & 5 for security based on total score)	.92	cites original
Milne, & Lancaster, 2001	59	14-16	prediction of depression	parent & peer	Nil	total for parent & peer	parent. 93 peer .86	not stated
Bell, Forthun, & Sun, 2000	470	18-25	adolescent competencies, substance use	parent	28 items	total	.93	not stated
Barrett, Duffy, Dadds, &	161	17-20	cognitive interpretations, response bias	peer	peer scale	original	not stated	not stated

Rapee, 2001

Vivona, 2000	159	18-23	parental attachment styles & attachment qualities	parent	rescored for 3 attachment styles	rescored for 3 attachment styles	.86 to .91 for subscales	cites original & others
Pavlidis, & McCauley, 2001	60	10-17	autonomy, relatedness, depression	parent	Nil	subscales totaled	cites "previous studies"	not stated
Dekovic, 1999	508	12-18	problem behaviour	mother & father	short version 12 items for each parent	parent attachment total	.78 mother .81 father	not stated
Lee, & Bell, 2003	470	18-25	substance use, youth competence	parent	28 items	parent attachment total	.93	not stated
Buist, Dekovic, Meeus, & Van Aken, 2002	228	11-15	developmental patterns in attachment	mother, father, sibling	10 items for each relationship	total	.81	cites original & others
Orzolek-Kronner, 2002	108	M=16.5	eating disorders	mother & father	25 items each relationship	3 subscales reported for each relationship total	.87, .89	cites original
Laible, Carlo, & Roesch, 2004	246	M=18.6	self-esteem, empathy, social behaviour	parent & peer	12 items each scale	total	.89, .78	cites original & others
Sunol, 2002	230	12-14	depression symptoms	mother, father, peer	25 items for each parent; 6 items for peer	quartiles from most secure to least secure total	not stated	cites original & others
Engels, Dekovic, & Meeus, 2002	508	12-18	parenting practices, social skills	mother & father	24 parent items	total	.87	not stated
Orzolek-Kronner, 2002	64	12-20	eating disorders	mother & father	25 items for each relationship	total for mother & father	.87, .89	cites original & others

Logan, & King, 2002	44	12-18	depression, mental health service use	parent	communication subscale	total	not stated	cites original & others
Kosson, Cyterski, Steurwald, Neumann, & Walker-Matthews, 2002	15	12-16	psychopathology	parent & peer	53 items total	total for parent & peer	not stated	cites original & others
Engels, & ter Bogt, 2001	508	12-18	risk behaviour	mother, father, peer	24 items peer; 12 items each parent	peer total; parents subscales	.74 to .80	not stated
Stanton, Flay, Colder, & Mehta, 2004	1037	Longitudinal 3-15	adolescent smokers	parent & peer	original	total for parent & peer	not stated	not stated
Wilkinson, 2004	347	15-19	depression, self-esteem	parent & peer	28 parent items; 25 peer items	total for each relationship	cites original	cites original
Buist, Dekovic, Meeus, & van Aken, 2004	228	11-15	social relations model	mother, father, sibling	10 items for each relationship	total for each relationship	.69 to .83	correlated with other self report measures of relationships
Essau, 2004	1444	12-17	family factors, depression	parents & peers	12 items for parent & peer	3 subscales	parent .82 peer .80	not stated
Buist, Dekovic, Meeus, & van Aken, 2004	288	11-15	internalising & externalising behaviour	mother & father	10 item scale (Nada Raja)	3 subscales; total	.81 to .85	cites original & others
Turnage, 2004	105	16-18	mother daughter relationships, self-esteem	mother-daughter	modified for mother; only 10 item trust subscale used	total	.95	cites Lapsley et al., 1990

Mattanah, Hancock, & Brand, 2004	404	M=20.57	college student adjustment	mother & father	25 items for each relationship	total for each relationship	.78 to .94	cites original & others
Katsiyannis, Zhang, Barrett, & Flaska, 2004	299	12-18	recidivism	parent & peer	28 item parent; 25 item peer	total for parent & peer	.72 to .91; 3 week test retest, .86 & .93	factor analysis
Vignoli, & Mallett, 2004	259	M=14.64	measuring parental attachment	mother & father	French version	3 subscales; total	.71 to .85	factor analysis
Moller, Fouladi, McCarthy, & Hatch, 2003	241	18-34	social support, relationship breakup	mother, father, peer	25 items for mother, father & peer	3 subscales	.96, .95, .94	cites original & others
Faber, Edwards, Bauer, & Wetchler, 2003	157	undergrads	family structure, identity formation	mother & father	reworded for each parent	total for mother & father	cites original & others	cites original & others
Johnson, Ketring, & Abshire, 2003	89	M=14.3	measuring attachment in families	parent	Nil	original	cites original	cites original & others
McGee, Williams, Howden-Chapman, Martin & Kawachi, 2006	962	15	participation in clubs/groups, self-esteem	parent & peer	12 items for each relationship	total for each relationship	.82, .80	not stated

Vignoli, Croity-Beiz, Chapeland, de Fillipis, & Garcia, 2005	283	16-20	career exploration	mother & father	French version; 14 items each for mother & father	3 subscales; global score	.75 to .91	not stated
Sternberg, Lamb, Guterman, Abbott, & Dawua-Noursi, 2005	110	8-13	domestic violence	mother & father	25 items for mother & father	global score	.72 to .92	not stated
Bernier, Larose, & Whipple, 2005	28	16-17	leaving home	mother & father	25 items for mother & 25 for father	global score	internal consistency range .73 to .78	not stated
Sorokou, & Weissbrod, 2005	88	M=18.16	first year of college	mother & father	25 items	summed for mother & father	cites original	cites original
Goldberg, & O'Brien, 2005	115	17-23	Jewish women's psychological wellbeing	mother & father	25 items for each parent	summed scores for mother & father	cites Papini et al., 1991	cites Lapsley et al., 1990 negative relationship between attachment & depression
Ruschena, Prior, Sanson, & Smart, 2005	1260	17-18	adjustment following family transitions	parents	"short form" no details	not stated	not stated	not stated
Gullone, & Robinson, 2005	281	9-15	measuring attachment	parents & peers	reworded items for younger sample	original	cites original	cites original

Gomez, & McLaren, 2007	385	18-20	self esteem, aggression	mother & father	12 items for each relationship	total for mother & father	cites Nada Raja	not stated
Ketterson, & Blustein, 1997	137	17-32	career exploration	mother & father	25 items for each parent	total for mother & father	cites original	cites original, Lapsley 1990 & Armsden et al. 1990
Bettmann, 2007	93	14-17	wilderness treatment	mother & father	not stated	not stated	not stated	not stated
Constantine, 2006	283	16-18	family conflict, depression	parent	53 items total	3 subscales	.85 to .86	not stated
Bosmans, 2006	511	10-18	parental behaviours, externalising behaviour	mother & father	Dutch 12 item version	total for mother & father	mother .85 father .80	cites Crowell 1999
Magoon, 2006	116	yrs 9-12	parental modeling, adolescent gambling	parents	28 items	3 subscales	.91	not included
Vandervorst, 2006	1012	11-14	alcohol use	mother & father	12 items for each parent	total for mother & father	.84 to .89	not included
Johnson, 2006	23	M=14.3	therapeutic alliance	parents	25 item parent scale	3 subscales	cites original	cites original
Eberhart, 2006	97	M=17.92	onset of depression	parents; peers	31 parent items; 29 peer items	parent & peer total	.96, .94	
O'Brien, 1993	409	M=17.31	career orientation	mother	50 items	total	not stated	not stated
Cavell, 1993	171	M=18.51	alcoholic fathers	mother & father	25 items for each relationship	total for mother & father	.97, .95	cites original
Papini, 1992	47	M=12.6	competence, depression, anxiety	mother & father	Nil	total	.86 to .89	not stated
Nada-Raja, 1992	935	longitudinal	psychological wellbeing	parent & peer	12 items for each relationship	grouped into low & high attachment for parent & peer	.82, .80	item total correlations; percent endorsing items
deJong, 1992	126	M=18.5	suicide risk	mother, father, peer	25 items for each relationship	total for each relationship	cites original	cites original & others

Claes, 1992	349	12-18	friendship, personal adjustment	peers	French; from Greenberg 1983, trust & communication	18 items, total	.83	not stated
Williams, 1991	960	15	self perceptions of strengths	parent & peer	12 parent; 13 peer	total	.82, .81	not stated
Armsden, 1990	29	7-17	early adolescent depression	parent & peer	28 parent items; 25 peer items	total parent & peer	not stated	cites original
Lapsley, 1990	130	M=18.5	adjustment to college	parent & peer	28 parent items; 25 peer items	3 subscales for each relationship	not stated	cites original & others
O'Brien, 1996	282	M=17.28	psychological separation, career development	mother & father	25 items for each relationship	total for mother & father	.96, .95	cites original & others
Paterson, 1995	493	13-19	friends, self esteem	mother, father, peer	25 items each relationship	total for each relationship	.94, .94, .48	cites original
Schultheiss, 1994	174	M=18.29	identity formation	mother & father	25 items each relationship	total for each relationship	.94 for both	cites original & Lapsley et al., 1990
Rosenfarb, 1994	132	19-64	depression, self-criticism	mother, father & peer	25 items each relationship; rated attachment up to age 12	total for each relationship	not stated	cites original & author of this paper
Paterson, 1994	493	13-19	perceptions of attachment	mother, father, peer	25 items for each relationship	total for each relationship	.94, .94, .48	cites original
Schultheiss, 1994	139	M=19.1	college student development, adjustment	mother, father,	25 items for each relationship	total for each relationship	.87, .89	cites original
Blain, 1993*	216	undergrads	perceived social support					
Marcus, 1996*	163	M=12.7	antisocial behaviour					
Schneider, 1996*	63	10th grade	relationships with peers					

Benson, 1992*	284	18-22	identity consequences					
DiFilippo Overholser, 2000	59	13-17	suicidal ideation	mother, father & peer	25 items for each relationship	total for each relationship	.95, .93, .95	Cites original & a range of other papers using the IPPA; clinical samples, many outcome variables Cites original
Leas & Mellor, 2000	108	17-23	delinquency	parents	28 item scale	total	Cites original	
Larose &Boivin 1997*	470	15-20	support expectations, personal adjustment					

 Adult Attachment Prototypes (Hazan & Shaver)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Gjerde, 1998	87	23	dysphoric adolescents					
Wekerle, 1998	321	14-20	child maltreatment, relational violence	general	Nil	original	not stated	not stated
Sprecher, 1998	1000	18-21	parental divorce	general	Nil	forced choice	not stated	not stated
Cooper, 1998	1989	13-19	emotional regulation, adjustment	romantic partners	asked in reference to romantic partnerships or if not experienced, what would be expected in a romantic relationship	Likert scale rating	not stated	cites Shaver & others
Sharpe, 1996	305	M=11.9	weight concerns in females	general	modified wording for younger sample	original	not stated	not stated
Collins, 2002	224	13-19	psychosocial vulnerability	romantic partners	asked in reference to romantic partnerships or if not experienced, what would be expected in a romantic relationship	Likert scale rating & global endorsement	not stated	correlations among styles; cites Mikulincer
Miller, 2002	539	M=17.6	internal working models of friendships	friendships	modified for friendship	forced choice; collapsed to secure or insecure	not stated	not stated
Muris, 2004	441	12-16	anger, hostility	peers	reworded for younger sample; same age peers	forced choice	not stated	cites original & others

Grandqvist, 2002*	196	15-20	religiosity						
Grandqvist, 2003	196	14-19	religious change	mother & father	13 items drawn from original for each parent	one factor found - global insecurity of attachment to mother/father	not stated	cites original & others	
Calamari, 2003	162	16-24	dissociative experiences	general	Nil	7 point Likert rating; general endorsement	not stated	not stated	
Austin, 2006	69	18-19	anxiety sensitivity, interpretive bias	general	reworded items for Australian sample	3 styles	cites original	cites original	
Mayseless, 2007	88	17-18	intimacy	general	15 items based on H&S; 3 styles; hebrew version; cites Mikulincer & Nachshon, 1991	3 styles	.61, .66, .62	cites own author's previous study linking to spouse's reports, mother's attachment style & cites Shaver & Mikulincer 2002	
Mayseless, 1993	58	9th grade	gifted adolescents, same-sex friends	general	Nil	original	not stated	cites original & others	
McCormick, 1994	218	M=18.46	self esteem, internal working models	parent		global score	kappa .91	cites original	
Lieberman, 1999	541	9-11	security of parental attachment	mother & father	15 items for each relationship	mother & father score	not stated	cites original	
Kerns, 2000	176	9-12	attachment in middle childhood	mother & father	Nil	mother & father score	.64 to .88	cites original & others	
Williams, 2005	116	grades 6-11	parental involvement, behaviour problems	mother & father	Nil	averaged for mother & father	cites original	cites original	
Kerns, 1996	76	5th grade	mother child security	parental	Nil	total	.88	not correlated with parent education; higher scores for intact families	

Network of Relationships Inventory (Furman & Buhrmester)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Karavasilis, 2003	414	10-15	parenting style	mother & father	33 items	composite score for mother from seven subscales	.89, .91	cites original
Levendosky, 2002	111	14-16	mental health functioning, domestic violence	best friend & romantic partner	33 items	PCA conducted; only one subscale, satisfaction, was reliable, only this scale used	.95, .92	not stated
Rubin, 2004	162	M=10.33; SD=.52	friendship, psychosocial functioning	mother & father	support subscale	total for mother & father	not stated	correlations with Kerns SS
Smetana, 2004	76	M=18.43	relationship with parents	mother & father	trust & communication subscales (18 items)	mean ratings for subscales combined, total for mother & father	not stated	not stated
Kostelecky, 2005	133	16-19	academic achievement, drug & alcohol use	maternal, paternal & parental	Nil	global score	cites original	cites original
Creasey, 1991	142	M=19.3	relationships with gr&parents	grandparent (4 separately)	33 items	10 subscales	cites original	not stated
Kerns, 1996	76	5th grade	mother child security	peers	9 items on 3 subscales	dyadic scores by summing scores for each friend pair	.74, .85, .85	not stated
Kerns, 1996	112	17-25	social relationships, personality	peers	9 items on 3 subscales	dyadic scores by summing scores for each friend pair	over .80 for all scales	not stated

Parental Attachment Questionnaire (Kenny)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Kenny, 1998	253	yrs 8-9	psychological wellbeing	mother & father	Nil	subscale totals for parent & peer total	.72 to .93	cites original & others
Mothersead, 1998	152	median=19	family dysfunction, parental alcoholism	parental	Nil		cites original	cites original
Vivona, 2000	159	18-23	parental attachment styles & attachment qualities	parental	Nil	3 subscales	cites original & others	cites original
Orzolek-Kronner, 2002	108	M=16.5	eating disorders	mother & father	55 items	subscales	.88 to .92	cites original & others
Kenny, 2002	172	yrs 10 & 12	maternal & paternal attachment	mother & father	2 subscales: Affective Quality of Relationships & Parental fostering of Autonomy	total for each scale	.78 to .93	cites original & others
Orzolek-Kronner, 2002	64	12-20	eating disorders	parents	55 items	3 subscales	.88 to .92	cites original author
Kenny, 2005	285	15-24	self image	mother & father	uses two subscales, affective quality of attachment & parental fostering autonomy	mother & father score	.94 maternal .85 paternal	cites scale author & others
McCurdy, 1996	90	18-24	family structure, separation-individuation	mother & father	55 items	subscale totals	reports original	cites Moos & Moos, 1986

Parental Bonding Instrument (Parker)								
<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
McGarvey, 1999	296	adolescents	incarcerated adolescents, suicidality	mother & father	25 items	subscale totals	cites original	cites original & others
Boles,	150	18-22	individuation, adjustment	mother & father	Nil	original	cites original & others	cites original & others
Thompson, 1999	54	12-15	self-criticism	maternal	modified for maternal	only care subscale reported (as a measure of maternal warmth)	.80	not stated
Bonne, 1999	850	yrs 10-12	childhood imagination	mother & father	Nil	original, two subscales for each parent	.75 to .83	not stated
Feldman, 1998	200	15-17	abilities-achievement gap	mother & father	Nil	original	not stated	cites original & others
Bachar, 1998	871	M-16.71	transitional object attachment	mother & father	Nil	original, two subscales for each parent	.75 to .83	cites original
Fergusson, 1998	1265	8 & 18	conduct problems	mother & father	Nil	maternal & paternal subscale totals	.85 to .91	cites original
Woodward, 2000	1265	15-16	separation & attachment to parents in adolescence	mother & father	Nil	subscales reported	.85 to .91	cites original
Milne, 2001	59	14-16	prediction of depression	maternal	shortened to five care & five protection items	total for each subscale	not stated	cites ability to discriminate between control, anxious/depressed, & delinquency
Judy, 2000	174	14-18	theft, morality, attachment	mother & father	Nil	original	cites original	cites original & others

Barrett, 2001	161	17-20	cognitive interpretations, response bias	mother & father	Nil	original	cites original & others	cites original & others
Overbeek, 2003	568	15-19	romantic relationships, emotional disturbance	mother & father	20 item short form for each parent	care & overprotection subscales for each parent	.71 to .89	cites original author
Hagerty, 2002	362	18-72	sense of belonging	mother & father	25 items for each relationship	care & overprotection subscales for each parent	split half reliability .88 caring .74 overprotection	cites original & others
Violato, 2004	52	M=15	adolescent suicide	parents	25 items	care & overprotection subscales	cites original	cites original
S&erson, 2005	20	16-21	behaviour problems	parents	Nil	2 subscales	not stated	cites research on delinquency & PBI
Gullone, 2005	281	9-15	measuring attachment	parents	one item removed following ethics because of younger sample used	scored as original	cites original	cites original
Turner, 2004	367	17-18	eating disorders	maternal & paternal	original	2 subscales for each parent	not stated	not stated
Judy, 2000	174	14-18	morality, theft	mother & father	25 items for each parent	median split for quality of attachment to mother & father	cites original	cites original & Heiss et al. 1996
Russell, 1992	54	12-19	anorexia nervosa	mother & father	Nil	2 subscales	not stated	compares clinical & normal population

Rhodes, 1992	20	18-22	eating disorders, bonding	parents	Nil	2 subscales	test retest & split half Pearson correlations p<0.001 for both scales	criterion validity through correlating subscales & clinician ratings derived from interviews with 65 tertiary students
Rice, 1996	140	M=21	well-being, perceptions	mother & father	administered for each parent	2 subscales	cites original	cites original
Overbeek, 2005	568	15-19	juvenile delinquency					

Relationships Questionnaire (Bartholomew & Horowitz)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Herzberg, 1999	129	16-19	social support	general	Nil	Likert scale rating	test retest over 12 months ranged from .44 to .68 (all <0.001)	not stated
Priel, 1998	184	yr 10-12	closeness, support	general	Nil	Likert scale rating	not stated	not stated
Greenberger, 1998	157	18-22	coping, explanatory style	non-parental others	Nil	original	not stated	not stated
Maio, 2000	44	12-14	attitudinal ambivalence to parents	general	Nil	Likert scale rating; overall endorsement	not stated	cites original & others
Lapsley, 2000	209	undergrads	pathological attachment	general	Nil	Likert scale rating; overall endorsement	not stated	cites original & others
Scharfe, 2001	203	17-39	health behaviours	general	Nil	7 point Likert rating	not stated	not stated
Karavasilis, 2003	414	10-15	parenting style	general	Nil	global & Likert scale rating	not stated	cites original & others
Zhang, 2004	370	15-87	stability of attachment	general	original; revised at T2 & T3 to items within paragraphs	global score & 5 point Likert rating	.47 to .83	proportions of styles endorsed in sample; cites Collins & Read, Simpson
Ducharme, 2002	105	15-16	attachment to parents, interpersonal behaviour	mother & father	reworded for mother & father	overall rating & 7 point Likert rating	not stated	cites original & others

Weimer, 2004	88	15-18	interactions with best friend	general	Nil	global endorsement	not stated	cites correspondence between friend's ratings; original & others
Doyle, 2003	244	13-14	family relationships, adjustment	mother & father	reworded for mother & father	global endorsement	not stated	cites original & others; pers comm with Bartholomew
Margolese, 2005	134	16-19	depression	mother, father, best friend, romantic partner	completed 4 times for each target relationship; counter-balanced	ratings combined to form dimensions of self & other	cites Scharfe & Bartholomew test retest over 8 months	
Doyle, 2005	175	13-15	maternal conflict, adjustment	mother & father	reworded for mother & father	four ratings combined to yield dimensions of attachment anxiety & avoidance for each parent (anxiety sum preoccupied & fearful & minus secure & dismissing; avoidant sum dismissing & fearful & minus secure & preoccupied; mother & father highly correlated (.31 & .35) so combined	not stated	not stated

Engle, 2005	142	11-15	idolization of male celebrities	peers	used Maio et al.'s 2000 adaptation with Likert scale; reworded for same age peers of both sexes	four styles	not stated	not stated
Steinberg, 2006	96	M=13.24	marital expectations, romantic experiences	mother & father	Likert scale rating; mother & father separately	summed scores to rate model of self & other	cites original	cites original & Davila et al., 2004 in younger sample
Feeney, 2000	263	college	sexual attitudes	general	Nil	global endorsement	not stated	not stated
Markiewicz, 2006	682	12-28	attachment networks, developmental differences	mother	reworded for mother	style	cites original	cites original & others

Relationship Scales Questionnaire (Bartholomew & Horowitz)

<i>Citation</i>	<i>N</i>	<i>Range</i>	<i>Key Variables</i>	<i>Relationship</i>	<i>Modifications</i>	<i>Scoring</i>	<i>Reliability</i>	<i>Validity</i>
Creasey, 1999	140	18-22	conflict management	general	30 items	two dimensions, tendency to avoid relationships & general sense of ambivalence about relationships	.84 to .83	factor analysis
Creasey, 2001	357	M=20.37	affective responses, cognitive appraisals	romantic partners	factor analysis to determine factors	secure avoidant & secure anxious	not stated	cites original
Feeney, 2000	263	college	sexual attitudes	general	30 items	two dimensions, discomfort & anxiety	.84, .86	factor analysis; cites original
Scharfe, 2001	203	17-39	health behaviours	general	38 items	4 styles	.45 to .77	cites original & others
Sirvanli-Ozen, 2004	170	M=20.78	effects of marital conflict	general	Turkish version; 18 items	4 styles	not stated	not stated
Ozen, 2003	106	M=21.03	parental divorce	general	Turkish version; 18 items	4 styles	not stated	not stated

Note. * unable to retrieve full text article

APPENDIX 6A

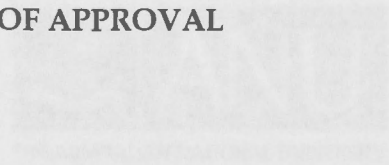
COMPOSITE QUESTIONNAIRES

Data Collection A	Demographic Items DAAS General ¹ DAAS Maternal DAAS Paternal DAAS Best Friend Child Social Desirability Scale Rosenberg Self Esteem Scale Adolescent
Data Collection B Adolescent	Demographic Items DAAS General DAAS Maternal DAAS Paternal DAAS Best Friend School Attitudes Scale Kessler-10 Attachment Networks and Functions Questionnaire Bulls-Eye Strengths and Difficulties Questionnaire
Data Collection B Parent	Demographic Items DAAS General (reworded for parent completion) Strengths and Difficulties Questionnaire Kessler-10 Relationships Questionnaire

¹ The four DAAS Sections were counterbalanced in both questionnaires.

APPENDIX 6B

ETHICS COMMITTEE LETTERS OF APPROVAL



Jessie Wilson
School of Psychology, Victoria
University of Wellington
P.O. Box 600
Wellington 6140, New Zealand

Telephone: +61 2 122 7122
Facsimile: +61 2 122 7122
Email: j.wilson@vuw.ac.nz

1999-2000

2000-2001

2001-2002

Dear Sir,

I am writing to you regarding the approval of your research project as part of my research program. I am pleased to hear that you have been granted approval by the ethics committee. This is a significant step in the process of conducting your research and I am confident that you will find the results of your study to be of great value to the field of psychology.

The ethics committee has reviewed your proposal and has approved it on the condition that you adhere to the ethical standards outlined in the research protocol. It is your responsibility to ensure that all participants in your study are treated with respect and that their privacy is protected. I encourage you to contact me if you have any questions or need further guidance.

I am sure that your research will contribute significantly to the understanding of human behavior and that you will find the experience of conducting your study to be a rewarding one. I look forward to hearing about the progress of your research and to seeing the results of your study. Please do not hesitate to contact me if you need any assistance or have any questions.

I will be available to you for any questions you may have regarding the approval of your research project. I am confident that you will find the results of your study to be of great value to the field of psychology. I look forward to hearing about the progress of your research and to seeing the results of your study. Please do not hesitate to contact me if you need any assistance or have any questions.

Yours sincerely,

Jessie Wilson

APPENDIX 6C



Jessica Wilson
School of Psychology, Building 39
ANU College of Science
jessica.wilson@anu.edu.au
Canberra ACT 0200 Australia

Telephone: +61 2 6125 3972
Facsimile: +61 2 6125 0499
Email:

***** 2008

PRINCIPAL
SCHOOL ADDRESS

Dear *****,

I am writing to provide you with information about a study that I am conducting as part of my Postgraduate Degree in Psychology. I would like to invite students from ***** to participate in this study. The research project has been approved by the ANU Human Research Ethics Committee and the Department of Education.

The research project is examining relationships of adolescents with parents and peers and how this might impact on their health, development and attitudes. As adolescence sees many changes in an individual's life, it is important to increase our understanding of the particular processes that may help adolescent's navigate this developmental period. I would be happy to provide the school with a report of the outcomes of the study.

Involvement in the project would constitute students at your school (with parental consent) completing a questionnaire that will take approximately 45 minutes. I will make it clear to both parents and students that participation is completely voluntary, and that answers are anonymous and confidential. It is envisioned that this be completed in normal class time. In order to maximise convenience to your school and the classes, it was hoped that the research could be conducted in suitable classes, for instance, psychology, social sciences, or another class suggested by yourself, which would provide a relevant learning experience for the students that wish to participate.

I will seek to contact you in the next three weeks to speak with you further about the possibility of having your students participate in the study. In the meantime, should you wish to gain further information, or if you have any concerns, please do not hesitate to contact my supervisor, Dr Ross Wilkinson on 6125 2814 or call the ANU School of Psychology on 6125 2795.

Yours sincerely,

Jessica Wilson

APPENDIX 6D



School of Psychology
 The Australian National University
 Building 39
 ACT 0200

Youth and Relationships Study PARENT INFORMATION SHEET

Your son/daughter has been invited to complete a questionnaire for a research study examining the quality and importance of different kinds of relationships in adolescence. The questionnaire will take about 45 minutes to fill in and it will be completed during normal class time. The questionnaire has a number of different questions which will ask your son or daughter about a variety of different aspects of their lives. It is important that we ask about a wide range of things because we know that many factors can influence relationships and how teenagers feel about themselves. We will be asking about relationships with family members, relationships with peers and friends, and also about relationships with boy or girl friends. We will also be asking about how your son or daughter feels about these relationships as well as how they feel about themselves.

It is important for you to know that the answers given by your child will be completely anonymous and there will be no way to identify your child's questionnaire. The researchers will not be able to connect a questionnaire with the individual who completed it. Further, this research is being conducted independently of your child's school/college and they will not have access to the questionnaires although they will be supplied with a report on the outcome of the study.

Participation in this study is completely voluntary and your daughter or son will be advised that they do not have to participate if they decide they don't want to or they may stop participating in the study at any time they wish.

This research is important because it will help us to learn what the major concerns of young people are from their own perspective and how these concerns affect their relationships. How young people cope with the pressures of modern life to maintain the balance between education, relationships, recreation, and health is a major question for those concerned with adolescent well-being. The kind of information that will come out of this research is very important in deciding the kinds of support that young people and their families would find helpful. Also, your daughter or son is likely to find completing the questionnaire educational in itself as it allows them to think about their relationships and themselves in a way that they may not have thought about before. Because this research is being conducted in class time, we will also be providing information and feedback to classes regarding the purpose and results of the research.

If you have any questions about the questionnaire or research study you may contact Ms Jessica Wilson (02) 6125 3972 or Dr Ross Wilkinson on (02) 6125 2814 or call the ANU School of Psychology on 02 6125 2795. We will be happy to respond to your queries. If you have any concerns about the way this researcher project is conducted you may contact the Human Research Ethics Officer, ANU on (02) 6125 7945 (Human.Ethics.Officer @anu.edu.au)

APPENDIX 6E



School of Psychology
The Australian
National University
Building 39
ACT 0200

Youth and Relationships Study

PARENT CONSENT FOR PARTICIPATION

Your son/daughter has been invited to complete a questionnaire for a research study and will need your consent to participate. The questionnaire will take about 45 minutes to fill in and it will be completed during normal class time. The questionnaire has a number of different questions which will ask your son or daughter about a variety of different aspects of their lives (e.g. school, family, friends, what they like to do, what they think about various things). **The answers given by your child will be completely anonymous and there will be no way to identify your child's questionnaire.**

This research will help us to learn what the major concerns of young people are from their own perspective and how these concerns affect their health and school attitudes. This kind of information is very important in deciding the kinds of support that young people and their families would find helpful.

If you have any questions about the questionnaire or research study you may contact Ms Jessica Wilson (02) 6125 3972 or Dr Ross Wilkinson on (02) 6125 2814 or call the ANU School of Psychology on 02 6125 2795. We will be happy to respond to your queries. If you have any questions about ethical issues associated with this project you may contact the Human Research Ethics Officer, ANU on (02) 6125 7945 (Human.Ethics.Officer@anu.edu.au)

PARTICIPATION IN THIS STUDY IS COMPLETELY VOLUNTARY AND YOUR DAUGHTER OR SON WILL BE ADVISED THAT THEY DO NOT HAVE TO PARTICIPATE OR MAY STOP PARTICIPATING IN THE STUDY AT ANY TIME THEY WISH.

If you give permission for your son or daughter to participate then please complete the form below and return it to the school/college.

-----X-----X-----X-----X-----X-----

Youth and Relationships Study - Parental Consent Form

I, (please print your name) _____

consent for my son/daughter
(name) _____
to being a participant in the Youth and Relationships study.

Your signature

_____/_____/2008.
Date

APPENDIX 6F



Youth and Relationships Study – Information Sheet

This questionnaire booklet contains questions asking about the way you feel about yourself, your friends, your school, your family, etc. Before you begin to answer these questions there are a number of things you should know:

- This study is **completely anonymous**. Please try to be as honest as possible with your answers. Your answers will be put together with the answers of everyone else and summarised. **There will be no way to identify your questionnaire from all the others.**
- Allow yourself plenty of time to complete the questionnaire. It should take around 45 minutes complete.
- Every question in this booklet is different. Although some may look alike, it is important to carefully read the instructions and answer each one.
- Please give your own answers and do not discuss your answers with others also completing the questionnaire. There are no right or wrong answers.
- Do not spend too much time on any one statement but give the answer which seems to best describe your feeling or emotions.

Remember, participation in this study is completely voluntary and you are free to stop completing the questionnaire at any time.

If, after completing the questionnaire, you find yourself upset about some of the things the questions asked you about then you might like to talk about with someone. You can talk about these things with your school counsellor or you can call Lifeline (Phone 131114) anytime.

If you have any specific questions or concerns about the questionnaire you have completed or about the research study then you are welcome to contact the researchers -

Ms Jessica Wilson &

Dr Ross Wilkinson

School of Psychology, Building 39

The Australian National University

ACT 0200

Email: Jessica.Wilson@anu.edu.au or Ross.Wilkinson@anu.edu.au Phone: 02 6125 2795.

If you have any concerns about the way this researcher project was conducted, the please direct enquires to:

Secretary (Human Ethics Officer)

Human Research Ethics Committee

Building 10B

The Australian National University

ACT 0200

Email: Human.Ethics.Officer@anu.edu.au Phone: 02 6125 7945

APPENDIX 6H

18.03.2009



Jessica Wilson
School of Psychology, Building 39
ANU College of Science
Canberra ACT 0200 Australia

Telephone: +61 2 6125 3972
Facsimile: +61 2 6125 0499
Email: jessica.wilson@anu.edu.au

PRINCIPAL NAME
SCHOOL ADDRESS

Dear PRINCIPAL,

I am writing to provide you with information about a study that I am conducting as part of my Postgraduate Degree in Psychology. I would like to invite students from SCHOOL NAME to participate in this study. The research project has been approved by the ANU Human Research Ethics Committee and the Catholic Education Office.

The research project is examining relationships of adolescents with parents and peers and how this might impact on their health, development and attitudes. As adolescence sees many changes in an individual's life, it is important to increase our understanding of the particular processes that may help adolescent's navigate this developmental period. I would be happy to provide the school with a report of the outcomes of the study.

Involvement in the project would constitute students at your school (with parental consent) completing a questionnaire that will take approximately 45 minutes. A short questionnaire will also be sent home for parents to complete. I will make it clear to both parents and students that participation is completely voluntary, and that answers are anonymous and confidential. It is envisioned that this be completed in normal class time. In order to maximise convenience to your school and the classes, it was hoped that the research could be conducted in suitable classes, for instance, psychology, social sciences, or another class suggested by yourself, which would provide a relevant learning experience for the students that wish to participate.

I will seek to contact you in the next three weeks to speak with you further about the possibility of having your students participate in the study. In the meantime, should you wish to gain further information, or if you have any concerns, please do not hesitate to contact my supervisor, Dr Ross Wilkinson on 6125 2814 or call the ANU School of Psychology on 6125 2795.

Yours sincerely,
Jessica Wilson

APPENDIX 6I



School of Psychology
The Australian
National University
Building 39
ACT 0200

Youth and Relationships Study

PARENT CONSENT FOR PARTICIPATION

You and your son/daughter have been invited to complete a questionnaire for a research study and will need your consent to participate. The questionnaire will take about 45 minutes for your son/daughter to fill in and it will be completed during normal class time. The questionnaire has a number of different questions which will ask your son or daughter about a variety of different aspects of their lives (e.g. school, family, friends, what they like to do, what they think about various things). The parent questionnaire will take 20-30 minute to fill in at a time that suits you.

This research will help us to learn what the major concerns of young people are from their own perspective and how these concerns affect their health and school attitudes. This kind of information is very important in deciding the kinds of support that young people and their families would find helpful.

The answers given by you and your child will be completely anonymous. Completed questionnaires will be returned to the University in sealed envelopes and names will be removed from the questionnaires by the researcher. The school will NOT have access to your data.

If you have any questions about the questionnaire or research study you may contact Ms Jessica Wilson (02) 6125 3972 or Dr Ross Wilkinson on (02) 6125 2814 or call the ANU School of Psychology on 02 6125 2795. We will be happy to respond to your queries. If you have any questions about ethical issues associated with this project you may contact the Human Research Ethics Officer, ANU on (02) 6125 7945 (Human.Ethics.Officer@anu.edu.au)

PARTICIPATION IN THIS STUDY IS COMPLETELY VOLUNTARY AND YOUR DAUGHTER OR SON WILL BE ADVISED THAT THEY DO NOT HAVE TO PARTICIPATE OR MAY STOP PARTICIPATING IN THE STUDY AT ANY TIME THEY WISH.

If you give permission for your son or daughter to participate then please complete the form below and return it to the school.

----- ✂ ----- ✂ ----- ✂ ----- ✂ ----- ✂ -----
Youth and Relationships Study - Parental Consent Form

I, (please print your name) _____

consent for my son/daughter (name) _____

to being a participant in the Youth and Relationships study.

_____ / ____ / 2008.

Your signature

Date

(Your questionnaire will be matched up with your child's. This page will be removed and stored separately to your questionnaire and your information will be stored anonymously)

APPENDIX 6J



Youth and Relationships Study – Information Sheet

This questionnaire booklet contains questions asking about the way you feel about yourself, your friends, your school, your family, etc. Your parents have been asked to complete a short questionnaire about how they see you and your relationships. Before you begin to answer these questions there are a number of things you should know:

- This study is **completely anonymous**. Please try to be as honest as possible with your answers. Your answers will be put together with the answers of everyone else and summarised. **There will be no way to identify your questionnaire from all the others. Your name will be used to match your questionnaire with your parent's and the researcher will be the only one who sees your questionnaire.**
- Allow yourself plenty of time to complete the questionnaire. It should take around 45 minutes complete.
- Every question in this booklet is different. Although some may look alike, it is important to carefully read the instructions and answer each one.
- Please give your own answers and do not discuss your answers with others also completing the questionnaire. There are no right or wrong answers.
- Do not spend too much time on any one statement but give the answer which seems to best describe your feeling or emotions.

Remember, participation in this study is completely voluntary and you are free to stop completing the questionnaire at any time.

If, after completing the questionnaire, you find yourself upset about some of the things the questions asked you about then you might like to talk about with someone. You can talk about these things with your school counsellor or you can call Lifeline (Phone 131114) anytime.

If you have any specific questions or concerns about the questionnaire you have completed or about the research study then you are welcome to contact the researchers -

Ms Jessica Wilson &

Dr Ross Wilkinson

School of Psychology, Building 39

The Australian National University ACT 0200

Email: Jessica.Wilson@anu.edu.au or Ross.Wilkinson@anu.edu.au Phone: 02 6125 2795.

If you have any concerns about the way this researcher project was conducted, the please direct enquires to:

Secretary (Human Ethics Officer)

Human Research Ethics Committee

Building 10B

The Australian National University

ACT 0200

Email: Human.Ethics.Officer@anu.edu.au Phone: 02 6125 7945

APPENDIX 6K

DEMOGRAPHIC INFORMATION

1. Are you male or female? Male Female (please circle)
2. What is your date of birth? Month / Year /
3. How old are you? years old
4. Which country were you born in?
5. What language do you speak at home?
6. Are you an Aboriginal or Torres Strait Islander? Yes No (please circle)

APPENDIX 6L

DAAS STUDY ONE VERSION

The next section is about how you see yourself and your relationships with other important people in your life (your family, relatives, friends). When you think about your close relationships in general, how true are the following statements for you?

For each statement, put a ✓ in one box only.

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
1. I like to keep to myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Being close to someone makes me feel confident about doing other things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I find it hard to depend on others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I worry that I will be hurt if I get too close to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. When people close to me are away, I feel better just thinking about our relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I will do anything to stop others from leaving me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Being with people I am close to when I am upset makes me more confused	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I worry about people getting too close	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. When I'm close to someone it makes me feel better about life in general	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Even though I know others will hurt my feelings I keep going back to them for help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I worry about having people not accept me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. When I talk over my problems with others, I feel silly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I am comfortable having other people depend on me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
14. I worry about being alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. When I am sick, I am comfortable depending on another person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I am confident that others will really understand my feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I often feel left out or alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. When I am hurting, talking to another person makes me feel better	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I am easier to get to know than most people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Sometimes I have to make people I am close to show that I'm special to them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I want to feel close to others but I also feel worried about it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I am not sure that I can always depend on others to be there for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. People let me down a lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I am too busy with other things to put much time into relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I find it difficult to trust others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. I worry a lot about my relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. People close to me often annoy me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I am very comfortable being close to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Other people often disappoint me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I can get along just fine without other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
31. Other people can comfort me when I am upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. I choose not to depend on people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. It's very important to me to have a close relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. I don't give others the chance to let me down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. I don't need others, I take care of myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. I don't worry about being abandoned	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. I feel good knowing that other people care about me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. I feel like no one understands me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. I feel safe when I am with people I'm close to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. I feel sure other people will be there for me when I need them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. I find it hard to count on others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. I find it hard to tell others private things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. I get worried when people close to me are away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. I like it when others get emotionally close to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. I look forward to spending time on my own	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. I often want to get closer to others than they want to get to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. I rely on others to help me make decisions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. I like to keep distance between myself and others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Here are some things that young people have said about their mother. When you think about your mother, how true are they for you?

For each statement please circle the number that best describes you

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
1. I don't feel comfortable opening up to my mother	1	2	3	4	5
2. My mother treats me like a young child	1	2	3	4	5
3. When my mother gets upset with me, I feel really bad about myself	1	2	3	4	5
4. Sometimes my mother changes her feelings about me and I can't tell why	1	2	3	4	5
5. I don't mind asking my mother for comfort or help	1	2	3	4	5
6. My mother accepts me as I am	1	2	3	4	5
7. When I go to my mother for help I still feel confused	1	2	3	4	5
8. I don't like it when my mother spends time away from me	1	2	3	4	5
9. My mother can tell when I'm upset about something	1	2	3	4	5
10. When I go to my mother for help I feel like I will be able to handle problems myself	1	2	3	4	5
11. My mother cares about me	1	2	3	4	5
12. I feel comfortable depending on my mother	1	2	3	4	5
13. My mother encourages me to talk about my problems	1	2	3	4	5
14. I find it hard to let myself depend on my mother	1	2	3	4	5
15. My mother has her own problems, so I don't bother her with mine	1	2	3	4	5
16. I find it hard to trust my mother	1	2	3	4	5
17. My mother helps me to understand myself better	1	2	3	4	5
18. I get annoyed if my mother is not around when I need her	1	2	3	4	5
19. I get upset a lot more than my mother knows about	1	2	3	4	5

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
20. I need a lot of reminding that I am loved by my mother	1	2	3	4	5
21. I often feel angry with my mother and I don't know why	1	2	3	4	5
22. My mother is never there when I need her	1	2	3	4	5
23. I often worry that my mother doesn't really love me	1	2	3	4	5
24. I talk things over with my mother	1	2	3	4	5
25. My mother is around to give me advice or help when I want it	1	2	3	4	5
26. I talk to my mother when I am having a problem	1	2	3	4	5
27. My mother has no idea what I am feeling or thinking	1	2	3	4	5
28. I tell my mother just about everything	1	2	3	4	5
29. My mother pays attention to me	1	2	3	4	5
30. I trust my mother	1	2	3	4	5
31. My mother really understands me and my needs	1	2	3	4	5
32. I try to stop getting too close to my mother	1	2	3	4	5
33. My mother has trust and confidence in me	1	2	3	4	5
34. I usually discuss my problems and worries with my mother	1	2	3	4	5
35. I want to get close to my mother, but I keep pulling back	1	2	3	4	5
36. I wish I had a different mother	1	2	3	4	5
37. My mother only seems to notice me when I'm angry	1	2	3	4	5
38. I'm sure that my mother will listen to me	1	2	3	4	5

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
39. I'm sure that my mother will try to understand my feelings	1	2	3	4	5
40. My mother is sensitive to my feelings and needs	1	2	3	4	5
41. If my mother doesn't show interest in me, I get upset or angry	1	2	3	4	5
42. It helps to turn to my mother in times of need	1	2	3	4	5
43. My mother protects me from danger and trouble	1	2	3	4	5
44. It makes me feel good to be able to do things for my mother	1	2	3	4	5
45. It's not hard for me to get close to my mother	1	2	3	4	5
46. Just when my mother starts to get close I find myself pulling away	1	2	3	4	5
47. My mother makes me doubt myself	1	2	3	4	5
48. I don't show my mother how I feel deep down	1	2	3	4	5

7. When you answered the questions above who were you thinking about?


Put a ✓ in one box

Biological Mother

Step- mother

Foster mother

Other



.....


8. Do you live with your biological mother?

Yes

No
(see below)

(please circle)

If you do not live with your biological mother please say why



.....


.....

.....


9. What job does your mother/step-mother do?

If your mother/step-mother does not have a job, write 'Not employed'.

If you do not have a mother or a step-mother, write 'Does not apply'.

 **Her job is:**

(eg, Driver)

 **The type of work she does is :**

(eg, Drives an ambulance)



The following questions are about your best friend. Think of someone you feel closest to above all others. This person should be close to your own age. They could be a school friend, a mate, a boyfriend, a girlfriend, a sibling or someone from one of your classes, sports teams, or even just someone you hang around with sometimes. Please indicate how much the following statements are like you while keeping your best friend in mind.

For each statement, put a ✓ in one box only.

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
1. When I have had a bad day my best friend cheers me up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. My best friend listens to what I have to say	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I am not sure I can always depend on my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Without this best friendship, it would be very hard to cope when things are hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I am sure my best friendship will last	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. When best friends pick on me, I feel really bad about myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I avoid discussing personal things with my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. My best friend really understands me and my needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I can count on my best friend to help me when I have a problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I don't turn to my best friend for support when things are hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. My best friend pays attention to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
12. My best friend understands me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I get angry with my best friend when they does not understand me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I can talk things through with my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. My best friend cares about me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I can trust my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. My best friend makes me doubt myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I choose not to show my best friend how I feel deep down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I don't mind asking best friends for advice or help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. I don't need to rely on my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I don't like it when my best friend spends time away from me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I feel close to my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. I feel comfortable depending on my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I get angry at my best friend when I can't get in contact with them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I get annoyed when my best friend is not around as much as I would like	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. My best friend doesn't want to get as close as I want them to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. I get upset a lot more than my best friend knows about	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I know I can rely on my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Sometimes best friends change their feelings about me and I can't tell why	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I know my best friend does like me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
31. I like spending time with my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. I like the closeness I share with my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. I need a lot of reminding that I am liked by my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. I often worry that my best friend doesn't really like me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. I seek out my best friend when things go wrong	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. I think it would be hard to replace my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. I try to stop getting too close to my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. My best friend only seems to notice me when I'm angry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. I turn to my best friend for many things, including comfort and support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. I want to get close to my best friend but I keep pulling back	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. I wish I had a different best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. I would like my best friend to be more understanding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. If my best friend knows something is wrong with me, they ask me about it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. I'm worried that once my best friend gets to know me they won't like who I really am	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. It helps to turn to my best friend in times of need	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. It's easy for me to be close with my best friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Just when my best friend starts to get close to me I find myself pulling away	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. My best friend has no idea what I am feeling or thinking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1. How do you know the best friend you were thinking of when you answered the previous questions (above)?

Put a ✓ in one box only

School	<input type="checkbox"/>	Brother or sister	<input type="checkbox"/>
Sports Group	<input type="checkbox"/>	Boyfriend/Girlfriend	<input type="checkbox"/>
Neighbour	<input type="checkbox"/>	Other	

2. Are you romantically involved with your best friend? *Put a ✓ in one box only*


Yes No

3. What sex is your best friend? *Put a ✓ in one box only*

Female Male

4. How old is your best friend?

Write it in the space below.

 years old

Here are some things that young people have said about their father. When you think about your father, how true are they for you?

For each statement please circle the number that best describes you

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
1. I don't feel comfortable opening up to my father	1	2	3	4	5
2. My father treats me like a young child	1	2	3	4	5
3. When my father gets upset with me, I feel really bad about myself	1	2	3	4	5
4. Sometimes my father changes his feelings about me and I can't tell why	1	2	3	4	5
5. I don't mind asking my father for comfort or help	1	2	3	4	5
6. My father accepts me as I am	1	2	3	4	5
7. When I go to my father for help I still feel confused	1	2	3	4	5
8. I don't like it when my father spends time away from me	1	2	3	4	5

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
9. My father can tell when I'm upset about something	1	2	3	4	5
10. When I go to my father for help I feel like I will be able to handle the problems myself	1	2	3	4	5
11. I don't show my father how I feel deep down	1	2	3	4	5
12. My father cares about me	1	2	3	4	5
13. I feel comfortable depending on my father	1	2	3	4	5
14. My father encourages me to talk about my problems	1	2	3	4	5
15. I find it hard to let myself depend on my father	1	2	3	4	5
16. My father has his own problems, so I don't bother him with mine	1	2	3	4	5
17. I find it hard to trust my father	1	2	3	4	5
18. My father helps me to understand myself better	1	2	3	4	5
19. I get annoyed if my father is not around when I need him	1	2	3	4	5
20. I get upset a lot more than my father knows about	1	2	3	4	5
21. I need a lot of reminding that I am loved by my father	1	2	3	4	5
22. I often feel angry with my father and I don't know why	1	2	3	4	5
23. My father is never there when I need him	1	2	3	4	5
24. I often worry that my father doesn't really love me	1	2	3	4	5
25. I talk things over with my father	1	2	3	4	5
26. My father is around to give me advice or help when I want it	1	2	3	4	5

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
27. I talk to my father when I am having a problem	1	2	3	4	5
28. My father has no idea what I am feeling or thinking	1	2	3	4	5
29. I tell my father just about everything	1	2	3	4	5
30. My father pays attention to me	1	2	3	4	5
31. I trust my father	1	2	3	4	5
32. My father really understands me and my needs	1	2	3	4	5
33. I try to stop getting too close to my father	1	2	3	4	5
34. My father has trust and confidence in me	1	2	3	4	5
35. I usually discuss my problems and worries with my father	1	2	3	4	5
36. I want to get close to my father, but I keep pulling back	1	2	3	4	5
37. I wish I had a different father	1	2	3	4	5
38. My father only seems to notice me when I'm angry	1	2	3	4	5
39. I'm sure that my father will listen to me	1	2	3	4	5
40. I'm sure that my father will try to understand my feelings	1	2	3	4	5
41. My father is sensitive to my feelings and needs	1	2	3	4	5
42. If my father doesn't show interest in me, I get upset or angry	1	2	3	4	5
43. It helps to turn to my father in times of need	1	2	3	4	5
44. My father protects me from danger and trouble	1	2	3	4	5
45. It makes me feel good to be able to do things for my father	1	2	3	4	5

APPENDIX III

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
46. It's not hard for me to get close to my father	1	2	3	4	5
47. Just when my father starts to get close I find myself pulling away	1	2	3	4	5
48. My father makes me doubt myself	1	2	3	4	5

1. When you answered the questions above who were you thinking about?

Put a ✓ in one box

Biological father	<input type="checkbox"/>	Step-father	<input type="checkbox"/>
Foster father	<input type="checkbox"/>	Other	<input type="checkbox"/>

.....

2. Do you live with your biological father? Yes No (please circle)
(see below)

If you do not live with your biological father please say why

.....

What job does your father/step-father do?

If your father/step-father does not have a job, write 'Not employed'.

If you do not have a father or a step-father, write 'Does not apply'.

His job is :
(eg, Mechanic)

The type of work he does is :
(eg, Repairs cars)

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APPENDIX 6M

DAAS GENERAL REMOVED ITEMS

General attachment

I like to keep to myself

When people close to me are away, I feel better just thinking about our relationship

I will do anything to stop others from leaving me

Being with people I am close to when I am upset makes me more confused

I worry about having people not accept me

I can get along just fine without other people

It's very important to me to have a close relationship

I don't give others the chance to let me down

I don't need others, I take care of myself

I don't worry about being abandoned

I like it when others get emotionally close to me

I rely on others to help me make decisions

I worry that I will be hurt if I get too close to others

People close to me often annoy me

APPENDIX 6N

BIVARIATE CORRELATIONS ACROSS THE ITEMS COMPRISING THE DAAS GENERAL SECTION

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	G2	-	-.205**	-.195**	.526**	.089	-.046	.297**	.103*	.200**	.315**	-.079	.332**	.181**	.102*	-.034	-.071	-.108*
2.	G3		-	.497**	-.175**	.133**	.357**	-.060	.122*	-.177**	-.326**	.407**	-.258**	-.202**	.103*	.440**	.356**	.508**
3.	G8			-	-.178**	.211**	.382**	-.017	.200**	-.149**	-.234**	.390**	-.164**	-.101*	.253**	.464**	.358**	.446**
4.	G9				-	.034	-.070	.269**	.122*	.214**	.278**	-.070	.449**	.204**	.042	-.028	-.105*	-.138**
5.	G10					-	.209**	-.011	.252**	-.052	.007	.235**	.040	.036	.222**	.275**	.180**	.265**
6.	G12						-	.011	.274**	-.132**	-.266**	.436**	-.238**	-.141**	.171**	.412**	.239**	.353**
7.	G13							-	.010	.219**	.261**	-.002	.273**	.297**	.055	.027	-.015	-.052
8.	G14								-	.107*	-.021	.329**	.096	-.003	.289**	.315**	.145**	.294**
9.	G15									-	.308**	-.105*	.330**	.207**	.046	-.078	-.073	-.124*
10.	G16										-	-.302**	.505**	.361**	.037	-.133*	-.172**	-.256**
11.	G17											-	-.161**	-.201**	.227**	.476**	.366**	.531**
12.	G18												-	.324**	.099*	-.074	-.169**	-.181**
13.	G19													-	.150**	-.048	-.059	-.094
14.	G20														-	.394**	.213**	.271**
15.	G21															-	.448**	.534**
16.	G22																-	.469**
17.	G23																	-
M		3.77	2.32	1.86	3.68	2.15	2.45	3.66	2.42	3.30	3.06	2.16	3.40	3.12	2.17	2.16	2.50	2.27
SD		1.11	1.12	1.11	1.18	1.24	1.36	1.17	1.40	1.33	1.20	1.24	1.28	1.21	1.22	1.19	1.24	1.22

Note. * $p < .05$. ** $p < .01$.

Appendix 6N *continued.*

		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1.	G2	-.235**	-.215**	-.064	.364**	-.121*	.287**	-.224**	.410**	-.169**	.424**	.350**	-.216	-.090	.166**	.013	.119*	-.159**
2.	G3	.311**	.609**	.320**	-.356**	.455**	-.289**	.426**	-.221**	.469**	-.210**	-.388**	.546**	.367**	.097	.236**	.155**	.393**
3.	G8	.334**	.494**	.386**	-.376**	.415**	-.186**	.392**	-.206**	.468**	-.137**	-.255	.456**	.339**	.232**	.267**	.206**	.436**
4.	G9	-.206**	-.139**	-.024	.381**	-.096	.331**	-.135**	.474**	-.126*	.438**	.311**	-.171**	-.111*	.172**	-.084	.121*	-.226**
5.	G10	.069	.198**	.239**	.021	.310**	-.013	.156**	.057	.212	.031	-.004	.178**	.095	.244**	.074	.280**	.124**
6.	G12	.247**	.392**	.307**	-.234**	.277**	-.263**	.337**	-.070	.384**	-.032	-.266**	.351**	.388**	.139**	.250**	.192**	.302**
7.	G13	-.130**	-.073	-.013	.288**	-.068	.283**	-.102*	.218**	-.075	.273	.218**	-.084	-.028	.037	.117*	.052	-.063
8.	G14	.018	.203**	.356**	.059	.209**	.109*	.039	.156**	.211**	.126**	.020	.184**	.175**	.407**	.082	.273**	.055
9.	G15	-.201**	-.161**	-.129**	.271**	-.168**	.347**	-.266**	.286**	-.156**	.321**	.318**	-.138**	-.087	.200**	-.085	-.018	-.187**
10.	G16	-.177**	-.321**	-.150**	.361**	-.197**	.440**	-.186**	.278	-.301**	.291**	.459**	-.345**	-.301**	.135**	-.033	-.031	-.269**
11.	G17	.291**	.473**	.430**	-.248**	.460**	-.208**	.317**	-.114*	.605**	-.106*	-.341**	.498**	.386**	.192**	.189**	.352**	.313**
12.	G18	-.211**	-.248**	-.038	.425**	-.203**	.583**	-.243**	.435**	-.233**	.483**	.434**	-.324**	-.328**	.229**	-.116*	-.030	-.257**
13.	G19	-.066	-.173**	-.082	.332**	-.090	.349**	-.143**	.278**	-.194**	.268**	.334**	-.136**	-.144**	.094	.003	.057	-.129**
14.	G20	.097	.180**	.294**	.002	-.298**	.153**	.067	.032	.189**	.098*	.007	.164**	.122*	.252**	.031	.358**	.201**
15.	G21	.199**	.504**	.487**	-.240**	.518**	-.095	.339**	-.033	.531**	.033	-.228**	.429**	.363**	.272**	.191**	.421**	.333**
16.	G22	.289**	.458**	.369**	-.173**	.443**	-.143**	.334**	-.091	.413**	-.046	-.252**	.439**	.293**	.156**	.161**	.242**	.268**
17.	G23	.360	.635**	.492**	-.242**	.649**	-.170**	.391**	-.141**	.540**	-.153**	-.294**	.537**	.378**	.216**	.213**	.328**	.354**
M		2.02	2.27	2.40	3.64	2.30	3.37	2.42	4.15	2.13	4.10	3.72	2.24	2.82	2.38	2.81	2.23	2.17
SD		1.14	1.21	1.29	1.22	1.15	1.22	1.19	1.08	1.27	1.09	1.14	1.11	1.38	1.28	1.18	1.23	1.07

Note. * $p < .05$. ** $p < .01$.

Appendix 6N *continued.*

	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
18. G24	-	.379**	.136**	-.228**	-.319**	-.218**	.333**	-.304**	.323**	-.225**	-.341**	.356**	.292**	.031	.271**	.055	.359**
19. G25		-	.454**	-.373**	.534**	-.239**	.438**	-.202**	.509**	-.205**	-.370**	.624**	.436**	.177**	.211**	.229**	.382**
20. G26			-	-.154**	.393**	-.084	.235**	-.030	.395**	-.024	-.198**	.411**	.312**	.314**	.140**	.322**	.247**
21. G28				-	-.240**	.463**	-.290**	.400**	-.314**	.418**	-.433**	-.347**	-.272**	.080	-.117*	.059	-.353**
22. G29					-	-.200**	-.406**	-.151**	.529**	-.165**	-.325	.499**	.338**	.227**	.228**	.334**	.452**
23. G31						-	-.201**	.399**	-.288**	.451**	.524**	-.311**	-.274**	.161**	-.189**	.008	-.329**
24. G32							-	-.229**	.385**	-.189	-.227**	.448**	.274**	.012	.257**	.119*	.382**
25. G37								-	-.190**	.626**	.486**	-.246**	-.120*	.129**	-.077	.066	-.235**
26. G38									-	-.129**	-.406**	.565**	.380**	.175**	.214**	.318**	.357**
27. G39										-	.54**	-.219**	-.153**	.191**	-.036	.111*	-.170**
28. G40											-	-.428**	-.246**	.079	-.109*	-.026	-.268**
29. G41												-	.481**	.231**	.260**	.228**	.430**
30. G42													-	.167**	.228**	.191**	.402**
31. G43														-	.039	.252**	.076
32. G45															-	.068	.349**
33. G46																-	.154**
34. G48																	-

Note. * $p < .05$. ** $p < .01$.

APPENDIX 60

DAAS GENERAL BOOTSTRAPPED CONFIDENCE INTERVALS

General Model 1

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Avoidant				
45	.329	.056	.234	.421
48	.566	.045	.489	.633
32	.563	.046	.481	.636
24	.480	.046	.402	.555
8	.652	.039	.589	.715
3	.700	.034	.635	.746
41	.762	.032	.701	.804
25	.781	.028	.735	.826
23	.749	.033	.689	.798
38	.722	.034	.661	.770
42	.564	.042	.496	.635
Anxious				
22	.578	.047	.498	.653
29	.704	.037	.637	.757
20	.426	.059	.325	.516
10	.383	.053	.289	.467
12	.518	.050	.440	.600
43	.381	.058	.280	.470
46	.489	.054	.383	.570
26	.631	.041	.556	.691
21	.755	.025	.708	.793
14	.422	.058	.315	.514
17	.678	.038	.496	.635
Secure				
40	.697	.032	.643	.752
18	.708	.033	.647	.759
31	.964	.034	.634	.745
39	.705	.041	.640	.768
16	.586	.048	.508	.663
37	.671	.040	.596	.729
19	.455	.048	.382	.543
13	.398	.053	.308	.486

General Model 1 *cont.*

9	.582	.044	.503	.647
28	.640	.038	.582	.705
15	.449	.046	.370	.527
2	.553	.047	.470	.621

General Model 2

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Avoidant				
1				
25	.780	.028	.731	.825
41	.755	.033	.693	.799
3	.696	.035	.629	.744
32	.564	.046	.484	.637
8	.644	.040	.581	.710
42	.561	.043	.487	.631
23	.756	.031	.702	.805
Avoidant 2				
24	.588	.052	.494	.664
45	.438	.059	.335	.534
48	.675	.052	.590	.755
Anxious 1				
29	.707	.033	.650	.756
12	.540	.046	.467	.616
17	.678	.037	.612	.733
22	.564	.046	.494	.645
26	.601	.042	.525	.665
21	.517	.071	.397	.621
Anxious 2				
10	.441	.053	.347	.522
43	.523	.049	.440	.598
46	.573	.048	.484	.643
20	.538	.052	.447	.618
14	.591	.086	.464	.739
21	.276	.071	.165	.386
Secure 1				
16	.629	.045	.555	.704
31	.729	.034	.678	.787
15	.463	.048	.375	.542

General Model 2 *cont.*

19	.481	.050	.406	.570
13	.382	.054	.275	.462
40	.578	.185	.326	.866
28	.649	.039	.594	.723
18	.718	.037	.659	.778
Secure 2				
2	.599	.046	.520	.674
39	.779	.038	.711	.842
37	.759	.036	.695	.813
9	.635	.046	.561	.710
40	.158	.193	-.131	.433

General Model 3

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Avoidant 1				
24	.588	.053	.492	.663
45	.439	.059	.336	.535
48	.675	.052	.592	.755
Anxious 1				
29	.713	.032	.655	.760
12	.535	.048	.462	.614
17	.677	.036	.616	.733
22	.575	.047	.506	.657
26	.576	.045	.502	.649
21	.471	.058	.376	.559
38	.731	.033	.670	.775
25	.771	.029	.724	.819
41	.747	.032	.683	.791
3	.682	.037	.614	.734
32	.549	.047	.467	.623
8	.645	.040	.581	.708
42	.560	.043	.485	.626
23	.762	.031	.708	.810
Anxious 2				
10	.439	.053	.345	.514
43	.545	.048	.462	.618
46	.569	.049	.478	.639
20	.532	.053	.435	.615
14	.560	.051	.471	.643

General Model 3 *cont.*

21	.367	.057	.268	.454
Secure 1				
16	.632	.044	.559	.705
31	.730	.034	.678	.787
15	.462	.048	.374	.539
19	.481	.050	.403	.569
13	.384	.054	.288	.465
40	.556	.161	.307	.813
28	.649	.039	.594	.722
18	.720	.036	.660	.778
Secure 2				
2	.598	.046	.516	.671
39	.779	.038	.712	.840
37	.759	.036	.692	.812
9	.635	.046	.560	.711
40	.182	.166	-.091	.444

APPENDIX 7A

DAAS MATERNAL REMOVED ITEMS

 Maternal attachment

When my mother gets upset with me, I feel really bad about myself

I don't mind asking my mother for comfort or help

My mother accepts me as I am

I don't like it when my mother spends time away from me

When I go to my mother for help I feel like I will be able to handle problems myself

My mother cares about me

I don't like it when my mother spends time away from me

I get upset a lot more than my mother knows about

My mother is never there when I need her

If my mother doesn't show interest in me, I get upset or angry

My mother protects me from danger and trouble

It's not hard for me to get close to my mother

APPENDIX 7B

BIVARIATE CORRELATIONS ACROSS THE ITEMS COMPRISING THE DAAS MATERNAL SECTION

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	M1	-	.340**	.426**	.427**	-.318**	-.435**	-.319**	.459**	.414**	.472**	-.413**	.214**	.397**	.393**	-.477**	-.362**	-.470**	.458**
2.	M2		-	.390**	.374**	-.181**	-.267**	-.182**	.262**	.351**	.419**	-.259**	.319**	.334**	.319**	-.272**	-.304**	-.297**	.396**
3.	M4			-	.454**	-.170**	-.365**	-.133**	.418**	.379**	.396**	-.213**	.423**	.514**	.530**	-.310**	-.340**	-.303**	.336**
4.	M7				-	-.201**	-.346**	-.213**	.474**	.420**	.428**	-.253**	.368**	.483**	.433**	-.353**	-.329**	-.368**	.416**
5.	M9					-	.499**	.524**	-.318**	-.237**	-.363**	.538**	-.104**	-.168**	-.174**	.508**	.463**	.525**	-.300**
6.	M12						-	.536**	-.593**	-.323**	-.551**	.535**	-.250**	-.403**	-.444**	.581**	.590**	.570**	-.398**
7.	M13							-	-.326**	-.202**	-.318**	.500**	-.113*	-.167**	-.218**	.566**	.500**	.547**	-.236**
8.	M14								-	.439**	.495**	-.325**	.349**	.377**	.425**	-.381**	-.416**	-.409**	.425**
9.	M15									-	.404**	-.254**	.311**	.307**	.361**	-.317**	-.352**	-.385**	.429**
10.	M16										-	-.460**	.359**	.507**	.552**	-.429**	-.438**	-.464**	.413**
11.	M17											-	-.115**	-.244**	-.220**	.602**	.551**	.584**	-.324**
12.	M20												-	.419**	.514**	-.210**	-.274**	-.163**	.372**
13.	M21													-	.511**	-.361**	-.326**	-.392**	.468**
14.	M23														-	-.272**	-.378**	-.326**	.411**
15.	M24															-	.599**	.783**	-.379**
16.	M25																-	.589**	-.397**
17.	M26																	-	-.407**
18.	M27																		-
M		2.16	2.07	2.00	2.26	3.71	3.90	3.58	2.16	2.49	1.69	3.26	1.79	2.11	1.52	3.33	3.82	3.23	2.33
SD		1.283	1.188	1.233	1.217	1.321	1.284	1.348	1.289	1.276	1.184	1.316	1.194	1.333	1.107	1.336	1.240	1.350	1.273

Note. * $p < .05$. ** $p < .01$.

Appendix 7B continued.

		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1.	M1	-.482**	-.373**	-.477**	-.444**	.408**	-.326**	-.484**	.288**	.366**	.241**	-.405**	-.405**	-.369**	-.447**	-.350**	.457**	.384**	.434**
2.	M2	-.206**	-.345**	-.400**	-.302**	.475**	-.346**	-.275**	.254**	.400**	.379**	-.322**	-.365**	-.239**	-.302**	-.233**	.424**	.401**	.296**
3.	M4	-.246**	-.359**	-.404**	-.278**	.385**	-.340**	-.278**	.365**	.412**	.388**	-.370**	-.390**	-.289**	-.308**	-.308**	.420**	.468**	.398**
4.	M7	-.331**	-.338**	-.396**	-.325**	.385**	-.356**	-.366**	.400**	.303**	.292**	-.382**	-.382**	-.321**	-.366**	-.290**	.429**	.484**	.438**
5.	M9	.485**	.359**	.449**	.433**	-.261**	.420**	.480**	-.150**	-.325**	-.169**	.398**	.437**	.424**	.514**	.444**	-.200**	-.259**	-.219**
6.	M12	.568**	.595**	.663**	.600**	-.417**	.561**	.595**	-.233**	-.473**	-.314**	.637**	.675**	.550**	.638**	.577**	-.432**	-.437**	-.383**
7.	M13	.502**	.478**	.409**	.471**	-.298**	.432**	.561**	-.116**	-.363**	-.173**	.495**	.571**	.469**	.490**	.472**	-.259**	-.224**	-.195**
8.	M14	-.436**	-.428**	-.463**	-.406**	.385**	-.385**	-.397**	.286**	.377**	.305**	-.444**	-.454**	-.368**	-.439**	-.387**	.442**	.439**	.395**
9.	M15	-.333**	-.315**	-.386**	-.386**	.424**	-.260**	-.392**	.332**	.266**	.275**	-.267**	-.348**	-.277**	-.292**	-.223**	.422**	.417**	.445**
10.	M16	-.385**	-.480**	-.745**	-.745**	.533**	-.485**	-.444**	.345**	.586**	.474**	-.575**	-.572**	-.491**	-.510**	-.470**	.547**	.522**	.411**
11.	M17	.533**	.449**	.528**	.528**	-.340**	.493**	.597**	-.171**	-.341**	-.225**	.481**	.538**	.466**	.549**	.527**	-.299**	-.311**	-.254**
12.	M20	-.166**	-.361**	-.327**	-.327**	.303**	-.268**	-.183**	.403**	.315**	.365**	-.311**	-.304**	-.201**	-.233**	-.137**	.387**	.390**	.278**
13.	M21	-.347**	-.398**	-.492**	-.409**	.483**	-.349**	-.347**	.438**	.414**	.447**	-.427**	-.418**	-.341**	-.401**	-.374**	.474**	.493**	.453**
14.	M23	-.267**	-.523**	-.539**	-.384**	.435**	-.377**	-.322**	.407**	.607**	.492**	-.491**	-.461**	-.361**	-.420**	-.336**	.534**	.502**	.388**
15.	M24	.710**	.545**	.553**	.571**	-.365**	.482**	.747**	-.243**	-.356**	-.275**	.533**	.584**	.483**	.604**	.536**	-.361**	-.363**	-.358**
16.	M25	.523**	.572**	.548**	.494**	-.342**	.479**	.546**	-.204**	-.383**	-.283**	.586**	.646**	.475**	.543**	.517**	-.340**	-.368**	-.310**
17.	M26	.756**	.562**	.581**	.590**	-.388**	.502**	.801**	-.254**	-.395**	-.329**	.536**	.597**	.523**	.675**	.564**	-.388**	-.339**	-.380**
18.	M27	-.423**	-.381**	-.452**	-.415**	.466**	-.341**	-.421**	.317**	.363**	.303**	-.413**	-.423**	-.372**	-.472**	-.322**	.417**	.403**	.499**
M		2.89	4.00	4.27	3.78	1.89	4.12	3.17	1.73	1.34	1.62	4.03	3.96	3.58	3.58	3.95	1.79	1.67	2.54
SD		1.391	1.123	1.172	1.250	1.187	1.130	1.347	1.099	.883	1.080	1.203	1.197	1.279	1.341	1.194	1.098	1.142	1.414

Note. * $p < .05$. ** $p < .01$.

Appendix 7B *continued.*

	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
19. M28	-	.546**	.529**	.601**	-.358**	.482**	.774**	-.248**	-.309**	-.280**	.480**	.520**	.477**	.630**	.540**	-.389**	-.325**	-.409**
20. M29		-	.649**	.613**	-.404**	.590**	.563**	-.277**	-.522**	-.435**	.658**	.653**	.523**	.604**	.574**	-.415**	-.397**	-.350**
21. M30			-	.661**	-.494**	.631**	.586**	-.348**	-.589**	-.419**	.689**	.702**	.583**	.621**	.566**	-.501**	-.482**	-.379**
22. M31				-	-.356**	.571**	.648**	-.232**	-.425**	-.292**	.609**	.612**	.530**	.588**	.559**	-.333**	-.381**	-.322**
23. M32					-	-.419**	-.380**	.486**	.470**	.423**	-.454**	-.458**	-.372**	-.409**	-.341**	.651**	.434**	.400**
24. M33						-	.528**	-.284**	-.442**	-.364**	.626**	.648**	.530**	.541**	.534**	-.400**	-.467**	-.260**
25. M34							-	-.227**	-.342**	-.299**	.515**	.586**	.510**	.651**	.552**	-.382**	-.332**	-.393**
26. M35								-	.321**	.349**	-.299**	-.274**	-.186**	-.218**	-.138**	.576**	.398**	.386**
27. M36									-	.481**	-.557**	-.517**	-.385**	-.425**	-.440**	.421**	.431**	-.269**
28. M37										-	-.389**	-.382**	-.345**	-.344**	-.251**	.470**	.441**	.297**
29. M38											-	.814**	.609**	.611**	.547**	-.411**	-.470**	-.303**
30. M39												-	.680**	.638**	.607**	-.405**	-.486**	-.358**
31. M40													-	.580**	.545**	-.327**	-.399**	-.314**
32. M42														-	.647**	-.388**	-.380**	-.426**
33. M44															-	-.334**	-.315**	-.296**
34. M46																-	.508**	.487**
35. M47																	-	.389**
36. M48																		-

Note. * $p < .05$. ** $p < .01$.

APPENDIX 7C

DAAS MATERNAL BOOTSTRAPPED CONFIDENCE INTERVALS

Maternal Model 1

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Avoidant				
31	.754	.030	.701	.799
34	.799	.020	.763	.830
42	.793	.026	.746	.829
28	.759	.024	.719	.795
24	.769	.034	.706	.820
12	.783	.026	.733	.818
1	-.609	.046	-.675	-.533
27	-.580	.047	-.656	-.501
32	-.584	.047	-.660	-.501
46	-.583	.049	-.661	-.503
48	-.528	.047	-.606	-.445
16	-.690	.040	-.753	-.620
Anxious				
47	.706	.041	.627	.762
37	.607	.051	.528	.696
36	.651	.051	.558	.731
35	.554	.046	.465	.622
23	.743	.041	.674	.806
21	.696	.040	.622	.756
20	.577	.045	.498	.654
15	.554	.041	.486	.624
14	.623	.044	.545	.688
7	.644	.044	.567	.707
4	.675	.041	.595	.733
2	.536	.047	.453	.608
Secure				
9	.589	.041	.520	.652
13	.642	.040	.575	.698
17	.687	.029	.637	.736
25	.725	.035	.671	.780
26	.777	.023	.739	.812
40	.717	.036	.657	.780

Maternal Model 1 *cont.*

44	.723	.031	.671	.774
39	.854	.020	.818	.885
38	.808	.029	.756	.854
30	.814	.024	.773	.851
29	.763	.028	.718	.812
33	.726	.035	.666	.780

Maternal Model 2

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Secure				
30	.796	.024	.754	.834
31	.767	.029	.712	.810
34	.805	.019	.771	.835
42	.797	.026	.749	.835
9	.600	.039	.539	.662
13	.652	.038	.586	.705
17	.699	.028	.654	.744
25	.722	.034	.667	.776
26	.809	.020	.775	.841
28	.759	.022	.726	.797
24	.782	.032	.722	.827
12	.785	.025	.735	.820
40	.703	.037	.647	.772
44	.725	.030	.676	.773
39	.830	.021	.792	.864
29	.757	.028	.709	.805
38	.782	.031	.726	.829
33	.712	.034	.654	.764
Insecure				
1	.616	.041	.543	.676
27	.630	.043	.548	.693
16	.746	.035	.678	.797
32	.699	.036	.637	.758
47	.691	.042	.613	.751
37	.594	.052	.509	.679
36	.647	.049	.552	.720
35	.571	.045	.486	.636
23	.718	.044	.641	.785
21	.690	.038	.620	.749

Maternal Model 2 *cont.*

20	.541	.045	.464	.614
15	.576	.039	.512	.637
14	.629	.040	.562	.692
7	.633	.043	.556	.697
4	.638	.043	.556	.700
2	.556	.044	.482	.628
46	.740	.032	.684	.787
48	.607	.037	.544	.665

I don't like it when my father spends time away from me

My father can tell when I'm upset about something

When I go to my father for help I feel like I will be able to solve my problems myself

My father encourages me to talk about my problems

My father has his own problems, so let's not bother him with ours

I get annoyed if my father is not around when I need him

I get upset a lot more than my father knows about

It's not hard for me to get close to my father

Just when my father starts to get close I find myself pulling away

APPENDIX 8A

DAAS PATERNAL REMOVED ITEMS

Paternal attachment

When my father gets upset with me, I feel really bad about myself

I don't mind asking my father for comfort or help

My father accepts me as I am

I don't like it when my father spends time away from me

My father can tell when I'm upset about something

When I go to my father for help I feel like I will be able to handle the problems myself

My father encourages me to talk about my problems

My father has his own problems, so I don't bother him with mine

I get annoyed if my father is not around when I need him

I get upset a lot more than my father knows about

It's not hard for me to get close to my father

Just when my father starts to get close I find myself pulling away

APPENDIX 8B

BIVARIATE CORRELATIONS ACROSS THE ITEMS COMPRISING THE DAAS PATERNAL SECTION

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.	F1	-	.308**	.301**	.407**	.427**	-.230**	-.292**	.380**	.349**	-.292	.183**	.285**	.248**	.251**	-.374**	-.323**	-.396**	.317**
2.	F2		-	.459**	.470**	.284**	-.350**	-.275**	.342**	.443**	-.245	.295**	.356**	.356**	.355**	-.265**	-.343**	-.305**	.237**
3.	F4			-	.466**	.349**	-.461**	-.344**	.372**	.429**	-.231	.400**	.559**	.388**	.430**	-.249**	-.380**	-.304**	.339**
4.	F7				-	.342**	-.388**	-.353**	.426**	.451**	-.351	.293**	.467**	.417**	.391**	-.337**	-.421**	-.370**	.348**
5.	F11					-	-.289**	-.331**	.446**	.398**	-.268	.240**	.410**	.371**	.353**	-.441**	-.344**	-.424**	.482**
6.	F12						-	.635**	-.440**	-.626**	.426**	-.377**	-.491**	-.635**	-.517**	.411**	.605**	.461**	-.359**
7.	F13							-	-.466**	-.557**	.466**	-.274**	-.405**	-.500**	-.384**	.549**	.575**	.544**	-.373**
8.	F15								-	.559**	-.371**	.396**	.431**	.526**	.412**	-.370**	-.454**	-.396**	.393**
9.	F17									-	-.391**	.359**	.542**	.614**	.531**	-.433**	-.526**	-.436**	.426**
10.	F18										-	-.201**	-.278**	-.379**	-.225**	.626**	.560**	.663**	-.269**
11.	F21											-	.466**	.441**	.487**	-.208**	-.338**	-.205**	.258**
12.	F22												-	.524**	.498**	-.319**	-.406**	-.337**	.359**
13.	F23													-	.560**	-.430**	-.595**	-.436**	.453**
14.	F24														-	-.296**	-.414**	-.288**	.363**
15.	F25															-	.569**	.733**	-.396**
16.	F26																-	.625**	-.367**
17.	F27																	-	-.397**
18.	F28																		-
M		2.60	2.08	1.89	2.45	3.02	4.36	3.70	2.32	1.92	2.90	1.87	2.18	1.88	1.60	2.82	3.41	2.59	2.54
SD		1.314	1.286	1.265	1.264	1.449	1.162	1.317	1.343	1.369	1.322	1.281	1.391	1.265	1.164	1.298	1.385	1.289	1.326

Note. * $p < .05$. ** $p < .01$.

Appendix 8B *continued.*

		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
1.	F1	-.378**	-.350**	-.342**	-.417**	.294**	-.289**	-.398**	.181**	.203**	.200**	-.319**	-.320**	-.297**	.100*	-.328**	-.211**	-.273**	.243**
2.	F2	-.239**	-.358**	-.404**	-.338**	.361**	-.429**	-.258**	.166**	.394**	.368**	-.351**	-.332**	-.291**	.112*	-.324**	-.205**	-.286**	.393**
3.	F4	-.206**	-.433**	-.437**	-.379**	.452**	-.463**	-.285**	.333**	.424**	.479**	-.377**	-.401**	-.385**	.190**	-.320**	-.275**	-.297**	.520**
4.	F7	-.280**	-.437**	-.413**	-.429**	.353**	-.405**	-.367**	.178**	.378**	.362**	-.358**	-.369**	-.304**	.150**	-.376**	-.270**	-.346**	.369**
5.	F11	-.398**	-.400**	-.389**	-.436**	.373**	-.324**	-.462**	.228**	.286**	.257**	-.381**	-.402**	-.371**	.144**	-.367**	-.283**	-.330**	.408**
6.	F12	.324**	.662**	.711**	.601**	-.464**	.688**	.368**	-.191**	-.727**	-.500**	.614**	.607**	.504**	-.038	.537**	.634**	.600**	-.560**
7.	F13	.436**	.596**	.691**	.597**	-.437**	.570**	.496**	-.137**	-.525**	-.302**	.565**	.566**	.529**	.001	.575**	.558**	.590**	-.404**
8.	F15	-.360**	-.476**	-.521**	-.500**	.527**	-.411**	-.399**	.317**	.454**	.371**	-.450**	-.445**	-.353**	.172**	-.428**	-.351**	-.397**	.425**
9.	F17	-.338**	-.545**	-.725**	-.548**	.561**	-.557**	-.395**	.309**	.647**	.435**	-.533**	-.511**	-.426**	.072	-.499**	-.436**	-.514**	.518**
10.	F18	.559**	.530**	.540**	.609**	-.272**	.521**	.583**	-.083	-.316**	-.222**	.512**	.502**	.459**	.111*	.619**	.481**	.519**	-.254**
11.	F21	-.154**	-.340**	-.310**	-.339**	.279**	-.378**	-.234**	.295**	.397**	.448**	-.307**	-.295**	-.209**	.194**	-.266**	-.231**	-.262**	.409**
12.	F22	-.258**	-.403**	-.490**	-.449**	.423**	-.449**	-.331**	.335**	.503**	.495**	-.383**	-.376**	-.339**	.237**	-.355**	-.361**	-.389**	.554**
13.	F23	-.295**	-.523**	-.584**	-.487**	.447**	-.515**	-.365**	.361**	.629**	.469**	-.525**	-.489**	-.393**	.112*	-.450**	-.450**	-.461**	.494**
14.	F24	-.190**	-.431**	-.445**	-.385**	.495**	-.450**	-.317**	.378**	.472**	.480**	-.383**	-.411**	-.315**	.281**	-.340**	-.291**	-.283**	.578**
15.	F25	.663**	.526**	.531**	.623**	-.283**	.472**	.747**	-.117*	-.339**	-.210**	.500**	.522**	.516**	.044	.666**	.441**	.471**	-.326**
16.	F26	.483**	.661**	.639**	.657**	-.396**	.587**	.550**	-.178**	-.533**	-.403**	.652**	.651**	.541**	.016	.638**	.593**	.578**	-.401**
17.	F27	.706**	.582**	.548**	.657**	-.328**	.539**	.765**	-.151**	-.388**	-.305**	.540**	.528**	.512**	.021	.701**	.481**	.500**	-.350**
18.	F28	-.373**	-.364**	-.389**	-.394**	.402**	-.295**	-.435**	.249**	.395**	.256**	-.348**	-.362**	-.332**	.116*	-.389**	-.271**	-.358**	.386**
M		2.29	3.73	4.06	3.41	1.92	3.93	2.50	1.70	1.53	1.68	3.88	3.74	3.20	2.04	3.14	4.04	3.71	1.76
SD		1.266	1.238	1.290	1.275	1.209	1.282	1.229	1.084	1.155	1.153	1.264	1.321	1.345	1.215	1.350	1.217	1.336	1.259

Note. * $p < .05$. ** $p < .01$.

Appendix 8B *continued.*

		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
19.	F29	-	.496**	.463**	.584**	-.264**	.385**	.738**	-.089	-.239**	-.122*	.453**	.420**	.442**	.027	.602**	.369**	.427**	-.241**
20.	F30		-	.709**	.779**	-.460**	.681**	.521**	-.135**	-.537**	-.354**	.695**	.692**	.598**	-.038	.596**	.619**	.613**	-.421**
21.	F31			-	.723**	-.532**	.700**	.475**	-.191**	-.630**	-.403**	.710**	.669**	.540**	-.053	.605**	.613**	.673**	-.463**
22.	F32				-	-.414**	.679**	.617**	-.160**	-.529**	-.341**	.690**	.699**	.615**	-.049	.653**	.613**	.644**	-.415**
23.	F33					-	-.453**	-.302**	.421**	.468**	.409**	.408**	-.475**	-.376**	.147**	-.395**	-.414**	-.393**	.520**
24.	F34						-	.471**	-.209**	-.602**	-.497**	.648**	.651**	.534**	-.072	.564**	.620**	.600**	-.529**
25.	F35							-	-.130**	-.309**	-.199**	.469**	.520**	.476**	-.019	.648**	.409**	.454**	-.326**
26.	F36								-	.206**	.388**	-.157**	-.171**	-.168**	.276**	-.122*	-.094	-.116*	.399**
27.	F37									-	.527**	-.548**	-.549**	-.416**	.075	-.422**	-.501**	-.501**	.533**
28.	F38										-	-.410**	-.433**	-.308**	.194**	-.346**	-.353**	-.377**	.593**
29.	F39											-	.796**	.600**	-.002	.610**	.580**	.643**	-.413
30.	F40												-	.695**	.009	.612**	.594**	.626**	-.475
31.	F41													-	.124*	.561**	.530**	.541**	-.413
32.	F42														-	.094	.063	.094	.262**
33.	F44															-	.627**	.605**	-.359**
34.	F45																-	.677**	-.335**
35.	F43																	-	.350**
36.	F48																		-

Note. * $p < .05$. ** $p < .01$.

APPENDIX 8C

DAAS PATERNAL BOOTSTRAPPED CONFIDENCE INTERVALS

Paternal Model 1				
Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Secure				
12	.772	.032	.712	.816
45	.763	.026	.718	.805
26	.790	.023	.749	.825
30	.835	.024	.792	.870
31	.846	.019	.812	.877
34	.796	.025	.752	.834
39	.822	.027	.765	.856
40	.824	.026	.781	.865
41	.709	.035	.651	.768
44	.737	.034	.678	.793
18	.667	.034	.613	.725
27	.721	.022	.682	.757
Anxious				
48	.756	.032	.697	.800
42	.261	.061	.170	.370
38	.696	.041	.615	.751
2	.553	.050	.464	.634
36	.446	.057	.346	.536
24	.699	.044	.620	.765
22	.733	.035	.666	.785
21	.590	.051	.497	.666
15	.626	.042	.549	.688
7	.593	.043	.511	.663
4	.681	.043	.600	.745
37	.706	.037	.648	.772
Avoidant				
13	-.738	.036	-.801	-.677
43	-.790	.027	-.839	-.748
32	-.845	.018	-.873	-.813
11	.542	.046	.464	.612

Paternal Model 1 *cont.*

25	-.744	.031	-.785	-.681
29	-.663	.031	-.709	-.612
1	.468	.052	.381	.547
35	-.730	.032	-.777	-.669
28	.534	.052	.456	.626
33	.563	.052	.465	.636
23	.655	.043	.580	.725
17	.704	.040	.637	.763

Paternal Model 2

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Secure				
27	.766	.021	.730	.801
35	.712	.033	.648	.760
29	.651	.027	.609	.699
25	.728	.032	.670	.772
43	.793	.023	.760	.840
18	.693	.033	.638	.749
32	.864	.015	.831	.885
26	.787	.023	.746	.823
30	.826	.024	.784	.863
40	.810	.027	.761	.849
41	.711	.036	.653	.768
39	.805	.027	.749	.840
45	.752	.026	.710	.795
13	.732	.035	.673	.794
44	.720	.033	.664	.773
31	.825	.020	.787	.858
34	.771	.026	.726	.811
1	-.441	.052	-.521	-.358
11	-.504	.049	-.577	-.420
28	-.486	.054	-.577	-.400
Insecure				
38	.660	.045	.574	.719
48	.728	.035	.666	.782
37	.767	.032	.712	.817
24	.695	.046	.612	.764
22	.702	.038	.633	.761

Paternal Model 2 *cont.*

12	-.782	.039	-.839	-.710
23	.760	.033	.700	.810
17	.783	.029	.737	.827
4	.635	.047	.557	.709
33	.660	.045	.579	.729
21	.551	.054	.449	.629
36	.422	.059	.320	.516
15	.649	.041	.571	.709
2	.535	.051	.450	.618
7	.575	.043	.501	.646
42	.198	.062	.110	.312

Paternal Model 3

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
1				
12	-.786	.027	-.822	-.732
37	.591	.143	.381	.867
31	-.634	.353	-1.143	-.269
17	.801	.043	.736	.849
23	.267	.115	.097	.488
13	-.607	.059	-.693	-.495
44	.523	.863	.132	2.961
34	-.293	.307	-.730	.034
45	.914	1.312	.370	4.003
2				
13	.240	.063	.142	.343
35	.826	.023	.777	.855
29	.792	.022	.753	.826
27	.846	.021	.813	.880
25	.792	.024	.751	.829
18	.738	.029	.690	.785
43	.781	.024	.730	.815
1	-.501	.049	-.582	-.416
11	-.442	.062	-.536	-.338
28	-.289	.057	-.377	-.195
32	.389	.062	.278	.483
26	.338	.064	.242	.455

Paternal Model 3 *cont.*

3				
37	.155	.154	-.140	.373
23	.479	.118	.264	.661
48	.654	.043	.574	.716
24	.780	.033	.723	.830
22	.714	.035	.646	.765
36	.529	.046	.455	.610
4	.646	.039	.568	.699
38	.604	.050	.516	.683
21	.671	.043	.595	.735
42	.402	.056	.315	.493
33	.625	.041	.557	.692
15	.649	.039	.591	.714
7	.567	.045	.495	.645
2	.465	.051	.372	.546
28	.350	.065	.232	.455
11	.150	.065	.042	.253
4				
40	.814	.024	.768	.851
39	.826	.026	.775	.864
41	.644	.037	.577	.698
32	.446	.061	.345	.550
30	.780	.025	.734	.817
45	1.600	1.313	1.069	4.702
34	.499	.304	.055	.802
26	.461	.063	.347	.558
44	1.250	.856	.873	3.605
31	.257	.355	-.257	.607

APPENDIX 9A

DAAS BEST FRIEND REMOVED ITEMS

Best Friend attachment

I am not sure I can always depend on my best friend

I am sure my best friendship will last

When best friends pick on me, I feel really bad about myself

I don't mind asking best friends for advice or help

I don't need to rely on my best friend

I don't like it when my best friend spends time away from me

I get upset a lot more than my best friend knows about

I know my best friend does like me

I think it would be hard to replace my best friend

I want to get close to my best friend but I keep pulling back

If my best friend knows something is wrong with me, they ask me about it

Just when my best friend starts to get close to me I find myself pulling away

I choose not to show my best friend how I feel deep down

I try to stop getting too close to my best friend

APPENDIX 9B

BIVARIATE CORRELATIONS ACROSS THE ITEMS COMPRISING THE DAAS BEST FRIEND SECTION

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	B1	-	.698**	.419**	-.360**	.609**	.609**	-.343**	.603**	.646**	-.083	.580**	.650**	.583**	-.265**	.609**	.523**	.020
2.	B2		-	.395**	-.413**	.684**	.634**	-.363**	.719**	.729**	-.097*	.590**	.667**	.645**	-.257**	.635**	.562**	.036
3.	B4			-	-.169**	.473**	.465**	-.234**	.364**	.460**	.050	.424**	.378**	.324**	-.033	.388**	.442**	.180**
4.	B7				-	-.406**	-.390**	.363**	-.422**	-.379**	.165**	-.436**	-.445**	-.366**	.378**	-.451**	-.361**	.098*
5.	B8					-	.636**	-.310**	.653**	.701**	-.077	.596**	.618**	.531**	-.186**	.618**	.543**	.041
6.	B9						-	-.356**	.604**	.624**	-.121*	.561**	.588**	.556**	-.257**	.554**	.563**	-.009
7.	B10							-	-.381**	-.433**	.103*	-.405**	-.401**	-.353**	.284**	-.428**	-.344**	.053
8.	B11								-	.711**	-.073	.579**	.647**	.564**	-.260**	.628**	.542**	-.016
9.	B12									-	-.122*	.662**	.667**	.626**	-.270**	.674**	.609**	.063
10.	B13										-	-.104*	-.109*	-.143**	.317**	-.085	-.044	.342**
11.	B14											-	.666**	.597**	-.236**	.622**	.553**	.051
12.	B15												-	.645**	-.270**	.727**	.603**	.003
13.	B16													-	-.265**	.608**	.565**	.056
14.	B17														-	-.264**	-.235**	.195**
15.	B22															-	.673**	.074
16.	B23																-	.134**
17.	B24																	-
M		3.98	4.16	3.52	2.23	3.90	4.12	2.05	4.13	4.12	2.00	4.02	4.24	4.33	1.56	4.16	3.97	2.01
SD		1.126	1.027	1.351	1.280	1.078	1.071	1.218	0.987	1.045	1.127	1.147	1.045	1.020	0.935	1.048	1.152	1.178

Note. * $p < .05$. ** $p < .01$.

Appendix 9B Continued.

		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1.	B1	.092	-.141**	.548**	-.164**	.542**	.481**	-.075	-.162**	.438**	-.224**	.564**	-.262**	-.261**	-.172**	.521**	.497**	-.307**
2.	B2	.106*	-.097*	.562**	-.204**	.603**	.574**	-.090	-.245**	.451**	-.226**	.579**	-.260**	-.265**	-.148**	.563**	.559**	-.320**
3.	B4	.266**	.093	.372**	-.039	.367**	.375**	.108*	.043	.416**	-.051	.534**	-.152**	-.122*	.039	.480**	.395**	-.062
4.	B7	.016	.288**	-.377**	.333**	-.325**	-.361**	.254**	.369**	-.383**	.365**	-.420**	.270**	.355**	.344**	-.471**	-.425**	.409**
5.	B8	.096*	-.079	.564**	-.198**	.558**	.524**	-.057	-.225**	.437**	-.109*	.568**	-.214**	-.286**	-.165**	.582**	.581**	-.318**
6.	B9	.045	-.109*	.584**	-.225**	.498**	.446**	-.135**	-.232**	.501**	-.231**	.625**	-.253**	-.360**	-.258**	.637**	.540**	-.337**
7.	B10	-.021	.172**	-.388**	.264**	-.389**	-.364**	.161**	.240**	-.369**	.207**	-.395**	.356**	.234**	.242**	-.364**	-.423**	.235**
8.	B11	.127**	-.136**	.616**	-.229**	.563**	.555**	-.162**	-.301**	.450**	-.230**	.537**	-.259**	-.329**	-.223**	.545**	-.566**	-.293**
9.	B12	.127**	-.106*	.610**	-.249**	.615**	.593**	-.178**	-.315**	.414**	-.244**	.587**	-.355**	-.374**	-.225**	.606**	.624**	-.306**
10.	B13	.354**	.198**	-.104*	.229**	-.101*	-.067	.268**	.248**	.077	.254**	-.009	.229**	.411**	.214**	-.076	-.151**	.198**
11.	B14	.087	-.186**	.592**	-.216**	.532**	.541**	-.132**	-.259**	.472**	-.199**	.557**	-.258**	-.312**	-.250**	.556**	.585**	-.300**
12.	B15	.084	-.167**	.583**	-.230**	.671**	.649**	-.154**	-.272**	.482**	-.271**	.645**	-.319**	-.343**	-.283**	.617**	.632**	-.344**
13.	B16	.081	-.133**	.643**	-.182**	.590**	.533**	-.123*	-.269**	.371**	-.265**	.468**	-.335**	-.323**	-.183**	.523**	.514**	-.291**
14.	B17	.204**	.261**	-.188**	.423**	-.241**	-.230**	.374**	.369**	-.116*	.389**	-.165**	.342**	.427**	.400**	-.212**	-.250**	.380**
15.	B22	.109*	-.165**	.592**	-.225**	.689**	.684**	-.148**	-.263**	.434**	-.259**	.634**	-.346**	-.336**	-.239**	.612**	.627**	-.298**
16.	B23	.127**	-.070	.590**	-.177**	.558**	.525**	-.097*	-.244**	.451**	-.220**	.567**	-.211**	-.278**	-.184**	.546**	.540**	-.257**
17.	B24	.567**	.226**	.031	.194**	.008	.012	.323**	.211**	.160**	.203**	.077	.201**	.210**	.197**	.069	.014	.125*
M		2.17	1.65	4.21	2.13	4.46	4.06	1.89	1.80	3.42	1.44	3.67	1.36	1.90	1.63	3.83	4.06	2.01
SD		1.158	1.035	1.018	1.218	0.853	1.107	1.218	1.177	1.286	0.925	1.317	0.828	1.156	1.098	1.234	1.126	1.170

Note. * $p < .05$. ** $p < .01$.

Appendix 9B *Continued.*

		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
18.	B25	-	.267**	.079	.213**	.090	.100*	.305**	.233**	.268**	.178**	.212**	.146**	.225**	.194**	.155**	.108*	.131**
19.	B26		-	-.082	.432**	-.183**	-.127**	.401**	.368**	-.057	.318**	-.101*	.386**	.355**	.413**	-.097*	-.175**	.370**
20.	B28			-	-.175**	.550**	.513**	-.113*	-.229**	.464**	-.199**	.533**	-.248**	-.304**	-.203**	.585**	.564**	-.273**
21.	B29				-	-.153**	-.173**	.474**	.537**	-.116*	.301**	-.170**	.397**	.490**	.439**	-.181**	-.217**	.348**
22.	B31					-	.699**	-.111*	-.184**	.402**	-.272**	.541**	-.338**	-.233**	-.139**	.520**	.572**	-.244**
23.	B32						-	-.126**	-.191**	.450**	-.183**	.584**	-.291**	-.264**	-.148**	.560**	.640**	-.237**
24.	B33							-	.604**	.048	.340**	-.033	.387**	.473**	.400**	-.108*	-.156**	.249**
25.	B34								-	.012	.402**	-.128**	.396**	.548**	.541**	-.153**	-.260**	.401**
26.	B35									-	-.058**	.666**	-.134**	-.122*	-.096*	.570**	.457**	-.195**
27.	B38										-	-.177**	.398**	.367**	.414**	-.180**	-.228**	.361**
28.	B39											-	-.242**	-.240**	-.212**	.725**	.595**	-.233**
29.	B41												-	.519**	.339**	-.233**	-.282**	.266**
30.	B42													-	.444**	-.297**	-.332**	.346**
31.	B44														-	-.178**	-.247**	.422**
32.	B45															-	.612**	-.312**
33.	B46																-	-.333**
34.	B48																	-

Note. * $p < .05$. ** $p < .01$.

APPENDIX 9C

DAAS BEST FRIEND BOOTSTRAPPED CONFIDENCE INTERVALS

Best Friend Model 1

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Secure				
1	.759	.027	.713	.803
2	.818	.023	.778	.853
9	.745	.036	.683	.799
11	.790	.027	.738	.826
12	.839	.021	.805	.871
14	.764	.030	.708	.806
15	.839	.019	.804	.868
16	.750	.035	.686	.803
22	.826	.020	.793	.859
28	.741	.033	.685	.792
31	.756	.035	.695	.815
32	.736	.032	.685	.788
Avoidant				
4	.562	.038	.485	.615
7	-.541	.044	-.604	-.457
8	.770	.029	.723	.814
10	-.500	.045	-.569	-.427
23	.730	.032	.682	.786
35	.649	.037	.592	.708
39	.806	.025	.760	.742
45	.799	.023	.750	.829
46	.763	.029	.718	.812
48	-.382	.053	-.457	-.282
Anxious				
13	.429	.060	.328	.526
17	.579	.051	.490	.659
24	.361	.063	.257	.462
25	.361	.068	.252	.471
26	.554	.049	.469	.624
29	.675	.038	.607	.733
33	.687	.044	.609	.749
34	.747	.038	.675	.801

Best Friend Model 1 *cont.*

38	.555	.052	.469	.637
41	.606	.052	.525	.702
42	.730	.036	.669	.790
44	.646	.047	.557	.713

Best Friend Model 2

Measure and variable	Standardised factor loading (beta)	SE	Bootstrapped Standardised Lower Bound 90% CI	Bootstrapped Standardised Upper Bound 90% CI
Secure				
12	.835	.021	.800	.867
15	.834	.020	.798	.864
2	.811	.023	.770	.847
22	.825	.020	.793	.857
39	.764	.025	.721	.803
8	.777	.027	.732	.820
45	.759	.025	.714	.798
11	.783	.027	.729	.820
1	.753	.028	.707	.798
14	.763	.029	.708	.805
31	.750	.034	.653	.809
23	.733	.032	.680	.783
9	.752	.034	.692	.803
28	.742	.032	.687	.791
32	.737	.031	.688	.785
46	.750	.030	.703	.801
16	.738	.035	.671	.790
35	.602	.035	.541	.657
4	.531	.038	.459	.586
10	-.497	.044	-.566	-.424
7	-.378	.054	-.466	-.287
Insecure				
7	.348	.064	.240	.442
34	.746	.038	.674	.798
33	.668	.044	.589	.731
42	.720	.037	.659	.780
29	.675	.038	.613	.734
44	.660	.047	.570	.724
26	.565	.047	.480	.632
17	.593	.051	.508	.675
38	.568	.050	.479	.645

Best Friend Model 2 *cont.*

41	.594	.052	.513	.690
25	.348	.067	.242	.460
24	.351	.064	.244	.452
13	.422	.060	.307	.512
48	.542	.052	.450	.622

A. If a person is not in the group, the person who is in the group should be able to help out, even if they are not a friend. What is the best way to help out? I don't worry about being alone and I don't worry about being alone.

B. It is hard to be a friend of a friend. The person who is in the group should be able to help out, even if they are not a friend. I don't worry about being alone and I don't worry about being alone.

C. I don't care if I am alone or if I am with a friend. The person who is in the group should be able to help out, even if they are not a friend. I don't worry about being alone and I don't worry about being alone.

D. I don't care if I am alone or if I am with a friend. The person who is in the group should be able to help out, even if they are not a friend. I don't worry about being alone and I don't worry about being alone.

If you had to choose only one of the above, which one would you choose?

For a 4 in this study:

A.

B.

C.

D.

APPENDIX 10A

ADOLESCENT RELATIONSHIP QUESTIONNAIRE

Thinking about your relationships with other people, read the descriptions below and rate each one for how much like you it is.

- A. It is easy for me to feel close to people. I feel okay asking people for help and I know that they will usually help me. When people ask me for help, they can count on me. I don't worry about being alone and I don't worry about others not liking me.

1	2	3	4	5	6	7
<i>Not at all like me</i>						<i>Very much like me</i>

- B. It is hard for me to feel close to people. I want to be close to people, but I find it hard to trust them. I find it hard to ask people for help. I worry that if I get too close to people they will end up hurting me.

1	2	3	4	5	6	7
<i>Not at all like me</i>						<i>Very much like me</i>

- C. I want to be really close to people, but they don't want to get that close to me. I am unhappy if I don't have people that I feel close to. I sometimes think that I care about people more than they care about me.

1	2	3	4	5	6	7
<i>Not at all like me</i>						<i>Very much like me</i>

- D. I don't care if I am close to people. It is very important for me not to ask for help, because I like to do things on my own. I don't like it if people ask me for help.

1	2	3	4	5	6	7
<i>Not at all like me</i>						<i>Very much like me</i>

If you had to choose only one of the descriptions above, either A, B, C, or D, which **ONE** would you say best describes you?
















Put a ✓ in one box only.

- | | |
|----|--|
| A. | |
| B. | |
| C. | |
| D. | |

APPENDIX 10B

ATTACHMENT NETWORKS AND FUNCTIONS QUESTIONNAIRE

This question is about with the important relationships in your life. On the lines below, please list all the important people in your life. That is, list those people that you *currently feel a strong emotional tie to, regardless of whether that tie is positive, negative or mixed*. The order you list these people is not important, and you do not need to give their full names. However, if two people have the same initials, please list them differently (ie. Initials for one, first name for the other). You don't need to fill all the spaces but try and list as many as you can. Once you have listed the important people in your life, please say whether each person is male or female, and what relation that person is to you. If the person is a brother, sister, or friend please specify if older or younger than yourself.

NAMES OR INITIALS OF IMPORTANT PEOPLE (Do not use the same initials for more than one person.)	SEX (M OR F)	RELATIONSHIP Eg. mother, father, sister, brother, best friend, girlfriend or boyfriend Other (please explain)
		
		
		
		
		
		
		
		
		
		
		
		
		
		
		

From the list above, please list the names or initials of *up to five* important people in your life that apply to each question listed below. List people in order of importance. That is, please make sure that the person you list *first* for a particular question is the *most important one*, the second is the next most important, and so on. You don't need to list five people for every question; just those who count for each question.

1. Who do you talk to when you are worried about something or when something bad happens to you?

 _____ / _____ / _____ / _____ / _____

2. Who do you turn to for comfort when you are feeling upset or down?

 _____ / _____ / _____ / _____ / _____


3. Who do you feel will always be there for you, if you needed them?

 _____ / _____ / _____ / _____ / _____

4. Who do you feel you can always count on, no matter what?

 _____ / _____ / _____ / _____ / _____

5. Who do you most like to spend time with?

 _____ / _____ / _____ / _____ / _____

6. Who is it important for you to see/talk with regularly?

 _____ / _____ / _____ / _____ / _____


7. Who do you not like to be away from?

 _____ / _____ / _____ / _____ / _____

8. Who do you miss the most during separations?

 _____ / _____ / _____ / _____ / _____

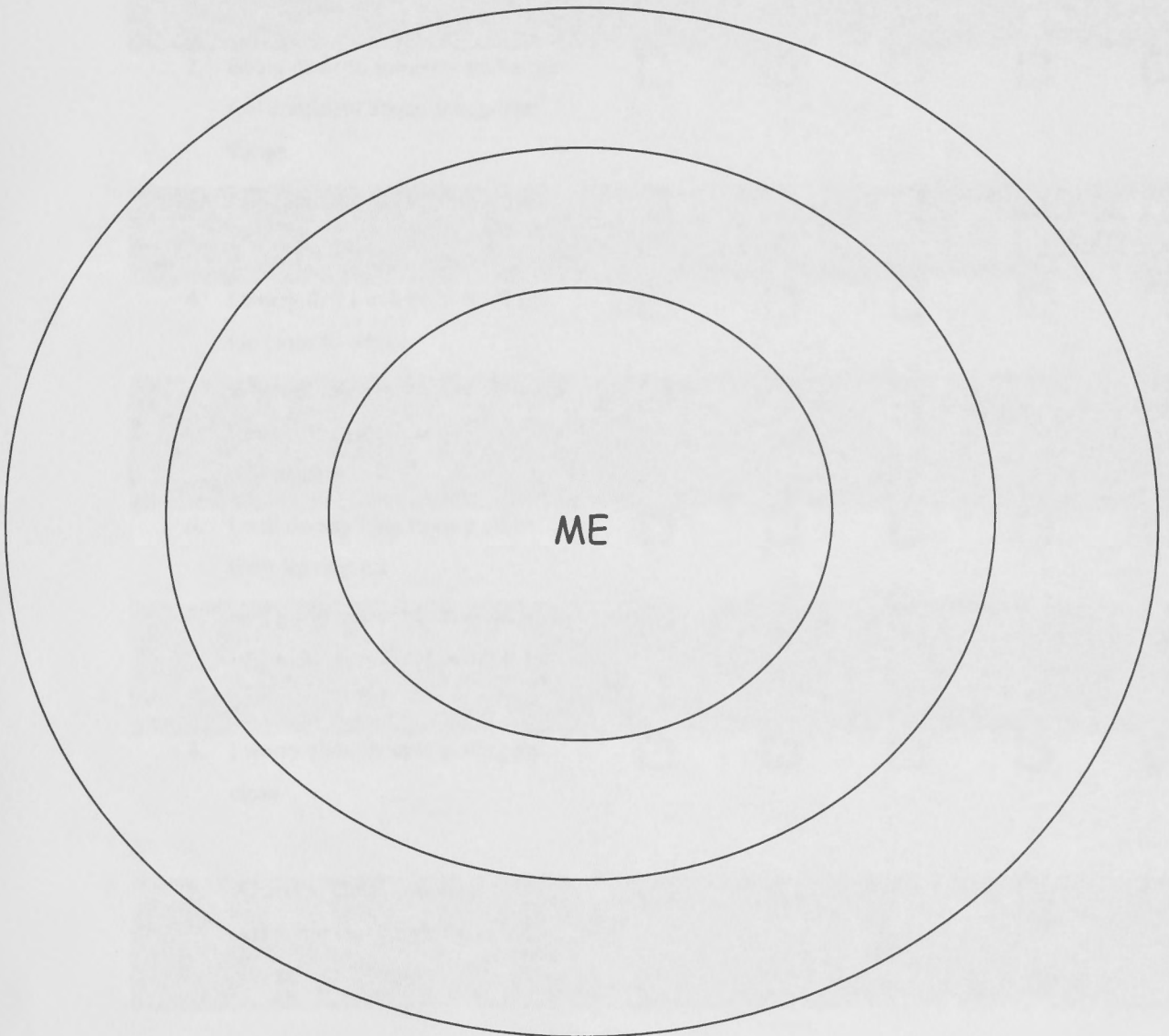
9. Who would you want to tell the most if you achieved something good?

 _____ / _____ / _____ / _____ / _____

10. Who could you count on for advice?

APPENDIX 10C**BULLS EYE HIERARCHICAL MAPPING OF ATTACHMENT NETWORKS**

On this page there is a series of circles inside each other, with you in the centre. Using the list you wrote above, please put the important people in your life on this page. Please put the initials of all of the people on this list on this page. The people in the circles closest to the centre are those people with whom you feel closest or most connected, even if it isn't all positive. People in the larger circles further away are people who are important to you but to whom you may not feel as close.



APPENDIX 10D

PARENT DAAS

These questions are about how an adolescent sees their relationships with important people in their life (your family, relatives, friends). Thinking about close relationships in general, please answer the following questions as you feel your son/daughter would answer them.

For each statement, put a ✓ in one box only.

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
1. I like to keep to myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Being close to someone makes me feel confident about doing other things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I find it hard to depend on others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I worry that I will be hurt if I get too close to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. When people close to me are away, I feel better just thinking about our relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I will do anything to stop others from leaving me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Being with people I am close to when I am upset makes me more confused	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I worry about people getting too close	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. When I'm close to someone it makes me feel better about life in general	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
10. Even though I know others will hurt my feelings I keep going back to them for help	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I worry about having people not accept me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. When I talk over my problems with others, I feel silly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I am comfortable having other people depend on me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I worry about being alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. When I am sick, I am comfortable depending on another person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I am confident that others will really understand my feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I often feel left out or alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. When I am hurting, talking to another person makes me feel better	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I am easier to get to know than most people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Sometimes I have to make people I am close to show that I'm special to them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. I want to feel close to others but I also feel worried about it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. I am not sure that I can always depend on others to be there for me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Not at all	Somewhat	A moderate amount	Quite a bit	Very much
23. People let me down a lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. I am too busy with other things to put much time into relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. I find it difficult to trust others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. I worry a lot about my relationships	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. People close to me often annoy me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. I am very comfortable being close to others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Other people often disappoint me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. I can get along just fine without other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Other people can comfort me when I am upset	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. I choose not to depend on people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. It's very important to me to have a close relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. I don't give others the chance to let me down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. I don't need others, I take care of myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 10E

KESSLER-10

In the last **four weeks** about how often...

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
1. Did you feel tired out for no good reason?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Did you feel nervous?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Did you feel so nervous nothing could calm you down?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Did you feel hopeless?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Did you feel restless or fidgety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Did you feel so restless that you could not sit still?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Did you feel depressed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Did you feel that everything was an effort?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Did you feel so sad that nothing could cheer you up?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Did you feel worthless?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 11A

ROSENBERG SELF ESTEEM SCALE

Here are some things young people have said about themselves. Thinking about how you feel about yourself, do you agree or disagree? *For each statement, put a ✓ in one box only.*

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. I feel that I am a person of worth, at least on an equal basis with others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I feel that I have a number of good qualities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. All in all, I am inclined to feel that I am a failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I am able to do things as well as most other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I feel that I do not have much to be proud of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I take a positive attitude toward myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. On the whole, I am satisfied with myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I wish I could have more respect for myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I certainly feel useless at times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. At times I think I am no good at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 11B

CHILDREN'S SOCIAL DESIRABILITY SCALE

Please circle Yes OR No for each answer

1. Have you ever felt like saying unkind things to a person?	YES	NO
2. Are you always careful about keeping your clothing neat and your room picked up?	YES	NO
3. Do you sometimes feel like staying home from school even if you are not sick?	YES	NO
4. Do you ever say anything that makes somebody else feel bad?	YES	NO
5. Are you always polite, even to people who are not very nice?	YES	NO
6. Sometimes do you do things you've been told not to do?	YES	NO
7. Do you always listen to your parents?	YES	NO
8. Do you sometimes wish you could just play around instead of having to go to school?	YES	NO
9. Have you ever broken a rule?	YES	NO
10. Do you sometimes feel angry when you don't get your way?	YES	NO
11. Do you sometimes feel like making fun of other people?	YES	NO
12. Do you always do the right things?	YES	NO
13. Are there some times when you don't like to do what your parents tell you?	YES	NO
14. Do you sometimes get mad when people don't do what you want them to do?	YES	NO

APPENDIX 11D

SCHOOL ATTITUDES SCALE

Here are some things young people have said about being at school. Thinking about your own experiences, do you agree or disagree? **For each thing, put a ✓ in one box only.**

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I learn a lot of interesting and useful things at school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I get fed up with teachers telling me what to do	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I like being at school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Teachers often treat you like you were little kids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I try hard at school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Teachers take an interest in you and help you a lot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I have been bullied by other kids at school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I find school work easy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Sometimes I feel left out of things at school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I am happy to find an excuse to stay away from school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 11E

STRENGTHS AND DIFFICULTIES QUESTIONNAIRE

Instructions: For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of how things have been for you over the last six months..

Strengths and Difficulties Questionnaire	Not True	Somewhat True	Certainly True
1. I try to be nice to other people. I care about their feelings	○	○	○
2. I am restless, I cannot stay still for long	○	○	○
3. I get a lot of headaches, stomach-aches or sickness	○	○	○
4. I usually share with others, for example, CD's, games, food	○	○	○
5. I get very angry and often lose my temper	○	○	○
6. I would rather be alone than with people of my age	○	○	○
7. I usually do as I am told	○	○	○
8. I worry a lot	○	○	○
9. I am helpful if someone is hurt, upset or feeling ill	○	○	○
10. I am constantly fidgeting or squirming	○	○	○
11. I have one good friend or more	○	○	○
12. I fight a lot. I can make other people do what I want	○	○	○
13. I am often unhappy, depressed or tearful	○	○	○
14. Other people my age generally like me	○	○	○
15. I am easily distracted, I find it difficult to concentrate	○	○	○
16. I am nervous in new situations. I easily lose confidence	○	○	○
17. I am kind to younger children	○	○	○
18. I am often accused of lying or cheating	○	○	○
19. Other children or young people pick on me or bully me	○	○	○
20. I often volunteer to help others (parents, teachers, children)	○	○	○
21. I think before I do things	○	○	○
22. I take things that are not mine from home, school or	○	○	○
23. I get along better with adults than with people my own age	○	○	○
24. I have many fears, I am easily scared	○	○	○
25. I finish the work I'm doing. My attention is good	○	○	○