

**Self-reported Attachment and the MMPI-2-RF:
Are Relationship Expectancies Reflected in Psychological
Adjustment?**

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Declaration

This thesis is submitted to The Australian National University in partial fulfilment of the Doctor of Psychology (Clinical) degree. It contains original research undertaken during my candidature in the programme at the Research School of Psychology of the Australian National University. The work presented in this thesis is the result of my own work. I hereby declare that this thesis (nor any part thereof) has not been submitted for any higher degree to any other institution or university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is noted in the thesis itself.

This thesis includes three papers that are in preparation to be submitted for publication. The ideas, development and writing up of the papers in the thesis were the principal responsibility of myself, the candidate. The inclusion of the co-author reflects the input of my supervisor, Dr. Ross B. Wilkinson, who provided guidance in various areas, including conceptual development, research design and data analysis methods, and assisted with proof reading and editing. In the case of Chapter Two, Four and Five, my contribution to the work involved the following:

Thesis Chapter	Publication Title	Publication Status	Nature and extent of candidate's contribution
Two	<p>Detecting self-reported attachment patterns in MMPI-2-RF profiles.</p> <p><i>Authors: Zhen Hui Chin and Ross B. Wilkinson</i></p>	In preparation	<p>Conceptualisation of study, literature review, research design, participant recruitment, administration, data analyses and principal author</p>
Four	<p>Attachment and adjustment: The Attachment Style Questionnaire (ASQ) and the MMPI-2-RF.</p> <p><i>Authors: Zhen Hui Chin and Ross B. Wilkinson</i></p>	In preparation	<p>Conceptualisation of study, literature review, research design, participant recruitment, administration, data analyses and principal author</p>
Five	<p>Conflict communication, self-report attachment styles, psychological health and interpersonal outcomes.</p> <p><i>Authors: Zhen Hui Chin and Ross B. Wilkinson</i></p>	In preparation	<p>Conceptualisation of study, literature review, research design, participant recruitment, administration, data analyses and principal author</p>

 Zhen Hui Chin

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Abstract

Individuals' beliefs about close relationships are argued to not only influence behaviours, cognition and emotions in interpersonal interactions but also play a significant role in personal psychological adjustment. This research presents two studies examining how expectancies regarding attachment relationships are reflected in individuals' patterns of psychological adjustment as measured by a widely used psychometric instrument, the Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF). With a sample of 179 university undergraduates, Study One (manuscript 1) examined the relationships between selected MMPI-2-RF scales and dimensional and categorical self-report attachment measures. Using the Experiences in Close Relationships Scale-Revised-General Short Form, a two-dimensional self-reported attachment measure, this study found that attachment anxiety and avoidance dimensions had significant relationships, in varying directions and degrees, with various MMPI-2-RF scales. Significant differences were also found in many MMPI-2-RF scales with regard to the four attachment categories of the Relationship Questionnaire, with individuals in the Secure group having generally lower scores in scales assessing psychopathology than the insecure groups. Study Two, employing another sample of 218 undergraduates, examined the relationships between specific attachment facets as measured by the Attachment Style Questionnaire, a multi-dimensional self-reported attachment measure, and the MMPI-2-RF scales (manuscript 2). Results indicate that specific attachment facets are also significantly associated with various MMPI-2-RF scales with varying degrees. Specifically, attachment security was found to have negative associations with all scales measuring psychopathology and interpersonal issues; attachment anxiety-related scales were found to be best predicted by MMPI-2-RF scales assessing psychopathology; and attachment-avoidant related scales were found to be best predicted by those assessing interpersonal-related issues. Results from

both studies provide evidence that patterns of attachment are indeed reflected in the scores of specific MMPI-2-RF scales. An attachment-related behaviour, conflict communication methods as assessed by the Focus of Communication Questionnaire, was also introduced in Study Two to investigate whether attachment can be an overarching factor in explaining selected psychological and interpersonal outcomes (manuscript 3). Conflict communication methods' relationships with the ASQ attachment facets and the selected outcomes were also examined. Results revealed that conflict communication methods do not significantly predict selected psychological outcomes when attachment is concurrently used as a significant predictor of psychological outcomes. However, conflict communication methods (specifically FOCQ Resolve) are significant predictors of the selected interpersonal outcome (family problems) even when controlling for attachment expectancies. Significant but weak relationships were found between conflict communication constructs, and the attachment, psychological and interpersonal variables. Research and clinical implications of the results are discussed.

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Overview

Chapter One provides a brief overview on attachment and the MMPI-2-RF. It includes a brief review of the literature suggesting that insecure attachment is positively associated with psychopathology. It also includes a review on the available studies that have used the MMPI test to conduct investigation on the relationships between attachment and mental health. The aims of Study One and associated hypotheses are presented in this chapter.

Chapter Two presents the findings of Study One. Study One is the first cross-sectional quantitative study of the research that aims to identify attachment patterns in MMPI responses with a sample of 179 Australian undergraduates from the Australian National University (ANU). Specifically, a two-dimensional self-report attachment measure, the Experiences in Close Relationships Scale-Revised-General Short Form, and a categorical self-report measure, the Relationship Questionnaire, were used in this study to examine the relationships between the chosen self-report measures and selected MMPI-2-RF scales scores.

Chapter Three provides an introduction to Study Two. It includes a brief discussion on the limitation of a two-dimensional view of attachment and the lack of a scale that assesses attachment security separately. This chapter also includes a review of the literature on conflict management styles and their relationships with attachment and mental health. The aims of the Study Two and its hypotheses are presented in this chapter.

Chapters Four and Five present the findings of Study Two, the second cross-sectional quantitative study that recruited a new sample of 218 ANU undergraduates. Using a multi-dimensional attachment measure, the Attachment Style Questionnaire,

Study Two further investigated the relationships between attachment and the MMPI-2-RF (Chapter Four). With an introduction of an attachment-influenced variable, this study has also explored whether attachment is a major factor in explaining selected psychological and interpersonal outcomes (Chapter Five).

Chapter Six involves the summarization and integrations of the results of the two studies. It includes a general discussion of the findings and implications of the results found in the studies. Research limitations and future directions for research are also discussed in this chapter.

Lastly, as a fulfilment of the Doctor of Psychology (Clinical) dissertation requirement, Appendix A presents the findings of a study conducted in a clinical setting that is conceptually related to the main research. It includes a brief overview and aims of the study. Research and clinical significances of findings are also discussed.

Explanatory Note

Chapter Two

Chin, Z.-H., & Wilkinson, R. B. (in preparation). Detecting self-reported attachment patterns in the MMPI-2-RF profiles. Unpublished manuscript.

Chapter Four

Chin, Z.-H., & Wilkinson, R. B. (in preparation). Attachment and adjustment: The Attachment style questionnaire (ASQ) and the MMPI-2-RF. Unpublished manuscript.

Chapter Five

Chin, Z.-H., & Wilkinson, R. B. (in preparation). Conflict communication, self-report attachment styles, psychological health and interpersonal outcomes. Unpublished manuscript.

CHAPTER ONE

Introduction

The understanding of psychological functioning, including well-being and dysfunction, has been one of the focal areas in clinical psychology (Trull & Prinstein, 2013). In line with the “scientist-practitioner” model, widely adopted among clinical psychologists, the main aim of clinical psychological research is to inform clinical practice, so as to increase clinicians’ effectiveness in helping individuals with psychological issues. Among the many schools of thought explaining individuals’ psychological functioning, one of the most prominent notions in current literature appears to be the influence of individuals’ cognitions. This is inferred from the multitude of therapy strategies that have been developed to target individuals’ cognitions for various psychological disorders, such as depression and anxiety.

An individual’s psychological functioning is postulated to be influenced by one’s beliefs about the self, the world and the future (A. T. Beck, 1976). A balanced and realistic view in these three domains is often associated with sound psychological well-being. Negativistic and unbalanced beliefs in some or all of these domains are thought to increase the risk in developing psychological dysfunction. Individuals’ beliefs on the self, world and future are shaped by their interactions with the environment and others (J. S. Beck, 1995). These beliefs become an integral part of an individual’s personality (Chen, Bond, & Cheung, 2006), which guides the way he/she appraises information, makes decisions, behaves, and interacts with the social and physical environment (Larsen & Buss, 2005).

Interactions with others have an influence on individuals’ psychological well-being and development of psychopathology through the shaping of their beliefs on the self, world and future (J. S. Beck, 1995). The impact of social interactions on psychological health can also be observed through its effect on relational qualities,

where negative interactions create relational problems that can result in poor psychological well-being and hence the possible development of psychopathology. Interpersonal interactions play a significant role in the development of psychopathology (e.g., Segrin, 2001; Van Orden, Wingate, Gordon & Joiner, 2005), making it important for clinicians to take interpersonal factors into consideration. This is apparent when clinicians are recommended to include interpersonal factors as an area to assess in various psychotherapy and psychological assessment guide books (e.g., Groth-Marnat, 2009; Stuart & Robertson, 2003; Wright, Basco & Thase, 2006). While social interactions have been suggested to shape individuals' beliefs that influence their psychological functioning (e.g., J. S. Beck, 1995), individuals' interactions with others are also guided by their beliefs related to relationship expectancies (e.g., Stuart & Robertson, 2003; Van Orden et al., 2005).

The genesis of individuals' beliefs about relationships occurs when individuals form their first meaningful relationship, generally with their mothers, soon after they are born (Parkes & Stevenson-Hinde, 1991). These relational beliefs are further sculpted and moulded by the individuals' childhood experiences, eventually becoming part of their core personality characteristics, which influence future interpersonal interactions, including how they address relational problems and form bonds with future significant others (Mikulincer & Shaver, 2007). Given its influence on social behaviours, relationship expectancies are likely to play a major role in psychological adjustment, affecting individuals' psychological functioning and development of psychopathology.

With individuals' beliefs on relationships having a possible role in affecting psychological functioning and personality, are these beliefs reflected in individuals' psychological adjustment? In the attempt to answer this question, this research uses attachment theory (Bowlby, 1969/1982) as the theoretical basis of understanding individual differences in relational beliefs and expectations, and to identify attachment

patterns in a chosen psychometric tool that assesses psychological adjustment. More specifically, this research examines the relationships between selected attachment measures and the Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008). Attachment theory (Bowlby, 1969/1982), evidence of its relationship with mental health, the chosen psychometric tool and its relationship with attachment theory (Bowlby, 1969/1982) will be discussed in the next few sections.

Attachment Theory

The theory of attachment was originally developed by John Bowlby as a way to conceptualize the inclination of humans to develop strong affectional bonds to significant others, known as “attachment figures”, and to provide an explanation for the distress that people experience when unwilling separation and loss take place (Bowlby, 1977). Bowlby (1969/1982) emphasized that individuals have an innate “attachment behavioural system” that propels them to organize attachment behaviours so as to increase their chances to survive and reproduce in inevitable environmental dangers and demands (Feeney & Noller, 1996; Mikulincer & Shaver, 2007). According to attachment theory (Bowlby, 1969/1982), the development of bonds with “attachment figures” is based on humans’ expectations of how responsive and accessible that figure will be in times of actual/perceived threat of danger (Jacobson, 2003).

An attachment figure is not just a close, important relationship partner but someone to whom a person can turn to for protection and support when needed. The real or unexpected disappearance of the attachment figure will evoke intense distress reactions from the person. This attachment figure is said to serve three unique functions to the individual: 1) being a target for proximity seeking; 2) reliably providing protection, support, comfort and relief in times of need; and 3) allowing the individual to pursue non-attachment goals in a safe environment (Ainsworth, 1991; Hazan &

Shaver, 1994). Hence, a relationship partner becomes an attachment figure only when he or she provides or is perceived to provide the individual a safe haven and secure base in times of threat or danger (Mikulincer & Shaver, 2007).

There are two main aspects to attachment theory (Mikulincer & Shaver, 2007; Simpson & Rholes, 1998). The first is the “normative” perspective in which development of the attachment behavioural system can be observed in all people. Attachment theory posits that the attachment system serves a biological function to all individuals, which is to protect them from danger by ensuring that they maintain close distance to caring and supportive others, especially in dangerous situations (Bowlby, 1969/1982, 1977). This system is believed to have evolved from infants’ prolonged helplessness and dependence, and is responsible for directing the selection, activation, and termination of behavioural sequences aimed at attaining the survival goals (Mikulincer & Shaver, 2007).

Triggers of the attachment behavioural system, a factor in the normative aspect of attachment theory, are the actual or perceived environmental dangers that threaten the individuals’ survival. In times of the actual or perceived danger, the natural and primary strategy for all individuals is proximity seeking, that is, seeking out and maintaining closeness with attachment figures (Mikulincer & Shaver, 2007; Simpson & Belsky, 2008). Examples of proximity seeking behaviours include overt displays of negative emotions and proactive approaches that increase physical or psychological contact (Mikulincer & Shaver, 2007). While there can be variations in the actual proximity seeking behaviours, all behaviours aim to fulfil the individuals’ goal of having a sense of protection or security (Simpson & Belsky, 2008). This attachment goal is another normative aspect of attachment, and when attained will deactivate the attachment system, allowing individuals to return to non-attachment motivated activities (Mikulincer & Shaver, 2007).

This attachment behavioural system is most evident and crucial during the infancy and early childhood years. It is assumed to remain active over the entire lifespan and manifests through thoughts and behaviours related to seeking proximity to attachment figures in times of threat or need (Mikulincer & Shaver, 2007). The underlying difference is that adults do not always require actual proximity seeking in times of threat as the activation of the mental representations of relationship partners who regularly provide care and protection would suffice (Mikulincer, Gillath, & Shaver, 2002). Individuals would constantly evaluate their progress towards their goal of proximity and, alter their behaviours, when required, to produce the most effective behaviour sequences (Bowlby, 1969/1982). According to Bowlby (1969/1982, 1973), all individuals have internal working models of self and others that guide their behaviours towards security and protection.

The second part of attachment theory looks at differences among individuals within the attachment system's operation. While the majority of children possess the innate motivation to seek proximity and security in times of need, the attainment of attachment security depends on the availability and responsiveness of attachment figures (Ainsworth, Blehar, Waters, & Walls, 1978; Bowlby, 1969/1982). Positive and adequate responsiveness of attachment figures can result in a good sense of security among individuals. This sense of security further encourages individuals to use proximity seeking or security-based strategies as a coping approach in times of need, allowing one's attachment security to strengthen and in turn build his/her resiliency against adversities (Shaver & Mikulincer, 2002). Mikulincer and Shaver (2007) coined this process of attachment security encouraging the use of positive strategies that further strengthened attachment security as the "broaden-and-build" cycle of attachment security. In contrast, negative and inadequate responsiveness of the attachment figures will increase distress in individuals, directing them to adopt secondary attachment

strategies to achieve their sense of security and cope with their distress (Dozier, Stovall-McCloguh, & Albus, 2008; Mikulincer & Shaver, 2007).

Not all of the insecurely attached individuals adopt the same secondary attachment strategy to achieve a sense of security. Secondary attachment strategies can be divided into two categories, hyperactivating (maximising) or deactivating (minimising) strategies (Cassidy & Kobak, 1988; Dozier, et al., 2008). According to Mikulincer and Shaver (2007), hyperactivating strategies are strategies used to get attention and protection from perceived unavailable attachment figures. These strategies include over-dependence on attachment figures for comfort, excessive demands for attention and care, and clinging or controlling behaviours that guarantee a partner's attention and support (Shaver & Hazan, 1993). Individuals using hyperactivating strategies tend to highlight and exaggerate their vulnerabilities, neediness, and helplessness, with the hope that their relationship partners will provide attention and concerns (Cassidy, 1994). While being able to gain attention and concerns from others initially, the use of hyperactivating strategies can eventually result in increased distress and interpersonal problems (Mikulincer & Shaver, 2007).

Deactivating strategies are used when proximity seeking option is not seen as possible (Cassidy & Kobak, 1988). Individuals who use these strategies aim to maintain psychological and emotional distance (and control) while achieving what they need in the relationships, and ignore or deny needs and avoiding negative emotional states that might trigger the attachment-system activation (Mikulincer & Shaver, 2007).

Deactivating strategies include avoidance of interactions that require emotional involvement, denial or suppression attachment-related thoughts and reluctance to think about or confront personal weakness and relationship tensions and conflicts (Mikulincer & Shaver, 2007). Individuals with attachment insecurity may adopt either the

hyperactivating or deactivating, or a combination of both types of strategies to deal with the distress experienced.

Individuals can also differ in attachment working models based on the quality of their interactions with attachment figures. While the variations in attachment figures' responses to an individual's effort to seek proximity and security alter the operation of the attachment system in short-term series of interactions, it also results in a more permanent and pervasive change in the attachment-system functioning in the long run (Bowlby, 1969/1982). These interactions are stored in the long-term memory of mental representations of self and others, and form the working models that allow individuals to predict future interactions with their relationship partners and alter proximity-seeking attempts accordingly (Bowlby, 1973). Individuals have been proposed to have many working models of the self and others, and these working models are hierarchically organised; ranging from general (i.e., across relationships) to relationship-specific (Baldwin, 1992; Bowlby, 1980; Collins & Read, 1994; Main, Kaplan, & Cassidy, 1985). In other words, individuals hold a tiered group of working models that include abstract rules and expectations about all relationships at the higher tiers, and information about specific relationships and event within relationships at the lower tiers (Overall, Fletcher, & Friesen, 2003; Pietromonaco & Barrett, 2000). While the working models guide individuals' behaviours, cognitions and feelings, they can also bias the ways in which individuals evaluate and store memories of subsequent interactions with their attachment figures (Mikulincer & Shaver, 2007).

Working models of attachment expectancies are typically manifested as attachment styles (Ainsworth, et al., 1978; Pietromonaco & Barrett, 2000). Attachment styles are defined as the patterns of expectations, needs, emotions and social behaviours that result from particular history of attachment experiences, which usually begins in individuals' relationships with parents (Fraley & Shaver, 2000). Individuals' attachment

styles reflect the chronically accessible working models and secondary attachment strategies that typify attachment system functioning and attachment strategy in a specific relationship or across relationships (Mikulincer & Shaver, 2007).

Ainsworth's (1967) work on attachment patterns in young children is believed to have initiated interests in individual attachment styles (Simpson & Rholes, 1998). Using the laboratory Strange Situations assessment procedure, Ainsworth and her colleagues (Ainsworth, et al., 1978) proposed three different attachment styles (secure, avoidant and anxious) to describe the infants' patterns of responses to separations from and reunions with their mothers (Feeney & Noller, 1996; Mikulincer & Shaver, 2007). A fourth style, "disorganized/disoriented" was later added by Main and Solomon (1986) when researchers faced difficulties classifying all infants in the three attachment styles (Feeney & Noller, 1996).

Since the introduction of the attachment styles construct to understanding infant-mother interactions in young children, researchers have used Ainsworth's concept of attachment styles and Bowlby's attachment theory to develop interview and self-report measures to assess adolescents' and adults' attachment, extending the attachment research through the lifespan (Mikulincer & Shaver, 2007; Simpson & Rholes, 1998). The Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) and the self-report questionnaire by Hazan and Shaver (1987) were the pioneers of adult attachment measures, and they differ in the components of adult attachment they are examining (Bartholomew & Shaver, 1998; Simpson & Rholes, 1998).

Traditionally, the concept of attachment has been examined through observations and interviews. The development of the first self-report attachment questionnaire encouraged the various attempts to create different variations and extensions of this first self-report measure (Brennan, Clark, & Shaver, 1998). Self-report attachment measures provide convenient administering and scoring, and directly

examined adults' view on their current attachment figures (Simpson & Rholes, 1998). According to Simpson and Rholes (1998), self-report attachment measures assess individuals' current expectations on how responsive and sensitive others will be to bid for attachment security and reflect the most accessible 'internal working models'. Self-report attachment measures are also believed to be more appropriate tools to tap into attachment working models responsible for social behaviours in peer and romantic relationships (Simpson & Rhodes, 1998). While first developed to assess romantic relationships, self-report measures have been extended to include assessment of other non-romantic relationship-specific attachment styles (e.g., Mallinckrodt, Gantt, & Coble, 1995) and attachment across relationships, that is, general attachment styles (e.g., Wilkinson, 2011). Over the years, researchers (e.g., Klohnen, Weller, Luo, & Choe, 2005; Lowyck, Luyten, Demyttenaere, & Corveleyn, 2008; Pierce & Lydon, 2001) have increasingly acknowledged the need to examine both general (i.e., attachment across relationships) and relationship-specific attachment styles in attachment research. Overtime, two groups of self-report measures, categorical (or forced-choice) (e.g., Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987) and dimensional (e.g., Brennan, et al., 1998; Feeney, Noller, & Hanrahan, 1994) have emerged, and many of these self-report measures demonstrated good psychometric properties (Mikulincer & Shaver, 2007).

Through the efforts in developing and testing multi-items scales, it was discovered that two dimensions of insecurity underlie all the self-report attachment style measures: attachment-related anxiety and attachment-related avoidance (Brennan, et al., 1998). Attachment-related anxiety looks at individuals' strong desire for closeness and protection, intense concerns about partner's availability, and their personal value to the partner. This anxiety is brought about by the separation from and abandonment by attachment figures, and having insufficient love (Mikulincer & Shaver, 2007). The

attachment-related avoidance dimension, on the other hand, looks at individuals' discomfort in intimacy and expressing emotions, and their preference for emotional distance and self-reliance that are influenced by the characteristics of the relationship partners. While attachment-related anxiety represents hyperactivating strategies, attachment-related avoidance represents deactivating strategies in dealing with insecurity and distress (Mikulincer & Shaver, 2007). One of the most commonly used self-report measure of attachment reflecting the anxiety-avoidance dimensions is the Experiences in Close Relationships scale (ECR; Brennan, et al., 1998). The ECR consists of two 18-item scales, one to assess attachment anxiety and the other to assess attachment avoidance. Since its introduction, the ECR has been revised and modified to increase its effectiveness and to allow its use in a larger range of population groups (e.g., Fraley, Waller, & Brennan, 2000; Wilkinson, 2011).

An interpretation of the anxiety-avoidance dimensional model in terms of Bowlby's (1969/1982) ideas about internal working models of self and others can be found in Bartholomew's (1990) work in understanding adult avoidance of intimacy (Mikulincer & Shaver, 2007). The avoidance dimension is proposed to be conceptualized as "model of others", and the anxiety dimension be conceptualized as the "model of self" (Bartholomew, 1990; Bartholomew & Shaver, 1998; Mikulincer & Shaver, 2007). According to Bartholomew (1990), an individual's images of the self and other are dichotomized as positive or negative. The combination of these two dimensions would define four adult attachment patterns, namely, *Secure* - positive view of both self and other; *Dismissing* - positive view of self and negative view of other; *Fearful* - negative view of self and other; and *Preoccupied* - negative view of self and positive view of others (Bartholomew, 1990). In relation to the anxiety-avoidance attachment dimensions, *Secure* is conceptualised as low in both attachment-related anxiety and avoidance; *Dismissing avoidant* as low in anxiety and high in avoidance;

Fearful avoidant as high in anxiety and high in avoidance; and *Preoccupied* as high in anxiety and low in avoidance (Mikulincer & Shaver, 2007). Figure 1.1 is a diagram adapted from Mikulincer and Shaver (2007) and provides an illustrative view on both two-dimensional spaces (self-other and anxiety-avoidance) and the quadrant names suggested by Bartholomew (1990). With this four-category typology as the theoretical framework, a short self-report measure containing multiple prototype descriptions of these four theoretical types - the Relationship Questions (RQ) - was subsequently developed by Bartholomew and Horowitz (1991).

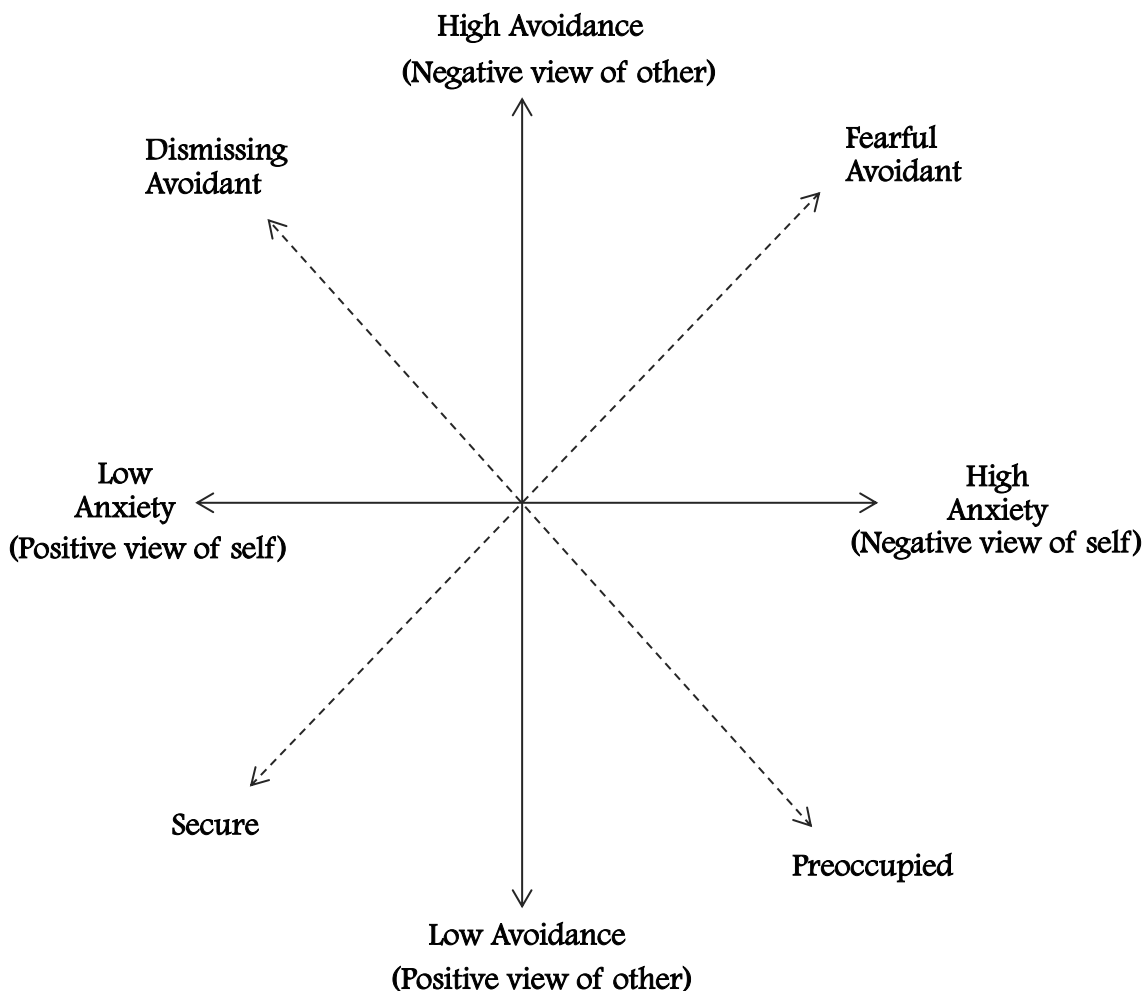


Figure 1.1. Diagram of the anxiety-avoidance dimensions (Brennan, Clark & Shaver, 1998) in relation to the self-other dimensions (Bartholomew, 1990), showing the quadrant names suggested by Bartholomew (1990). Adapted from Mikulincer & Shaver, 2007.

Attachment and Mental Health

As mentioned earlier, attachment theory (Bowlby, 1969/1982) was developed to provide an insight as to why humans develop psychopathology when unwilling separation and loss take place. Given its origin, it is seen as both a theory of psychopathology and normal development (Egeland & Carlson, 2004; Mikulincer & Shaver, 2007). With some influence from psychoanalytical ideology, attachment theory has used empirical evidence from many different fields of science and proposed empirically testable suggestions in elucidating the reasons and ways early relationships contribute to psychological well-being and psychopathology (Mikulincer & Shaver, 2007). According to attachment theory, attachment security, built from repeated experiences with responsive and loving attachment figures and maintained by the broaden-and-build cycle, provides the foundation for mental health (Mikulincer & Shaver, 2007). This sense of attachment security allows individuals to have the resources to manage negative emotions, restore emotional stability, and use positive strategies to cope with life issues (Cassidy, 1994; Mikulincer & Florian, 1998; Mikulincer & Shaver, 2005). The availability of these resources to manage distress allows secure individuals to counter negative emotional states and maintain longer period of positive ones, reducing their risks in developing psychopathology (Mikulincer & Shaver, 2007).

Attachment insecurities, on the other hand, put individuals at risk for negative affectivity, prolonged distress and psychological disorders as they are unable to successfully develop personal resources to cope with their problems (Bowlby, 1988; Mikulincer & Florian, 1998). With regards to attachment-related anxiety, anxious attachment hinders the downward-regulation of negative emotions and encourages intense and persistent distress, even after threats have been terminated (Mikulincer & Florian, 1998; Mikulincer & Shaver, 2007). This increasingly high level of negative

emotions creates an unmanageable stream of negative cognitions and emotions in those anxiously attached, which in turn give rise to cognitive disorganization and could subsequently develop into psychopathology (Mikulincer & Shaver, 2007). On the other hand, attachment-avoidant individuals suppress normal emotions and leave suppressed distress unresolved. This disables them to deal with inevitable life problems and eventually results in decline in functioning (Mikulincer & Shaver, 2007). The use of secondary attachment strategies, triggered by attachment insecurities, is also a contributing factor to the increased risk for psychopathology (Dozier, et al., 2008). Insecure individuals' inability to self-regulate behaviours and difficulties in interpersonal regulation further increases their risk to psychopathology by increasing self-doubts, developing low self-efficacy, and by being involved more in conflicts and adopting maladaptive strategies to resolve conflicts (Mikulincer & Shaver, 2007).

There have been many studies that have investigated the relationship between attachment and mental health (e.g., Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Palitsky, Mota, Afifi, Downs, & Sareen, 2013; Shafer, 2001; Shaver et al., 1996; Wei, Vogel, Ku, & Zakalik, 2005). While the studies differ in the types of attachment measures and clinical scales administered, the majority of these studies have found that reported poor mental health (including emotional problems and adjustment difficulties) is associated with insecure attachment styles, whereas the attachment-anxious group was found to have reported more symptoms than attachment-avoidant group (e.g., Solomon, Ginzburg, Mikulincer, Neria, & Ohry, 1998). Also, most studies found more significant findings in the attachment-anxious group as compared to those in the attachment-avoidant group (e.g., Besser & Priel, 2003; Lopez, Melendez, Sauer, Berger, & Wyssmann, 1998; McGowan, 2002).

In examining the associations between adult attachment and the severity of depression, many studies have found that attachment security or the secure attachment

style are related to lower level depression (e.g., Berman & Sperling, 1991; Haaga et al., 2002; Liu, Nagata, Shono, & Kitamura, 2009; Wautier & Blume, 2004). Murphy and Bates (1997) conducted a study to examine the role of adult attachment in differentiating college students with depression from those without, and found that insecure attachment styles highlighting negative self-representation (i.e., fearful and preoccupied) were associated with higher levels of depression. Dismissing attachment was not found to be associated with depressive vulnerability (Murphy & Bates, 1997). Studies assessing attachment dimensions found that both attachment anxiety and attachment avoidance are associated with depression, with attachment anxiety having a stronger association (e.g., Treboux, Crowell, & Waters, 2004; Wei, Heppner, Russell, & Young, 2006; Williams & Riskind, 2004). Reviewing the available studies on attachment and depression, Mikulincer and Shaver (2007) concluded that anxious attachment is commonly associated with interpersonal-related depression (e.g., overdependence) and avoidance is associated with achievement-related of depression (e.g., perfectionism).

Studies investigating the relationship between attachment and anxiety have yielded similar results as those for depression. Secure attachment is consistently related to lower levels of anxiety, and higher attachment anxiety and avoidance are related to more anxiety symptoms (e.g., Koohsar & Bonab, 2011a; Vivona, 2000; Williams & Riskind, 2004). In examining specific anxiety disorders, studies have found that adult separation anxiety disorder (Bucci et al., 2012), phobic anxiety and obsessive compulsive behaviours (Doran et al., 2012; Koohsar & Bona, 2011b) are positively associated with insecure attachment styles. Participants with generalised anxiety disorder symptoms were also found to report less secure attachment and have higher perception of alienation from significant others (Eng & Heimberg, 2006; Viana & Rabian, 2008). Weems and colleagues (2002) found that individuals with insecure

attachment, particularly those who are in the preoccupied and fearful attachment styles, had significantly higher anxiety sensitivity scores than those who are securely attached in the high school and college samples. Anxiety sensitivity has been hypothesized as a risk factor for the development of anxiety disorders (Reiss et al., 1986) and these results indicate that individuals who have an insecure attachment style would have a higher risk in developing an anxiety related disorder. Whilst a significant association of attachment avoidance was found with depression and anxiety in the current literature, these findings are not consistent as some studies were not able to find similar significant relationships (Mikulincer & Shaver, 2007).

Besides affective disorders, studies have also examined attachment's association with other psychological disorders such as personality disorders and eating disorders. All of the studies have found significant association between these psychological disorders and attachment insecurities (e.g., Bartholomew, Kwong, & Hart, 2001; Fossati, Feeney, Donati, Donini, Novella, Bagnato, Carretta, et al., 2003a; Kenny & Hart, 1992; Orzolek-Kronner, 2002; Shanmugam, Jowett, & Meyer, 2012; Timmerman & Emmelkamp, 2006). Itting, Tasca, Balfour and Bissada (2010) found that participants with an eating disorder had significantly higher attachment insecurity than those without. Attachment anxiety was also found to be positively associated with greater eating disorder symptom severity, and anorexia nervosa binge purge subtype was positively associated to higher attachment avoidance and anxiety compared with the other eating disorders examined in their study (Itting et al., 2010). In relation to personality disorders, Crawford, Shaver and colleagues (2006) conducted a study to examine the association between clusters of personality disorders (A, B, C) and attachment orientations in a non-clinical community sample. According to the Diagnostic and Statistical Manual of Mental Disorder, Fifth edition (DSM-5; American Psychiatric Association, 2013), Cluster A personality disorders consist of paranoid, schizoid and schizotypal personality

disorders; Cluster B consists of antisocial, borderline, histrionic and narcissistic personality disorders; and Cluster C consists of avoidant, dependent and obsessive-compulsive personality disorders. Results showed that higher ratings of attachment avoidance were associated with Cluster A symptoms, and higher rate of attachment anxiety were associated with Cluster B and Cluster C symptoms (Crawford, et al., 2006).

In summary, researchers examining attachment have found that attachment insecurities are common among people with a large variety of psychological disorders. This supports the notion that attachment security is a protective factor against psychological disorders and helps in coping with stress whereas attachment insecurities reduce the individuals' resilience against psychological disorders.

It is interesting how the research findings portray a deceptively simple conclusion that individuals who are anxiously attached are at higher risk in developing psychopathology than those with an avoidant attachment. While attachment avoidance is observed to have a lack of significant results as compared to attachment anxiety, this could be due to the characteristics of attachment avoidance. Avoidant attachment is highly associated with strategies that allow psychological distancing one from others and that prevent attachment-system activation (Mikulincer, Shaver, & Pereg, 2003). Avoidant-attached individuals are also said to use *defensive self-enhancement*, inflating positive self-views and denying or suppressing negative information about themselves, so as to cope with the frustrating social experiences without the need to rely on others (Mikulincer & Shaver, 2007). Hence, individuals who have an avoidant attachment style may have the tendency to falsely report their mental well-being and/or tend to downplay the extent to which they do not feel well, resulting in the distortion of the data.

In addition, despite the vast amount of existing literature that has examined the association between attachment and mental health, the focus of these studies appears to be mainly on the link between attachment and specific psychopathology (e.g.,

depression, and anxiety and personality disorder). Few attempts have been made to examine the association between attachment and broader patterns of psychopathology. Results from studies examining prevalence of psychological disorders (e.g., Andrews, Henderson & Hall, 2001; Bijl, Ravelli, & van Zessen, 1998; Jacobi, Wittchen, Holting, Hofler et al., 2004; Kessler, Chiu, Demler & Walters, 2005) suggest that comorbidity of psychological disorders is a common phenomenon. Kessler and colleagues (2005) studied a sample of the US English-speaking population (aged 18 years and above) and found that 45 percent of the respondents had a life-time history of two or more DSM-IV disorders. Data from the Australian National Survey of Mental Health and Wellbeing (NSMHWB) also showed that 8.80% of the respondents reported had two or more psychological disorders in the previous 12 months from the time of the survey (Andrew et al., 2001). Hence, given the prevalence of comorbidity among psychological disorders, investigation on the association between attachment and broader patterns of psychopathology could shine light on whether patterns of psychopathology (i.e., various comorbidity patterns) are linked to individual differences in different styles or dimensional patterns in attachment.

The use of attachment theory in the investigation of whether individuals' beliefs regarding relationships are reflected in individuals' personality and psychopathology could also raise awareness of attachment theory's value in clinical work. Attachment theory (Bowlby, 1969/1982) was conceptualized through Bowlby's clinical work, and has ever since been used to examine and explain individual differences observed in other fields of Psychology, such as social and developmental psychology. While attachment has been found to be associated with various psychological dysfunctions in many studies, little seems to be done to integrate attachment theory to clinical practice. Interpersonal Psychotherapy (Klerman, Weissman, Rounsaville, & Chevron, 1984; Weissman, Markowitz, & Klerman, 2000) places its theoretical foundation on

attachment theory (Stuart & Robertson, 2003), and is one of the few specifically developed psychological interventions to do so. More could be done in encouraging the integration of science into practice and the consideration of attachment orientations or interpersonal factors as the basis of psychological dysfunctions observed in clinical practice. Hence, by raising awareness of attachment theory's value in clinical work, this research hopes that the findings can further encourage clinicians to assess attachment in clinical practices.

Minnesota Multiphasic Personality Inventory

The Minnesota Multiphasic Personality Inventory (MMPI) is a measure of personality and psychopathology, and measures an individual's level of emotional adjustment and attitude toward test taking. First developed in 1940 by Hathaway and McKinley to help assess adult patients and accurately determine severity of the disturbance (Groth-Marnat, 2009), the MMPI test has since been one of the frequently used clinical personality inventory in clinical practice to understand the psychiatric symptoms and personality characteristics of their clients (Lubin, Larsen, Matarazzo, & Seever, 1985; Piotrowski, 1999; Watkins, Campbell, Nieberding, & Hallmark, 1995). In one of the more recent reviews of psychological tests usage, Camara, Nathan & Puente (2000) found that the MMPI was the most frequently used test among the other tests used by 497 psychologists (about 84%) who conduct assessment services for 5 or more hours in a typical week during the time of the study. The MMPI is also a widely researched self-report measures of psychopathology, being referenced over 4, 300 times between the year 1974 and 1994 (Butcher & Rouse, 1996), and having close to 29, 000 citations (both MMPI and MMPI-2) during an electronic data base search in 2010 (Greene, 2011). Despite being a widely used and researched self-report clinical measure, the MMPI has received its fair amount of criticism over the seven decades since it was first introduced.

The original MMPI was criticised for being outdated (Ben-Porath, 2012; Norman, 1972), having inadequate standardized sample for the test to be used in other settings (Ben-Porath, 2012; Greene, 2011) and for having problematic items (Helmes & Reddon, 1993), such as items being objectionable and having possible racial bias (Groth-Marnat, 2009). Such criticisms lead to the development of the MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989; Butcher et al., 2001), which is an updated and re-standardized version of the MMPI. The MMPI-2 maintained most of the original MMPI items, with others being omitted or reworded. This is an improved version from the original MMPI by having new scales, new norms and a new method of calculating the MMPI-2 standard scores (Greene, 2011).

The MMPI-2 has been relatively successful given its continued popularity among practitioners and researchers (Ben-Porath, 2012), but has also been criticised for the heterogeneity of the scales and the lengthy duration of the test (Groth-Marnat, 2009). As a result, researchers continued to work on refining and improving the MMPI test. One notable refinement was the introduction of the five core personality scales related to psychopathology, the Personality Psychopathology Five (PSY-5; Harkness, McNulty, & Ben-Porath, 1995), which was considered a major addition to the MMPI-2 when it was revised in 2001 (Ben-Porath, 2012). Another notable refinement is the development of the Restructured Clinical (RC) scales (Tellegen et al., 2003). The RC scales were developed to address issues regarding higher than expected intercorrelations and substantial heterogeneity of the clinical scales, and includes a scale assessing demoralization, a common factor identified to be responsible for the intercorrelational issues between the Clinical scales (Ben-Porath, 2012).

The latest major revision of the MMPI test is the Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008), a data-based and construct-oriented revision of the MMPI-2 (Groth-Marnat,

2009; Tellegen & Ben-Porath, 2008). The main aim of the revision was to create a more comprehensive set of psychometrically adequate measures to represent the clinically significant substance of the MMPI-2 item pool (Tellegen & Ben-Porath, 2008). The MMPI-2-RF development process was similar to that of the Restructured Clinical Scales (see Tellegen & Ben-Porath, 2008 for more information on development process of MMPI-2-RF) and uses the MMPI-2 normative sample, with the exception of 224 women who were randomly removed for standardisation to create equal number of individuals in each gender group (Greene, 2011; Groth-Marnat, 2009).

The MMPI-2-RF consists of 338 items that were chosen from the MMPI-2 item pool. These items were initially grouped into 50 scales: eight validity scales and 42 substantive scales. Among the eight validity scales, besides having one new scale, the other seven were revised from the previous MMPI-2 validity scales. The 42 substantive scales consists of nine previously developed restructured clinical (RC) scales, five revised personality psychopathology five scales (PSY-5), and 33 new scales. There are also 28 new other scales of which three are higher-order scales, 23 are specific problem scales, and two are interest scales (Tellegen & Ben-Porath, 2008). The RC and PSY-5 scales are seen as the core of the MMPI-2-RF (Groth-Marnat, 2009). A ninth validity scale that assesses over-reporting, the Response Bias Scale (RBS, Gervais, Ben-Porath, Wygant & Green, 2007) was added to the MMPI-2-RF test in 2011 after a review conducted by the test publisher (Tellegen & Ben-Porath, 2011).

The MMPI-2-RF's scales were generally found to have sound psychometric properties, including good construct and criterion validities (Ben-Porath, 2012; Tellegen & Ben-Porath, 2008). It has also received positive appraisal for its substantially shorter length, allowing for quicker administration and scoring, ease of interpretation, and links to current personality and psychopathology literature (Graham, 2011; Greene, 2011). To address concerns with MMPI-2-RF creating false positive findings of psychopathology

(Odland et al., cf Tarescavage et al., 2013), Tarescavage and colleagues (2013) compared the rates of elevated MMPI-2-RF substantive scales scores with epidemiological data on the prevalence of psychopathology and found that the elevated scores occur at a rate that is consistent with existing epidemiological data. These, including the MMPI-2-RF's sound psychometric properties, provided the suggestion that the MMPI-2-RF-good substitute of the MMPI-2, especially when "brevity is critical" (Groth-Marnat, 2009, p. 291). However, as cautioned by Ben-Porath and Tellegen (2008) and Tarescavage and colleagues (2013), elevated scores on the MMPI-2-RF scales alone is not conclusive for the diagnosis of psychological disorders, and instead, should be viewed as suggestions of the need to further evaluate individuals for possible disorders.

The main MMPI-2-RF scales that are of interest to this research are the nine RC scales, the five PSY-5 scales and the Interpersonal scales. The RC scales and the PSY-5 scales have been chosen to be examined as they are the two major groups of scales in the MMPI-2-RF. The Interpersonal scales, on the other hand, while belonging to a sub-category have relevance to attachment due to individuals' attachment influence on their functioning. Given that the validity scales provide information on individuals' test-taking attitude in the MMPI-2-RF, it would also be valuable to examine if attachment has an influence on individuals' test-taking attitude, and hence being reflected in some of the selected validity scales. The next few paragraphs are explanations of the selected MMPI-2-RF scales as described by Ben-Porath and Tellegen (2008) in the interpretive manual of the MMPI-2-RF.

Restructured Clinical (RC) scales.

The first RC scale is *Demoralization* (RCd) and represents a pervasive and affect-laden dimension of unhappiness and life dissatisfaction (Ben-Porath & Tellegen, 2008). While a low score reflects a relatively high level of morale and life satisfaction, a

high RCd score reflects high dissatisfaction of life where the test taker feels helpless and ineffective with the life situations he/she is facing (Ben-Porath & Tellegen, 2008; Groth-Marnat, 2009).

Somatic Complaints (RC1), the second RC scale, looks at a range of somatic complaints that is often associated with somatoform disorders (Ben-Porath & Tellegen, 2008). Low RC1 scores represent a sense of relative somatic well-being and high RC1 scores represent presence of significant health difficulties which may be contributed by actual physical health condition. However higher scores would most likely be significantly contributed by psychological components (Groth-Marnat, 2009).

Another RC scale is *Low Positive Emotions* (RC2). The aim of this scale is to measure a lack of positive emotional experiences (Ben-Porath & Tellegen, 2008), which is said to be the prominent aspect of major depression. Individuals with low RC2 scores are associated with reports of high level of psychological well-being and wide range of positive emotional experiences (Ben-Porath, 2012). Having a high score, on the other hand, indicates that the test-taker is experiencing limited positive emotional experiences and finds difficulty in engaging with people. High RC2 scorers also experience not having sufficient energy to deal with life challenges and are self-critical (Groth-Marnat, 2009).

The *Cynicism* (RC3) scale measures test-takers' level of negativity of their views of human nature (Ben-Porath & Tellegen, 2008). Low scores indicate that the test-taker views others as well-intentioned and trustworthy. Test-taker who has a high score indicates having a relative cynical view about other people's motivation. Items in *Antisocial Behavior* (RC4) describe various antisocial behaviours and related family conflict (Ben-Porath & Tellegen, 2008). High score on RC4 reflects a history of high level of antisocial behaviour while low RC4 score reflects low level of past antisocial behaviour. The *Ideas of Persecution* (RC6) scale assesses the extent to which test-takers

holds persecutory beliefs (Ben-Porath & Tellegen, 2008). High RC6 score indicates that the test-taker feels that he/she are being persecuted and controlled by others. RC6 score that are higher than 80 indicates that the test-taker could be having paranoid delusions (Ben-Porath & Tellegen, 2008).

The third last RC scale, the *Dysfunctional Negative Emotions* (RC7) scale, looks at the extent to which negative emotional experiences are reported by test-takers. Low scores in RC7 reflect test-takers having below-average level of negative emotional experiences. High scores reflect high level of negative emotional experiences and are related to an increased risk of anxiety-related psychological disorders (Ben-Porath & Tellegen, 2008). This is followed by the *Aberrant Experience* (RC8) scale that looks at the extent to which test-takers experience various unusual thought and perceptual experiences, which are characteristics of disordered thinking (Ben-Porath & Tellegen, 2008). High RC8 scores are linked with symptoms of psychotic disorders, with very high scores indicating possible significantly disorganized thinking (Ben-Porath & Tellegen, 2008).

Finally, the last RC scale, *Hypomanic Activation* (RC9), consists of items that describe a range of emotions, attitudes, and behaviours consistent with hypomanic activation. High RC9 score indicates that the test-taker is having a “combination of anhedonia and behavioural disengagement that may signal a vegetative depressive state” (p.41., Ben-Porath & Tellegen, 2008). Extremely high score could indicate possible manic episode while moderately high score may reflect the test-taker to be well adapted but having high energy (Groth-Marnat, 2009).

Personality Psychopathology Five (PSY-5) scales.

Linked to the “Big Five” model of personality, the Personality Psychopathology Five (PSY-5) Scales provide a temperament oriented viewpoint on major dimensions of personality pathology (Ben-Porath & Tellegen, 2008). The first of the PSY-5 scale is

the *Aggressiveness-Revised* (AGGR-r), which is negatively correlated with the Agreeability dimension of the “Big Five” model (Ben-Porath & Tellegen, 2008). AGGR-r consists of items that describe aggressively assertive behaviours, where low scores indicate that individuals are likely to be passive and submissive while high scores are related with instrumental aggressiveness (Ben-Porath & Tellegen, 2008).

The next PSY-5 scale is the *Psychoticism-Revised* (PSYC-r). It consists of items that describe a variety of experiences associated with thought disturbance. Individuals with high scores are said to have unusual perceptual experiences and thought, and are alienated from others (Ben-Porath & Tellegen, 2008). The *Disconstraint-Revised* (DISC-r) scale is related to test takers’ level of impulsivity, in which it consists of items that describe a variety of manifestations of disconstrained behaviours (Ben-Porath & Tellegen, 2008). High scores are associated with poor impulse control, acting out, and the need to seek for sensation and excitement (Ben-Porath, 2012). DISC-r was found to be negatively related with the Conscientiousness dimension of the five-factor model of personality, with inclination towards dysfunctional behaviours (Ben-Porath & Tellegen, 2008).

The *Negative Emotionality or Neuroticism-Revised* (NEGE-r) scale is concerned with individuals’ negative emotional experiences, and is found to be associated with the Neuroticism dimension of the “Big Five” model. While low scores indicate that individuals are not prone to experience negative emotions, elevated scores are related to negative emotions, including anxiety and worry, as well as a general inclination to catastrophise (Ben-Porath & Tellegen, 2008).

Lastly, the *Introversion/Low Positive Emotionality-Revised* (INTR-r) examines the lack of positive emotional experiences and avoidances of social situations and interactions. High scores are associated with social introversion, anhedonia, limited interests and a negative attitude. Low scores indicate that individuals are socially

engaged and experience a wide range of positive emotions (Ben-Porath & Tellegen, 2008).

Various PSY-5 scales scores are suggested to be associated with different personality disorders. While elevated PSYC-r scores have been identified to be associated with aspects of the DSM-IV cluster A personality disorders, elevated AGGR-r and DISC-r scores are identified to be associated with features of DSM-IV cluster B personality disorders (Ben-Porath & Tellegen, 2008). High NEGE-r and INTR-r scores, on the other hand, are associated with features of DSM-IV cluster C personality disorders.

Interpersonal scales.

The Interpersonal scales primarily focus on interpersonal functioning of test takers. This category consists of five scales, which are the *Family Problems* (FML), *Interpersonal Passivity* (IPP), *Social Avoidance* (SAV), *Shyness* (SHY) and *Disaffiliativeness* (DSF).

Items in FML subscale describe negative family experiences, including quarrels and dislike of family members. Low scores indicate that individuals have a relatively conflict-free family environment, and high FML scores are related with poor family conflicts (Ben-Porath & Tellegen, 2008).

IPP Interpersonal scale taps the passivity of individuals in a relationship, and low IPP scores are associated with one who has leadership capabilities or being domineering, self-centred and possibly grandiose (Ben-Porath & Tellegen, 2008). High scores, on the other hand, indicate that individuals are likely to be unassertive and submissive, and do not like to be in charge (Ben-Porath & Tellegen, 2008).

While both high SAV and SHY are associated with social introversion, the SAV scale assesses individuals' levels social avoidance and enjoyment in social events; the SHY scale, on the other, is interested in various manifestation of social anxiety, such as

being easily embarrassed (Ben-Porath & Tellegen, 2008). In addition to social introversion, high SAV scores are also related with emotional restriction and difficulties forming close relationships. High SHY scores are also suggested to be associated with feeling anxious in social situation (Ben-Porath & Tellegen, 2008).

Lastly, the DSF scale assesses the individuals' preferences and views about other people. Individuals who have elevated scores tend to dislike people and dislike being around them, do not have close relationship and prefer to be alone (Ben-Porath & Tellegen, 2008). Extremely elevated DSF scores could indicate schizoid personality disorder (Ben-Porath & Tellegen, 2008).

Validity scales.

The MMPI-2-RF Validity scales are used to determine whether the MMPI-2-RF test results are interpretable and to inform clinicians which type of caution to undertake when interpreting valid protocols (Ben-Porath & Tellegen, 2008). The Validity scales are divided into three groups assessing different areas that could contribute to validity of test results. The areas assessed are content non-responsiveness, over-reporting, and under-reporting (Ben-Porath & Tellegen, 2008). As insecurely attached individuals would use secondary attachment strategies to either exaggerate and/or downplay one's vulnerabilities neediness, this research will focus on the validity scales that examine over- and under-reporting tendencies.

Over-reporting¹.

Over-reporting is said to occur when test-takers over-exaggerate their actual degree of dysfunction (Ben-Porath & Tellegen, 2008). Validity scales that are used to assess over-reporting are the *Infrequent Responses (F-r)*, *Infrequent Psychopathology*

¹ RBS was not included in the research as it was added to a subsequent version of the MMPI-2-RF

Responses (Fp-r), Infrequent Somatic Responses (Fs) and the Symptom Validity (FBS-r) scales.

The F-r scale examines over-reporting of a broad range of psychological, cognitive, and somatic symptoms. While elevated scores suggests over-reporting, certain levels of elevation are also possible for individuals who experience genuine difficulties. F-r T scores between 79 and 119 suggest possible over-reporting, and protocols that have F-r T scores equal or more than 120 are deemed as invalid (Ben-Porath & Tellegen, 2008). The Fp-r scale examines the tendencies in which individuals endorse items in the key direction that are infrequent in the psychiatric population. This scale is especially useful in detecting over-reporting when the test is used in settings and populations with high base rates of significant psychopathology (Ben-Porath & Tellegen, 2008). Fp-r scoring a T score of 100 or higher results in invalidity of protocol.

The aim of the Fs scale is to detect individuals who over-report somatic symptoms by using items that are rarely endorsed by individuals with substantial medical problems (Ben-Porath & Tellegen, 2008). Elevated Fs scores indicate possible over-reporting of somatic symptoms, and scores on the Somatic scales may be invalid when Fs T scores have values of 100 or higher. The FBS scale also provides information about possible over-reporting of somatic complaints. In addition, it examines over-reporting of cognitive complaints (Ben-Porath & Tellegen, 2008). Elevation of the FBS scores indicates over-reporting, and T-score values being 100 or higher may result in the Somatic and Cognitive scale scores being invalid.

Under-reporting.

Under-reporting occurs when test takers portray themselves in a favourable light, suggesting that they are functioning at a higher level than in reality. Under-reporting could occur unintentionally due to individuals' lack of awareness of or insight into their psychological dysfunction (Ben-Porath & Tellegen, 2008). The two validity scales

responsible for detecting under-reporting are the *Uncommon Virtues* (L-r) and *Adjustment Validity* (K-r) scales.

The L-r scale is developed to identify test-takers who under-report by denying minor faults and shortcomings that most individuals would acknowledge. While an elevated L-r score could indicate underreporting, this elevation could also be due to test-takers' strict upbringing with traditional values (Ben-Porath & Tellegen, 2008). While the L-r scale is based on virtues and values, the K-r scale is based on individuals' levels of adjustment. The K-r scale identifies test takers who present themselves as well-adjusted, and higher scores represent higher levels of adjustment. Under-reporting of one's adjustment level is suspected when there is elevated K-r score and other information indicated that the individual is not well-adjusted (Ben-Porath & Tellegen, 2008).

Attachment and the use of MMPI in research

In a review of the current literature through online databases (e.g., PsycInfo, PsycArticles & Journals@Ovid), few studies (e.g., Jacobson, 2003; Pianta, Egeland, & Adam, 1996) were found to employ the use of the MMPI to examine the relationship between attachment and mental health. Importantly, no study that used the MMPI-2-RF to investigate the relationship between psychopathology and attachment was found. Pianta and colleagues (1996) examined 110 high-risk women in their second trimester of their first pregnancy and found differential relationships between the MMPI-2 scales and the various attachment styles as defined by the Adult Attachment Interview. More specifically, the Dismissing group were found to have significantly lower scores in the *Hysteria* (measures a variety of specific somatic complaints while also assessing defensiveness) clinical scale than the other groups and were below the normed average. The Preoccupied group were also found to obtain their highest scores on the *Paranoia* (measures areas such as suspiciousness, and tendency to blame others) and

Schizophrenia (measures a wide array of symptoms typically observed in Schizophrenia) clinical scales.

With samples of 186 undergraduates and 188 individuals seeking psychological services, Jacobson (2003) also found that the MMPI-2 Clinical scales differentially relate to the two dimensions of romantic attachment anxiety and avoidance as measured by the Experiences in Close Relationships Scale (ECR). Looking at the student sample of the study, the *Psychasthenia* (measures propensity for obsessive and compulsive thoughts and behaviour) and the *Schizophrenia* clinical scales were found to be positively associated with attachment avoidance. Attachment anxiety, on the other hand, was found to be positively associated with the *Depression* (measures a variety of emotional and behavioural content typically associated with depression), *Psychasthenia* and *Social Introversion* (measures tendency to avoid social interaction due to either discomfort or disinterest) scales. Positive relationships between the *Paranoia* clinical scale and attachment anxiety, between *Schizophrenia* and attachment avoidance, and a negative relationship between *Hysteria* and attachment avoidance were found for the clinical sample. Using the Attachment Style Questionnaire (Feeney, et al., 1994) with a sample of 225 college students, Leveridge, Stoltenberg and Beesley (2005) found that attachment avoidance was positively associated with *Social Introversion* and *Hypochondriasis* (measures of somatic complaints) scales of the MMPI-2, and negatively associated with the *K* (defensiveness) scale. Attachment anxiety was also found to be positively associated with *Depression* and *Psychasthenia*, and secure attachment was negatively associated with *Depression*, *Psychasthenia* and *Social Introversion* (Leveridge et al., 2005).

Besides the lack of studies using the MMPI with attachment measures, many of the existing studies were observed to use specific relationships domains (e.g., romantic partners and parents) attachment measures (e.g., Gardner, 1995; Jacobson, 2003; Pianta,

et al., 1996). While researchers have recommended the need to examine both general and specific attachment styles, fewer studies have been found to examine individuals' attachment across relationships, that is, their general attachment styles. Information on general attachment tendencies in relation to mental health would be helpful to clinicians who want to obtain a quick overview of individuals' interpersonal factors of the existing psychopathology without going into specific relationship details. With this gap in the literature, more studies are needed to examine the relationship between attachment and the latest version of the MMPI, and the relationship between individuals' general attachment style and mental health. Given the use of the MMPI in various psychological settings, the ability to detect attachment patterns in the various MMPI scales scores can provide clinicians with valuable information on an individual and his/her possible cognitive or behavioural tendencies in relation with attachment using a single psychometric measure.

Aim of Study 1

With attachment theory (Bowlby, 1969/1982) as the framework in defining the different ways in which individuals relate to others in the context of any close relationship (general attachment styles), the study aims to employ the Minnesota Multiphasic Personality Inventory (MMPI) to examine the systematic relationship between psychological functioning and the way an individual relates to others in the context of any relationship. More specifically, the aim of this study is to examine the relationship between attachment measures and the latest revision of the MMPI test, the MMPI-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008).

Hypotheses.

Using the two main dimensions of attachment style (attachment-related anxiety and avoidance) and the four-category typology suggested by Bartholomew (1990), the hypotheses of the study are as follow.

Hypothesis 1.

Given that previous studies have found differences in the levels of reported psychological disturbances among different attachment styles and that Pianata and colleagues (1996) have found attachment related differences in the MMPI-2 clinical scales, similar results are expected from this study. Hence, it is hypothesized that

- a. Differences in the levels of reported psychological disturbance will be found among the different attachment styles in the four-category typology.
- b. Individuals who are in the attachment insecurity categories (dismissing, fearful and preoccupied) will report higher psychological disturbance than those in the secure category.

Hypothesis 2- attachment anxiety.

- a. Attachment anxiety is related to hyper-activating strategies, which includes exaggerations of vulnerabilities of needs. Hence, it is assumed that individuals who have high score on attachment anxiety would also have high scores on RC scales that assess self-reported emotional and/or physical distress. Thus, it is hypothesised that scores in the anxious-attachment dimension is positively related to RCd (Demoralization) scale, RC1 (Somatic Complaints), RC2 (Low Positive Emotions) scale, RC7 (Dysfunctional Negative Emotions) scale and RC9 (Hypomanic Activation) scale scores.
- b. With the same argument as the point above, NEGE-r (Negative Emotionality or Neuroticism-Revised) and INTR-r (Introversion/Low Positive Emotionality-Revised) are hypothesised to have strong positive relationships with attachment anxiety. This hypothesis is also supported by the relationship found between cluster C personality disorders with attachment anxiety, and with NEGE-r and INTR-r scales.

- c. Attachment anxiety is also hypothesised to be positively related to Validity scales assessing over-reporting and negatively to those assessing under-reporting.
- d. While high attachment anxiety is related to negative views of self and is independent of the views of others, it has been found to positively correlate with attachment avoidance in various studies (e.g., Brennan et al., 1998; Wilkinson, 2011). Given that high attachment avoidance is related to views of others, it is expected that scores in the anxious-attachment dimension will have a positive relationship with RC3 (Cynicism) scale scores, which assesses the test-takers' views of others. The strength of this relationship will be weaker as compared to that of attachment avoidance, as the relationship found is likely influenced mainly by attachment anxiety's association with attachment avoidance.
- e. Given their links with anxiety- related issues, a strong positive relationship between attachment anxiety and the SHY (Shyness) scale is expected.

Hypothesis 3- attachment avoidance.

- a. Attachment avoidance is related to the view of others, and high scores indicate a highly negative view of others. RC3 (Cynicism) scale measures the level of negativity towards others. Thus, high scores on both measures relate to a negative perception of others. Hence, it is hypothesised that attachment avoidance scores will have a strong positive relation with RC3.
- b. To some extent, attachment avoidance is hypothesised to be positively related to RCd (Demoralization) scale, RC1 (Somatic Complaints), RC2 (Low Positive Emotions) scale, RC 7 (Dysfunctional Negative Emotions) scale. Attachment avoidant individuals will also experience psychological distress as noted in previous studies, however, the degree to which they report this is expected to be lower due to the tendency to under-report as a deactivating strategy.

- c. Given that high SAV (Social Avoidance) scores are related to difficulties forming close relationships and high DSF (Disaffiliativeness) scores are related to a dislike of being around others and not forming close relationships, which are characteristic of attachment avoidance, it is hypothesized that attachment avoidance scores are positively related to SAV and DSF scales.
- d. Scores in the avoidance-attachment dimension are hypothesised to be positively related to scores of the K-r (Adjustment Validity) scale. Elevated scores in K-r indicate possible under-reporting by individuals (Ben-Porath & Tellegen, 2008), and under-reporting may be a form of deactivating strategy commonly associated with avoidance attachment.

How avoidance-attachment is related to validity scales assessing over-reporting is uncertain, and hence this study aims to be an exploratory base for examining the relationship between avoidance-attachment and F-r, Fp-r, Fs and FBS. The method and results of this study are presented in the following chapter (Chapter Two). This chapter is formatted as a journal article manuscript to be submitted for publication.

CHAPTER TWO

Manuscript 1

Title: Detecting Self-reported Attachment Patterns in MMPI-2-RF Profiles

Authors: Chin, Z.-H. & Wilkinson, R. B.

Status: Manuscript in preparation

As identified in previous chapter, there is a lack in studies that use the latest version of the MMPI test to examine the relationship between attachment and mental health. This paper presents the first cross-sectional quantitative study (Study One) conducted to address this gap in the literature and aims to identify patterns of attachment in MMPI-2-RF responses. Using a self-report two-dimensional attachment measure, this study assessed individuals' ($N = 179$) attachment anxiety and avoidance scores and examined the scores associations with their MMPI-2-RF scales scores. Group differences in the MMPI-2-RF scales scores were also examined in this paper. Participants were categorised into four different attachment categories (Secure, Fearful, Preoccupied and Dismissing) based on their responses on a self-report categorical attachment measure.

The Candidate's Contribution

The candidate was primarily responsible for the conceptualisation of the study, literature review, research design (e.g., shortlisting measures and setting up the online questionnaire), participation recruitment, administration, analysis of results, and authoring the paper. In his capacity as a supervisor, Dr Wilkinson provided guidance in various areas including conceptual development, methodology (e.g., choosing appropriate measures, deciding on sample size), analysis methods, as well as reviewing recruitment materials and the survey before their launch. Dr Wilkinson also assisted with proof reading and editing for the paper.

Detecting Self-reported Attachment Patterns in MMPI-2-RF Profiles

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Abstract

While being a widely used self-report clinical measure, the usefulness of the Minnesota Multiphasic Personality Inventory (MMPI) in detecting patterns of beliefs and expectations about close interpersonal relationships remains relatively unexplored. The current study aims to identify patterns of psychological attachment in MMPI responses by examining the relationship between attachment measures and the latest revision of the MMPI, the MMPI-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008) with a sample of Australian undergraduates ($N = 179$). Using the Experiences in Close Relationships Scale-Revised-General Short Form (ECR-R-GSF), attachment anxiety and avoidance dimensions were found to have significant relationships with various MMPI-2-RF scales ($.16 \leq |\beta| \leq .53$; $.20 \leq R^2 \leq .49$). Statistically significant differences were also found in many MMPI-2-RF scales among the four attachment categories of the Relationship Questionnaire, with the Secure group generally scoring lower in psychopathology-related scales. Results provide evidence that patterns of attachment are reflected in the scores of specific MMPI-2-RF scales. Both research and clinical implications of the findings are discussed.

Keywords: MMPI-2-RF, attachment anxiety, attachment avoidance, attachment styles

Detecting Self-Reported Attachment Patterns in MMPI-2-RF Profiles

Attachment theory and individual differences in attachment are two of the most widely researched concepts in contemporary relationships research. While there is considerable research relating individual differences in attachment to psychological health outcomes (e.g., Bucci et al., 2012; Murphy & Bates, 1997; Shanmugam, Jowett, & Meyer, 2012), there are few studies that specifically examine the relationship between attachment and Minnesota Multiphasic Personality Inventory (MMPI) scores. This study is primarily interested in examining self-report attachment style and how they may be reflected in patterns of scores in the most recent version of the MMPI, the Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008).

Attachment theory was originally developed by John Bowlby (1969/1982) to explain the negative impact of parental absence on children's development. Bowlby argued that the primary attachment strategy of individuals is to seek proximity to others perceived as providers of physical and/or psychological safety when faced with threats (Bowlby, 1969/1982). However, the actual use of this strategy is dependent on an individual's characteristic attachment style (Mikulincer & Shaver, 2007). An individual's attachment style is believed to influence their relational expectations, needs, emotions and social behaviours, and is normally developed through the many interactions with early care-givers and shaped through subsequent attachment experiences (Fraley & Shaver, 2000). Attachment styles were first documented by Ainsworth and her colleagues (1967, 1969, 1978) through observational and laboratory studies of mother-infant dyads.

Since the introduction of attachment styles concept, extensive research has been conducted to extend Ainsworth's work to both adolescent and adult populations, and to develop interview and self-report measures of attachment styles (e.g., Hazan & Shaver,

1987; Main, Kaplan, & Cassidy, 1985). While interview-style attachment measures have benefits, such as the ability to assess individuals' attachment style while attachment systems are activated (Simpson & Rholes, 1998), self-report measures are more widely used and accessible due to their ease of administration and scoring and will be the focus in this study. Initially developed to assess romantic attachment styles, self-report measures have since been extended to include assessment of other non-romantic relationship-specific attachment styles (e.g., Mallinckrodt, Gantt, & Coble, 1995) and attachment across relationships, that is, general attachment styles (e.g., Wilkinson, 2011).

Self-report attachment measures are believed to assess individuals' current expectations about how responsive and sensitive others will be to bids for attachment security and are thought to reflect the most accessible 'internal working models' (Simpson & Rhodes, 1998). There are two groups of self-report measures, categorical or forced-choice (e.g., Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987) and dimensional (e.g., Brennan, Clark, & Shaver, 1998; Feeney, Noller, & Hanrahan, 1994), and many of these self-report measures are reported to have good psychometric properties (Mikulincer & Shaver, 2007). Two primary dimensions, attachment anxiety and avoidance, are argued to underlie all self-report attachment measures (Brennan et al., 1998; Mikulincer & Shaver, 2007). Attachment anxiety is related to the individual's strong desires for emotional intimacy and reassurance, their fears of rejection, and the use of hyperactivating strategies to cope with attachment insecurity (Karantzas, Feeney, & Wilkinson, 2010; Mikulincer & Shaver, 2007). Attachment avoidance refers to individuals' distrust in others, their need for emotional distance and independence, and the use of deactivating strategies to cope with insecurity (Mikulincer & Shaver, 2007). High scores on either or both dimensions reflect insecure attachment.

Given the origins of attachment theory as an explanation of the effect of loss on adjustment (Bowlby, 1969/1982) it is not surprising that there are many studies examining the relationship between individual differences in attachment and psychological health (e.g., Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Shaver et al., 1996; Wei, Vogel, Ku, & Zakalik, 2005). While these studies differ in the types of self-report attachment measures and clinical variables assessed, the majority have found that reported poorer mental health, including emotional problems and adjustment difficulties, is associated with self-reported insecure attachment styles, with attachment anxiety being particularly related to negative psychological symptoms (e.g., Mikulincer, Horesh, Levy-Shiff, Manovich, & Shalev, 1998; Priel & Shamai, 1995; Shaver, Schachner, & Mikulincer, 2005; Solomon, Ginzburg, Mikulincer, Neria, & Ohry, 1998). With regard to specific psychological disorders, researchers have found that attachment insecurities are commonly related to higher levels of depression (e.g., Murphy & Bates, 1997; Wautier & Blume, 2004) and anxiety (e.g., Bucci, et al., 2012; Kooshar & Bona, 2011a, 2011b). Studies have also found that insecure attachment is positively related to the development of personality disorders (e.g., Bartholomew, Kwong, & Hart, 2001; Fossati et al., 2003) and eating disorders (e.g., Orzolek-Kronner, 2002; Shanmugam, et al., 2012). Few studies, however, have been conducted looking at how self-report attachment measures relate to an omnibus measure of psychopathology such as the MMPI.

The MMPI is a clinical personality and psychopathology psychometric instrument that assesses an individual's level of emotional adjustment and attitude toward test taking. First developed in 1940 by Hathaway and McKinley to assess adult patients and to accurately determine the severity of their disturbance (Groth-Marnat, 2009), it is now a widely used clinical personality inventory in clinical practice to understand the psychiatric symptoms and personality characteristics of clients (Camara,

Nathan, & Puente, 2000). While being a widely used test, the original MMPI received many criticisms, and was subsequently revised multiple times, with the MMPI-2-RF being the latest major revision (Ben-Porath & Tellegen, 2008). The MMPI-2-RF is a data-based and construct-oriented revision of the MMPI-2 (Groth-Marnat, 2009; Tellegen & Ben-Porath, 2008) that aims to be a comprehensive set of psychometrically sound measures to represent the clinically significant elements of the MMPI-2 item pool (Tellegen & Ben-Porath, 2008). The MMPI-2-RF scales were also assessed to have sound psychometric properties (Ben-Porath, 2012; Tellegen & Ben-Porath, 2008). Those who reviewed the MMPI-2-RF found several advantages to the MMPI-2, including the reduced length of time to administer and score, and its ease of interpretation (e.g., Graham, 2011; Greene, 2011). Groth-Marnat (2009) suggested that the MMPI-2-RF was a good substitute of the MMPI-2, especially when “brevity is critical” (p. 291).

Despite the extensive clinical use of the MMPI and its variants in clinical practice, an examination of the literature through online databases (e.g., PsycInfo, PsycArticles & Journals@Ovid) found few studies that have examined attachment’s relationship to the MMPI or MMPI-2 and none in relation to the MMPI-2-RF. Of the few studies available, Pianta and colleagues (1996) examined 110 high-risk women in their second trimester of their first pregnancy and found differential relationships between the MMPI-2 scales and the various attachment styles as defined by the Adult Attachment Interview. More specifically, the Dismissing group were found to have significantly lower scores on the *Hysteria* (measures a variety of specific somatic complaints while also assessing defensiveness) clinical scale than the other groups and were below the normed average. Those classified as Preoccupied were also found to obtain their highest scores on the *Paranoia* (measures areas such as suspiciousness, and

tendency to blame others) and *Schizophrenia* (measures a wide array of symptoms typically observed in Schizophrenia) clinical scales.

Jacobson (2003) found that the MMPI-2 Clinical scales differentially relate to the two dimensions of romantic attachment, anxiety and avoidance as measured by the Experiences in Close Relationships Scale (ECR), with absolute β values ranging from approximately .18 to .39. Looking at the student sample of the study, the *Psychasthenia* (measures propensity for obsessive and compulsive thoughts and behaviour) and the *Schizophrenia* clinical scales were found to be positively associated with attachment avoidance. Attachment anxiety, on the other hand, was found to be positively associated with the *Depression* (measures a variety of emotional and behavioural content typically associated with depression), *Psychasthenia* and *Social Introversion* (measures tendency to avoid social interaction due to either discomfort or disinterest) scales. Positive relationships between the *Paranoia* scale and attachment anxiety, between *Schizophrenia* and attachment avoidance, and a negative relationship between *Hysteria* and attachment avoidance were found in a clinical sample of 188 adults seeking psychological services at a community mental health clinic. Using the Attachment Style Questionnaire (Feeney et al., 1994) with a sample of 225 college students, Leveridge, Stoltenberg and Beesley (2005) found that attachment avoidance was positively associated with *Social Introversion* and *Hypochondriasis* (measures of somatic complaints) scales of the MMPI-2, and negatively associated with the *K* (defensiveness) scale. They also found that attachment anxiety was positively associated with *Depression* and *Psychasthenia*, and secure attachment was negatively associated with *Depression*, *Psychasthenia* and *Social Introversion* (Leveridge et al., 2005). Correlation coefficient magnitude ranges from approximately .16 to .65.

Besides the lack of studies using the MMPI with attachment measures, many of these existing studies have used specific relationship domains (e.g., romantic partners

and parents) attachment measures (e.g., Gardner, 1995; Jacobson, 2003; Pianta, et al., 1996), and only a few were found to use measures of general attachment styles. Information on general attachment tendencies in relation to mental health would be helpful to clinicians who want to obtain a quick overview of individuals' interpersonal factors of the existing psychopathology without going into specific relationship details. With this gap in the literature, more studies are needed to examine the relationship between attachment and the latest MMPI test, and the relationship between individuals' general attachment style and mental health as assessed by the MMPI. The ability to detect attachment patterns in the various MMPI scales scores can provide us with valuable information on an individual and his/her possible general cognitive or behavioural tendencies with respect to attachment and relationship behaviour using a single psychometric tool.

The present study

The current study aims to employ the MMPI-2 Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008) and self-report measures of individual differences in general attachment to examine the systematic relationship between psychological functioning and individual attitudes and expectations of close, interpersonal relationships. Specifically, this study seeks to understand how the MMPI-2-RF reflects individuals' attachment patterns, thus assisting clinicians to develop more efficient and effective individualised treatments for their clients. The hypotheses below are based on previous findings on attachment and psychological well-being (e.g., Kemp & Neimeyer, 1999; Strodl & Noller, 2003; Treboux, Crowell, & Waters, 2004; Wei, et al., 2005), and the theoretical view that anxiously attached individuals tend to exaggerate vulnerabilities of needs while attachment avoidant individuals tend to downplay their vulnerabilities by avoiding social interactions that require emotional disclosure (Mikulincer & Shaver, 2007).

Based on the literature regarding self-report, categorical measures of attachment style (e.g., Bartholomew & Horowitz, 1991; Mikulincer & Shaver, 2007; Murphy & Bates, 1997), it is hypothesized that individuals who are insecurely attached will generally have higher levels of psychopathological symptoms, including depression, and anxiety. Insecurely attached individuals are also likely to have more interpersonal problems than those securely attached. Anxious attachment related styles (e.g., Preoccupied) are likely to have higher level of depression and anxiety than non-anxious styles. Avoidant attachment related styles are likely to have higher level of problems related to social avoidance and dislike of others than the other styles.

In terms of self-reported, dimensional measures of attachment expectancies (e.g., Mikulincer & Shaver, 2007; Nofle & Shaver, 2006; Williams & Riskind, 2004), higher levels of attachment anxiety are hypothesised to be associated with more psychological distress, including higher levels of somatic complaints, depression and anxiety (including social anxiety). Higher levels of attachment anxiety are also likely to be associated with increased tendencies to over-report, more family problems and higher levels of neuroticism and introversion. Higher levels of attachment avoidance, on the other hand, are postulated to be associated with higher levels of social avoidance, dislikes of and distrust in others, and family problems. Due to avoidant attachment individuals' tendency to suppress psychological distress (e.g., Cassidy & Kobak, 1988), attachment avoidance is also hypothesized to be associated with under-reporting of psychopathology. Attachment avoidance is further hypothesized to be associated with higher levels of depressive and anxiety symptoms, although to lesser degree than attachment anxiety is.

Method

Participants

A total of 198 undergraduate students (56 males and 142 females) with an age range of between 18 and 59 years ($M = 20.02$ years, $SD = 4.75$ years) participated in the study. 65.7% of the participants reported that they identified themselves as Australians and 24.7% as Asians (e.g., Chinese, Singaporeans and Malaysians). 40.4% of the participants reported being in a romantic relationship at the time of the study.

Participants received course credits for taking part in the study.

Materials

Self-reported, dimensional attachment expectancies were assessed with the Experiences in Close Relationships Scale-Revised-General Short Form (ECR-R-GSF; Wilkinson, 2011). This is a short-form version of the ECR-R, originally developed by Fraley, Waller and Brennan (2000), that assesses individuals' general rather than romantic partner attachment. It consists of two 10-item subscales: one that assesses attachment anxiety (Anxiety) and the other that assesses attachment avoidance (Avoidance). Participants are asked to rate their response for each of the 20 statements on a 5-point scale from 1 (*disagree strongly*) to 5 (*strongly agree*). Higher scores indicate higher attachment anxiety or avoidance. The ECR-R-GSF has been demonstrated to have acceptable validity and reliability (Wilkinson, 2011). Scale scores were created by recoding as necessary and taking the mean of relevant items. The Anxiety and Avoidance items produced internally consistent scales (Cronbach's Alpha = .87 and .86 respectively).

Self-reported, categorical attachment styles were assessed with the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991), a well validated measure that consists of four descriptions matching four theoretical attachment styles, Secure, Preoccupied, Fearful and Avoidant. The version of RQ used in the current study was

worded to assess attachment in general rather than romantic attachment style.

Participants were asked to read the four descriptions and then rate each description on a 7-point scale (*1= Not at all like me, 7= Very much like me*). Participants were also required to select one of the theoretical attachment style descriptions that best represented them.

Psychological health and functioning were assessed with the MMPI-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008), which consists of 338 True/False items that assess an individual's level of emotional adjustment and test taking attitude. Participants were asked to indicate if each of the 338 statements applied to them. Participants were permitted to not respond to items that did not apply to them or that they did not know about. Scores calculated were converted to T-scores based on the MMPI-2-RF's scoring conversion charts (MMPI-2-RF; Ben-Porath & Tellegen, 2008). The Validity, Restructured Clinical (RC), Personality Psychopathology Five (PSY-5), and Interpersonal scales were the focus of this study and thus only results pertaining to these scales will be reported. The internal consistency coefficients (alpha) for the scales of interest in the study were analysed according gender, and ranged from .42 to .90, These values were similar to those found with the original norm sample of the MMPI-2-RF (Tellegen & Ben-Porath, 2008).

Procedure

Participants were recruited through posters and a course website. They completed computer administered versions of the survey with an average time of approximately 55 minutes. Presentation of the measures was counter-balanced to control for order effects. Upon completion, participants were presented with a debriefing screen and provided with contact information should they have any further questions.

Results

Nineteen cases were removed as they were either deemed as invalid based on MMPI-2-RF Validity scales criteria (Ben-Porath & Tellegen, 2008) or as multivariate outliers based on the criterion of Mahalanobis distance at $p < .001$ for multivariate outliers (Tabachnick & Fidell, 2007). Scores on the MMPI-2-RF scales were not normally distributed, which is expected due to their clinical nature. Transformation of scores was considered inappropriate for the purpose of analyses as higher than average scores are expected in clinical scales and are valid contribution to the dataset. After screening, a total of 179 cases were considered in the analyses.

Group Comparisons of MMPI-2-RF Scales

To establish if categorical self-report attachment style is reflected in MMPI-2-RF scale scores, a series of one way analyses of variance (ANOVA) were conducted to examine the differences between the attachment styles as defined by RQ on the Validity, RC, PSY-5, and Interpersonal scales. Similar to the distribution found by Bartholomew and Horowitz (1991) and Lapsley and Edgerton (2002), using the forced choice selection of the RQ, 68 (38.0%) participants were categorised as Secure, 53 (29.6%) participants were categorised as Fearful, 19 (10.6%) were categorised as Preoccupied, and 39 (21.8%) were categorised as Dismissing. An assumption check revealed that RC3's and FML's analyses would best suit the use of the Welch test. Hochberg's GT2 was used for the post-hoc analyses to account for the unequal group sizes (Field, 2013).

Validity scales.

Table 1.1 presents the results of the one-way ANOVAs for the MMPI-2-RF validity scales. Significant differences were found for F-r, Fs, FBS, L-r and K-r. Overall, the Validity scales better differentiate high- and low-anxiety related groups than avoidance related groups. According to the interpretation guideline by Ben-Porath and Tellegen (2008), while the Adjustment Validity (K-r) scale examines possible under-

reporting, scores could also be viewed as representing psychological adjustment. Given that scores below 60 indicate no evidence of underreporting (Ben-Porath & Tellegen, 2008), higher scores in the K-r scale in this case indicates better psychological adjustment.

[INSERT TABLE 1.1 ABOUT HERE]

The Preoccupied group, which is theorised to be predominantly high in attachment anxiety and low in attachment avoidance (Muklincer & Shaver, 2007), were significantly different from the Secure (low attachment anxiety and avoidance) group in the Infrequent Responses (F-r), Infrequent Somatic Responses (Fs) and K-r. The Preoccupied group also significantly differ from the Dismissing (low attachment anxiety, high attachment avoidance) group in the Symptom Validity scale (FBS) and K-r scales. The results suggest that individuals with a preoccupied attachment reported more psychopathology and emotional distress (or have higher level of infrequent responding), endorsed more somatic complaints (rarely reported by medical patients) than those securely attached and reported poorer psychological adjustment than those with a secure attachment. The preoccupied attached individuals also presented with poorer psychological adjustment and more non-credible somatic and/or cognitive symptoms than those with a predominantly dismissing attachment.

The Secure group had significant lower scores than the Fearful (high attachment anxiety and avoidance) group on the Uncommon Virtue (L-r) scale and higher than the Fearful group for the K-r scale. This suggests that fearfully attached individuals have acknowledged more shortcomings and faults and reported poorer psychological adjustment as compared to the securely attached individuals.

Restructured Clinical (RC) scales.

Tables 1.2 and 1.3 present the results of the ANOVAs for the restructured clinical scales. Note that scores equal to or greater than 65 are considered elevated

(Tellegen & Ben-Porath, 2008) and in the clinical range (Groth-Marnat, 2009). Main effects were found for Demoralization (RCd), Somatic Complaints (RC1), Low Positive Emotions (RC2), Cynicism (RC3), and Dysfunctional Negative Emotions (RC7) scales. The restructured clinical scales, in general, also had more significant differences for the anxiety-related groups. In particular, the Preoccupied group had significantly higher scores than the Secure group in RCd, RC1, RC3 and RC7. This suggests that individuals with preoccupied attachment tend to report having higher levels of demoralisation and dysfunctional negative emotions than those who are securely attached. They are also likely to report more somatic complaints, fewer positive emotional experiences, greater distrust in others than the securely attached. The Preoccupied group also differ significantly from the Dismissing group in the RCd and RC7 scales, suggesting that, as compared to those with a dismissing attachment, they are likely to report higher levels of demoralisation and more dysfunctional negative emotional experiences.

The Fearful group scored significantly higher than the Secure group on RCd, RC1, RC2, RC3 and RC7. Results suggest that individuals who are fearfully attached report being more demoralised with life, have more somatic complaints, more dysfunctional negative emotional experiences, and fewer positive emotional experiences than those securely attached. They are also less trustful in others. The RC3 scale was the only RC scale that was found to have significant differences between the Secure and Dismissing groups. Specifically, the Dismissing group scored significantly higher in cynicism than the Secure group, suggesting that they are more distrustful of others.

[INSERT TABLES 1.2 AND 1.3 ABOUT HERE]

Looking at specific scales, the Preoccupied group's RCd mean T score fell within the clinical range ($M_T = 68.0$), and was the highest score among the RC scales. The Preoccupied group had mean T scores above 60 (one standard deviation above the norm sample mean) for RC1, RC7 and RC8 scales. All other scores were above the

normative mean ($T = 50$) by 1.63 to 8.05 points. Similarly, the Fearful group's RCd mean T score was 63.0, falling just below the clinical range. The mean score on RC7 was 59.7, approaching the subclinical range. Except for RC9, all other scales scores were 1.0 to 8.4 points above the normative mean. Scores for the Secure group were between 47.5 and 56.1, falling in the normal range. The means scores for the Dismissing group were also generally within the normal range but note that the RCd mean score ($M_T = 59.8$) approached the subclinical cut-off of 60.

Personality Psychopathology Five (PSY-5) scales.

The next set of comparisons, as presented in Table 1.4, examined attachment group differences within the PSY-5 scales. Significant differences among the attachment groups were found in the Negative Emotionality/Neuroticism-Revised (NEGE-r) and Introversion/Low Positive Emotionality-revised (INTR-r) scales. Like the earlier two sets of MMPI-2-RF scales, the PSY-5 scales also had more significant findings for the anxiety-related groups. With respect to the Preoccupied style, individuals scored significantly higher than the Secure and Dismissing styles in NEGE-r. This suggests that individuals who have a preoccupied attachment likely reported more negative emotional experiences and pessimistic and catastrophising views than those who have a secure or dismissing attachment. The Fearful group, on the other hand, reported more negative emotional experiences (NEGE-r) and fewer positive experiences and interests (INTR-r) than the securely attached. The fearfully attached individuals are also more likely to be pessimistic and catastrophise events, and avoids social situation and interactions. While below the clinical cut-off point, the Preoccupied group's mean NEGE-r score of 63.1 was considered to be in the subclinical range. The mean scores for the other three groups were in the normal range.

[INSERT TABLE 1.4 ABOUT HERE]

Interpersonal scales.

The ANOVA analysis between the RQ attachment categories for the MMPI-2-RF Interpersonal scales showed (See Table 1.5) significant group differences for the Social Avoidance (SAV), Shyness (SHY) and Disaffiliativeness (DSF) scales. Specifically, the Dismissing group had higher DSF and SAV scores than the Secure group, suggesting that individuals with dismissing attachment reported greater dislike of others, more preference to be alone, less enjoyment of social events, and higher avoidance of social situations than those securely attached. Individuals in the Fearful group scored higher in the SHY scale than the Dismissing groups, suggesting that they are more uncomfortable around others, shyer and more easily embarrassed than the dismissingly attached individuals. Individuals who identified with a fearful attachment style also scored significantly higher than the Secure group on the SAV and SHY scales, indicating they reported less enjoyment of social events, higher avoidance of social situations, and greater anxiety around people, than those who are securely attached. Generally, the Interpersonal scales were found to reflect differences in avoidance for the four categories of attachment styles.

[INSERT TABLE 1.5 ABOUT HERE]

The Dismissing attachment group mean Disaffiliativeness score was in the subclinical range ($M_T = 63.3$). This was the only scale in which the dismissing group had a mean score above 60. All other T scores for the Dismissing Group were between 49.3 and 52.5, which is within the normal range. The remaining attachment groups had scores within the normal range, with the secure group scoring the lowest in all five scales.

Relationships between attachment dimensions and MMPI-2RF Scales

In order to evaluate the relationship between dimensional, self-reported attachment and the MMPI-2-RF scales, correlational and multiple regression analyses were conducted.

Correlational analysis.

With respect to the two attachment dimension scales, Anxiety and Avoidance, the correlation between the relevant ECR-G-SF scales in the current study ($r = .21$) was slightly weaker than that reported by Wilkinson (2011) ($r = .39$). Correlation coefficients between the ECR-R-GSF scores and MMPI-2-RF scales scores are presented in Tables 1.6 and 1.7. All the MMPI-2-RF scales, excluding Fp-r, Fs, INTR-r and SAV, appear to have higher correlations with ECR-R-GSF Anxiety than Avoidance. Among the MMPI-2-RF scales, F-r, RCd, RC7 and NEGE-r had the strongest relationship with ECR-R-GSF Anxiety ($r > .50$). ECR-R-GSF Anxiety is most strongly correlated with RCd ($r = .62$). The strongest relationships that ECR-R-GSF Avoidance had were with SAV ($r = .47$) and INTR-r ($r = .43$).

[INSERT TABLES 1.6 & 1.7 ABOUT HERE]

Regression analyses.

Multiple regression analyses were conducted to determine which MMPI-2-RF scales accounted for the most variance in attachment anxiety and avoidance scores. Because there is considerable item overlap across the four different sets (i.e., Validity, RC, PSY-5 and Interpersonal) of MMPI-2-RF scales, separate analyses were conducted for each set of scales for both ECR-R-GSF Anxiety and Avoidance resulting in eight multiple regressions. Gender and age of participants were included as independent variables in all analyses. Regression assumptions of normality, homoscedasticity and independence of errors were assessed and found to be not violated.

Validity scales.

Table 1.8 shows the regression analyses outcome with the MMPI-2-RF Validity scales. Results show that, overall, the Validity scales accounted for more variance in attachment anxiety (43%) than avoidance (20%). The K-r, F-r, and FBS scales were found to be the strongest and significant predictors of attachment anxiety. The results suggest that individuals who have a higher tendency to over-report psychological distress (or report more psychopathology and/or emotional distress), present with a non-credible combination of somatic and/or cognitive symptoms, and report lower levels of psychological adjustment are likely to score higher on the attachment anxiety scale. In relation to attachment avoidance, F-r was the only significant predictor. Individuals who have the tendency to over-report psychopathology and emotional distress are also likely to have higher attachment avoidance scores.

[INSERT TABLE 1.8 ABOUT HERE]

Restructured Clinical (RC) scales.

Results for the RC scales are presented in Table 1.9. Similar to the Validity scales, the RC scales were generally found to be better predictors of attachment anxiety as compared to attachment avoidance. These scales were also observed to explain a larger amount of attachment anxiety's variance (49%) than all the other sets of selected MMPI-2-RF scales.

The RCd scale was the strongest unique contributor to the prediction of attachment anxiety, followed by the RC7, RC3, and RC1 scales. These results suggest that individuals who report lower dissatisfaction with current life situation, more dysfunctional negative emotional experiences, lower trust in others and more somatic issues would tend to have higher level of attachment anxiety. With respect to attachment avoidance, RC3 is the biggest predictor. Contributing a smaller amount to attachment avoidance's variance is RC1. This suggests individuals who are less trustful in others

and report more somatic complaints also tend to have higher attachment avoidance scores.

[INSERT TABLE 1.9 ABOUT HERE]

Personality Psychopathology Five (PSY-5) scales.

In contrast to the other sets of MMPI-2-RF scales, the PSY-5 scales accounted for similar amounts of variance for attachment anxiety (34%) and avoidance (31%). NEGE-r was clearly the only significant unique factor contributing to attachment anxiety (see Table 1.10). Individuals who reported more negative emotional experiences also reported higher attachment anxiety scores. With regards to attachment avoidance, the strongest predictor was the INTR-r scale followed by Disconstraint (DISC-r), Psychoticism (PSYC-r), and NEGE-r. Individuals who reported lower positive emotional experiences with greater social avoidance and restricted interests, more impulsive and unconstrained behaviours, more negative emotional experiences with catastrophising and having a pessimistic outlook, and higher levels of thought disturbance with greater feelings of alienation by others, tended to report higher levels of attachment avoidance.

[INSERT TABLE 1.10 ABOUT HERE]

Interpersonal scales.

For the MMPI-2-RF Interpersonal scales (see Table 1.11), results show that they were overall better predictors for attachment avoidance (33% of variance) than attachment anxiety (23% of variance). The Interpersonal scales, as a whole, explained the largest amount of variance in attachment avoidance compared to the other sets of MMPI-2-RF scales. Social Avoidance, as might be expected, was the biggest predictor of attachment avoidance in the regression equation followed by Disaffiliativeness and Family Problems. The results suggest that individuals who report a higher tendency to avoid social interactions and events, have a greater dislike of others, and a higher

number of family problems are likely to have higher attachment avoidance scores. As for attachment anxiety, the Shyness scale was its biggest predictor, followed by Family Problems. Increased shyness and family problems are associated with increased attachment anxiety.

[INSERT TABLE 1.11 ABOUT HERE]

Selecting Significant MMPI-2-RF scales.

To obtain a clearer understanding on the relationships between the attachment dimensions and the selected MMPI-2-RF scales in a single analysis, a multiple, forward selection, step-wise regression analysis was conducted for both attachment anxiety and avoidance. All scales that were found to be significant predictors of attachment dimensions in earlier analyses of sets of scales were included in these analyses.

The second set of analyses show that attachment anxiety and avoidance have different predictors, except for RC3, in the final regression models (see Tables 1.12 and 1.13). The final predictors for attachment anxiety belong to the RC scales, contributing to 46% of its variance explained. RCd was the biggest predictor, followed by RC7 and RC3. This suggests that some of the restructured clinical scales are the best predictors of anxious attachment and that, overall, individuals who reported higher levels of demoralization, more dysfunctional negative emotions and lower trust in others are likely to have higher levels of attachment anxiety.

For attachment avoidance, 37% of the variance was found to be explained by its significant predictors in the final regression analysis. The SAV scale was found to be the strongest unique contributing factor with RC3, DSF and RC1 contributing less. Results suggest that, overall, individuals who report higher levels of social avoidance, lower trust in others, greater dislike of others and being around them, and more somatic complaints are likely to have higher levels of attachment avoidance.

[INSERT TABLES 1.12 AND 1.13 ABOUT HERE]

Discussion

The results of this study are broadly in line with the hypotheses and demonstrate that individual differences in attachment styles and dimensions are reflected in scores of selected MMPI-2-RF scales. Supporting the hypotheses, individuals in the insecure attachment categories scored higher than the secure group in most of the MMPI-2-RF scales, indicating that insecurely attached individuals reported higher psychological disturbance than those securely attached. In both the group-differences and correlational-based analyses, the selected MMPI-2-RF scales that are related to psychological distress were found to be more associated with attachment anxiety than with attachment avoidance. In general, the selected MMPI-2-RF scales were found to be better in differentiating the high-/low-anxiety related groups than differentiating high-/low- avoidance related groups. Similar to these findings, analyses on the two dimensional attachment model also found that the selected MMPI-2-RF scales were generally better predictors for attachment anxiety than for attachment avoidance. This is consistent with the attachment-psychopathology literature where more significant findings are found for attachment anxiety than attachment avoidance. The avoidant-related styles and attachment avoidance dimension, on the other hand, were more associated with the MMPI-2-RF Interpersonal scales. Effect sizes (as determined by R^2 values) were found to range between small to moderate.

Attachment Anxiety

The stronger linkage between attachment anxiety and MMPI-2-RF scales related to psychological distress can be explained through the characteristics of these two attachment dimensions. Attachment anxiety is a contributor to the intensification of emotions due to the need of individuals to gain their attachment figures' support and concern (Cassidy, 1994). This interferes with emotion regulation, resulting in the experience of an uncontrollable flow of negative thoughts and feelings, and inability to

experience positive emotions, which may gradually move to the development of psychopathology (Mikulincer & Shaver, 2007). Hence, clinicians could expect most anxiously-attached individuals to report high levels of psychological distress and symptoms. Anxiously attached individuals' inability to properly regulate emotions provides an explanation for the positive relationships found between levels of attachment anxiety and measures assessing negative emotional experiences (e.g., RC7 and NEGE-r) in this study. These positive relationships are also consistent with studies by various researchers on the relationship between anxiety and attachment (e.g., Doi & Thelen, 1993; Strodl & Noller, 2003; Watt, McWilliams, & Campbell, 2005). All of these studies found significant positive relationship between attachment anxiety scores and anxiety measure scores.

The results of the study also indicated a positive association between attachment anxiety and levels of demoralization (RCd). The higher levels of demoralization, including dissatisfaction with current life events, could stem from attachment anxious individuals' tendency to use a 'helpless and hopeless' pattern to explain their situations (Mikulincer & Shaver, 2007). Given individuals with high levels of attachment anxiety have a negative model of self (Bartholomew & Horowitz, 1991), they are also prone to negative cognitive processes of self, increasing likelihood to feel demoralised and develop mental health issues (Mikulincer & Shaver, 2007). RCd is associated with depression-related disorders (Ben-Porath & Tellegen, 2008) and the high level of RCd score is consistent with findings that the majority of the individuals with a mood disorder have a preoccupied attachment state of mind (Rosenstein & Horowitz, 1996), and that attachment anxiety scores are positively associated with depression scores (e.g., Treboux, et al., 2004; Williams & Riskind, 2004).

Individuals with insecure-anxious attachment tend to view the world as unpredictable and frightening, inhibiting them from exploring their social environments

(Sroufe, 1983). This negative view of the world provides a potential explanation of the positive relationship found between RC3 (levels of cynicism) and attachment anxiety, where individuals who have more attachment anxiety would view the world, including other people, more negatively (Collins & Read, 1990). The anxiously attached individuals' negative view of the world also provides an explanation for the relationship between shyness and attachment anxiety found in this study. Evidence from research with infants, children, and adolescents has found that anxious attachment is linked to shyness in a range of social situations (Booth-LaForce & Oxford, 2008; Kochanska, 1998; Rubin et al., 2009, cited in Rubin, Coplan, Bowker, & Menzer, 2011). Insecurely attached individuals have also been found to describe their family of origins and current family less positively than the securely attached individuals (Diehl, Elnick, Bourbeau, & Labouvie-Vief, 1998), supporting the positive link between reported family problems and attachment anxiety and avoidance.

Despite being a non-clinical sample, the pure high anxiety group (Preoccupied) reported MMPI-2-RF scores between the subclinical and clinical range. The high levels of distress and negative emotions found supports the notion that preoccupied individuals' generally tend to show high level of distress and anxiety (Bartholomew & Horowitz, 1991; Kobak & Sceery, 1988; Mikulincer & Orbach, 1999), which is a result of their hypervigilance to potential sources of stress and threat (Bartholomew, Kwong & Hart, 2001). While the high scores could indicate greater reports of psychological disturbance, it is also important to note that these high scores could also be due to the smaller sample size of the Preoccupied group in the study, which may exaggerate the true group scores. The Fearful group's mean MMPI-2-RF scale scores, except for RCd, were all within the normal range. The Fearful group's RCd mean score was, however, within the subclinical range. The lower than expected reported psychological distress could be

explained by the inhibition of expressing anxiety and seeking support due to their fear of rejection (Bartholomew, et al., 2001).

Attachment Avoidance

The weaker linkage between attachment avoidance (as compared to attachment anxiety) and psychological-distress related scales were expected due to attachment avoidance's characteristic emotion suppression. Individuals with avoidant attachment are inclined towards the need to deactivate the attachment system based on past experiences of unavailable attachment figures. The inhibition of emotions, including fear, anxiety and distress, is needed to maintain the goal of deactivation (Main & Weston, 1982). Expression of negative emotions is viewed as a display of vulnerabilities and dependency on others, which is not desirable for those with avoidant attachment (Mikulincer & Shaver, 2007). With this need to maintain emotional distance, clinicians could expect individuals with avoidant attachment/high attachment avoidance score to deny having or mask the actual level of their psychological distress. This might have explained why the study's Dismissing group, where these individuals would tend to have high attachment avoidance (Bartholomew & Horowitz, 1991), had MMPI-2-RF scale mean scores that were within the normal range.

As mentioned earlier, the MMPI-2-RF scales measuring interpersonal related problems were found to have stronger relationships with attachment avoidance. In particular, high attachment avoidance in both group-differences and correlational based analyses were found to be associated with higher levels of social avoidance (SAV), greater dislike of others and being around them (DSF), and greater distrust in others (RC3). The positive link between attachment avoidance and RC3 is consistent with Bartholomew's (1990) conceptualization that individuals who have high levels of attachment avoidance tending to have a negative 'model of others'. In general, insecurely attached individuals (high on attachment anxiety and/or attachment

avoidance) tend to hold generalised and stable negative images of others (Collin & Read, 1990; Mikulincer & Shaver, 2007), hence providing further support for the positive link between RC3 and the two attachment dimensions.

The positive relationships between attachment avoidance and the MMPI-2-RF SAV and DSF Scales provided further support for the notion that individuals who have high attachment avoidance would tend to avoid interactions that require emotional involvement, intimacy and/or interdependence (Mikulincer & Shaver, 2007). A study by Kaitz and colleagues (2004) found that people who scored higher on avoidance were less tolerant of physical proximity and expressed more discomfort when their personal space is intruded upon. This is consistent with the positive links between attachment avoidance and the two MMPI-2-RF scales that measure individuals' level of social avoidance and disaffiliativeness found in the current study. Consistent with the literature related to high avoidance attachment, the Dismissing group's DSF scale score was in the subclinical range, suggesting that as compared to their peers, the individuals with a dismissing attachment tend to dislike people and being around them.

Interestingly, the two high avoidant groups, Fearful and Dismissing, were found to differ in the levels of social anxiety. Results suggest that the Fearful group experiences higher level of anxiety in social situations than the Dismissing group. Together with the absence of significant differences in the scale scores measuring social avoidance and dislikes with being around others, the differences in SHY scores supported the notion that that while both groups share the behavioural strategies of withdrawing when distressed, they differ in levels of attachment anxiety or distress (Bartholomew & Allison, 2006; Bartholomew, et al., 2001).

In addition, the correlational based analysis found that attachment avoidance was positively related to RC1, suggesting that higher levels of attachment avoidance are associated with higher level of somatic complaints. Other researchers have found that

despite the lack of the explicit acknowledgement of psychological distress when faced with stressors in a controlled environment, a positive link was found between attachment avoidance and physiological arousal, including heightened diastolic blood pressure and physiological reactivity (e.g., Dozier & Kobak, 1992; Kim, 2006; Maunder, Lancee, Nolan, Hunter, & Tannenbaum, 2006). Heightened physiological arousals when exposed to stressors suggest that psychological distress would manifest in physical symptoms, providing support for the positive relationship between attachment avoidance and RC1. The higher levels of somatic complaints are possible reflections of avoidant-attached individuals' suppressed psychological distress.

Attachment avoidance's positive relationship with the MMPI-2-RF NEGE-r scale in the individual regression analysis is consistent with studies (e.g., Nofle & Shaver, 2006; Shafer, 2001) that report positive relationships between attachment avoidance and neuroticism using various personality and attachment measures. INTR-r scale's positive relationship with attachment avoidance can be supported by studies that found negative relationship between attachment avoidance and extraversion (e.g., Bakker, van Oudenhoven, & van der Zee, 2004; Nofle & Shaver, 2006). DISC-r assesses under controlled behaviours, and the positive relationship between DISC-r and attachment avoidance is consistent with the findings that avoidant people scored lower on a scale measuring self-control (Tangney, Baumeister, & Boone, 2004)

The expected positive relationship between attachment avoidance and K-r (measures under-reporting) in the earlier individual regression analysis was, however, not observed in the study. This could be explained by avoidant individuals' inhibition or exclusion from awareness thoughts or feelings that imply vulnerability, neediness or dependence (Mikulincer & Shaver, 2007). More specifically, avoidant people appear to be using deactivating strategies at an unconscious level (Cassidy & Kobak, 1988). If avoidant strategies are subconsciously employed, the Adjustment Validity scale, a scale

that measure intentional under reporting, would not be able to detect under-reporting in avoidant individuals.

Attachment Security

While the two-dimensional attachment model does not include a specific security measure, attachment security was assumed to be reflected in those self-reported as Secure on the Relationships Questionnaire. The selected MMPI-2-RF scales scores of the Secure group were all within the normal range, suggesting that the securely attached individuals have a sound psychological functioning and no interpersonal functioning issues. This is consistent with the notion that attachment security increases individuals' resiliency and promotes the maintenance of positive emotions (Mikulincer & Shaver, 2007), and that attachment security tends to have a positive association with adaptive interpersonal functioning (Mikulincer & Shaver, 2005).

Research and Clinical Implications.

The results of the current study using the MMPI-2-RF to assess psychological functioning are largely consistent with the existing literature using other measures of psychopathology and, broadly, insecure attachment was found to be associated with increased psychological distress. The lack of a positive relationship between K-r (MMPI-2-RF scale assessing under-reporting) and attachment avoidance scores provides possible evidence that the avoidant strategies are utilised at an unconscious level (Mikulincer & Shaver, 2007). By using the MMPI-2-RF, which consists of multiple scales measuring various psychological symptoms and associated difficulties, this study has also increased the understanding of the differences among the four attachment styles and between the two attachment dimensions. For example, while attachment anxiety was better predicted by clinical scales, attachment avoidance was better predicted by interpersonal-problems related scales. This may help in directing researchers to more in-depth investigation of these attachment dimensions. These results

also contribute to the MMPI-2-RF's research data base, which is necessary to increase psychologists' confidence and willingness to use the MMPI-2-RF in their clinical practices.

In addition, an individual's attachment style can provide information on how their behavioural and cognitive tendencies impact on their psychological functioning. Clinically, the ability to detect attachment patterns in the MMPI-2-RF allows clinicians to use a single test to understand their clients better. Conversely, these results can also assist clinicians to make informed inferences on likely elevated scores clients would have in the MMPI-2-RF test with their knowledge of clients' attachment styles. All these can assist in informing more efficient treatment planning and fostering positive therapeutic relationships beneficial for effective therapy.

Limitations and Future Directions.

While the results from the study showed significant relationships between some of the chosen MMPI-2-RF subscales and the various attachment measures, it is possible that the two attachment dimensions (attachment-related anxiety and avoidance) could be limited in providing further information on the relationship between attachment and psychological functioning. Attachment-related anxiety and avoidance are broad dimensional umbrellas and the ability to break each dimension into more specific aspects may provide a better picture of attachment and psychological functioning. In addition, the ECR-R-GSF, employed here, focuses mainly on insecure attachment, and attachment security is only inferred by low scores on the extant dimensions (Fraley, et al., 2000). A separate scale assessing attachment security would be valuable to have a more accurate understanding of its relationship with psychological functioning. Future studies may consider using other multi-dimensional attachment measures that include attachment security measure to further investigate these relationships.

One limitation identified in this study is the characteristics of the study sample. While the study captured a relatively wide age range (18 – 54 years) of individuals with different ethnicities, the sample is made up of university undergraduates in a western culture. This potentially limits the findings, preventing us from confidently generalising the results to different populations. Further studies replicating the results with different populations are recommended so as to provide further evidence on attachment patterns in the MMPI-2-RF. While the decision on the number of participants to recruit had also taken consideration on the number of scales used and analyses made among many factors, the current sample size could still be inadequate to confidently conclude that the findings truly reflect the population sampled. Hence, replication of the study should also consider increasing the sample size.

The unequal group sizes among the four categorical attachment styles, specifically preoccupied group that has a particularly small size as compared to the other groups, also acts as a limitation of the study. This may affect the true ability to determine the differences among groups in the various selected MMPI-2-RF scales. Future research can consider obtain almost equal group sizes by priming participants into the specific attachment styles.

Another limitation identified is the use of self-report attachment measures in the study. The use of self-report measure may compromise the actual findings through social desirability effects, where participants may not have reported their true attachment inclination. Interview attachment measures may “bypass defences that could bias self-report attachment styles” (Simpson & Rholes, 1998, p. 7). In addition, self-report and interview attachment measures are believed to assess different aspects of attachment and predict different outcomes or the same outcomes differently (Roisman et al., 2007). This suggests that the use of an interview-style attachment measure in a

similar study may be necessary and helpful to obtain alternative information on the relationship between attachment and the MMPI-2-RF.

Finally, given that the study is correlational, causal direction cannot be determined. Further investigation is required to determine whether differences in attachment patterns cause differences in psychopathology or vice versa. This further investigation could include the replication of this study using longitudinal methods, which involve the observations on individuals' attachment and psychopathological patterns over time; or experimental methods, which involve manipulations of individuals' attachment patterns and psychological functioning.

Conclusion

The results show that patterns of individual differences in attachment related expectancies can be detected in the MMPI-2-RF and highlight how attachment is related to the various scales. This provides evidence that the use of the MMPI-2-RF can inform the clinicians on their clients' attachment style, which can further assist in more effective therapy. Future work may consider replicating the study using a multi-dimensional attachment measure, consisting of both secure and insecure attachment subscales, to increase the understanding of the relationship between attachment and the MMPI-2-RF scales. Replication of the study is also recommended to be conducted with different samples, including clinical samples, to investigate if the current findings are generalisable across different populations.

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Tables of Manuscript 1

Table 1.1

Means and Standard Deviations of MMPI-2-RF Validity Scales by RQ Attachment Categories

Scale	<i>M (and SD) for group</i>				<i>F(3, 175)</i>	<i>η²</i> <i>(ω²)</i>	Post -hoc
	(1) Secure <i>(n= 68)</i>	(2) Fearful <i>(n= 53)</i>	(3) Preoccupied <i>(n= 19)</i>	(4) Dismissing <i>(n= 39)</i>			
Infrequent Responses (F-r)	53.62(11.46)	58.64 (13.69)	65.79 (12.96)	56.79 (12.91)	5.00**	.079 (.063)	3 > 1
Infrequent Psychopathology Responses (Fp-r)	55.04 (11.87)	59.06 (12.98)	59.95 (14.57)	59.41 (12.07)	1.67	.028 (0.11)	
Infrequent Somatic Responses (Fs)	52.92 (10.79)	56.38 (14.18)	62.37 (13.45)	55.41 (13.20)	2.85 *	.047 (.030)	3 > 1
Symptom Validity (FBS-r)	54.41 (11.60)	55.94 (9.07)	60.58 (0.15)	52.21 (11.55)	2.83*	.046 (.030)	3 > 4
Uncommon Virtues (L-r)	54.75 (10.07)	49.42 (8.30)	51.58 (8.61)	52.38 (9.26)	3.35*	.054 (.038)	1 > 2
Adjustment Validity (K-r)	48.79 (7.17)	40.75 (8.03)	37.89 (8.79)	44.82 (7.11)	16.32**	.219 (.205)	1 > 2, 3; 4 > 3

Note. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. RQ = Relationship Questionnaire.

p* < .05. *p* < .01.

Table 1.2

Mean and Standard Deviations of MMPI-2-RF Restructured Clinical d, 1, 2, 3 & 4 Scales by RQ Attachment Categories

Scale	<i>M (and SD) for group</i>				$F(x, y)^a$	η^2 (ω^2)	Post -hoc
	(1) Secure (<i>n</i> = 68)	(2) Fearful (<i>n</i> = 53)	(3) Preoccupied (<i>n</i> = 19)	(4) Dismissing (<i>n</i> = 39)			
Demoralization (RCd)	55.03(9.71)	63.02 (8.65)	67.95 (9.35)	59.82 (10.29)	12.41**	.175 (.161)	1 < 2, 3; 4 < 3
Somatic Complaints (RC1)	53.84 (8.68)	58.21 (7.13)	60.79 (8.02)	55.51 (10.01)	4.64**	.074 (.058)	1 < 2, 3
Low Positive Emotions (RC2)	52.06 (10.02)	58.32 (10.78)	56.79 (7.98)	55.69 (10.92)	3.95 **	.063 (.047)	1 < 2
Cynicism (RC3)	47.66 (6.25)	53.85 (9.30)	56.58 (10.07)	52.26 (7.91)	9.67**	.136	1 < 2, 3, 4
Antisocial Behavior (RC4)	48.46 (8.59)	51.04 (9.97)	51.63 (11.12)	52.77 (8.79)	2.00	.033 (.017)	

Note. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. RQ = Relationship Questionnaire.

^a Degrees of freedom for ANOVA analyses of all scales are (3,175) except for RC3, where degrees of freedom are (3, 61).

* $p < .05$. ** $p < .01$.

Table 1.3

Means and Standard Deviations of MMPI-2-RF Restructured Clinical 6, 7, 8 & 9 Scales by RQ Attachment Categories

Scale	<i>M (and SD) for group</i>				<i>F</i> (3, 175)	η^2 (ω^2)	Post -hoc
	(1) Secure (<i>n</i> = 68)	(2) Fearful (<i>n</i> = 53)	(3) Preoccupied (<i>n</i> = 19)	(4) Dismissing (<i>n</i> = 39)			
Ideas Of Persecution (RC6)	55.34(11.59)	56.92 (10.62)	58.05 (10.23)	53.79 (10.45)	0.93	.016 (-.001)	
Dysfunctional Negative Emotions (RC7)	52.41 (8.53)	59.68 (9.51)	61.47 (11.01)	54.59 (9.15)	8.75**	.130 (.115)	1 < 2, 3; 4 < 3
Aberrant Experiences (RC8)	56.01 (10.19)	57.55 (10.43)	60.53 (10.37)	56.51 (10.66)	1.01	.017 (.000)	
Hypomanic Activation (RC9)	48.18 (6.70)	49.57 (8.94)	53.74 (8.97)	51.05 (9.88)	2.55	.042 (.025)	

Note. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. RQ = Relationship Questionnaire.

p* < .05. *p* < .01.

Table 1.4

Means and Standard Deviations of MMPI-2-RF Personality Psychopathology Five Scales by RQ Attachment Categories

Scale	<i>M (and SD) for group</i>				<i>F</i> (3, 175)	η^2 (ω^2)	Post - hoc
	(1) Secure (<i>n</i> = 68)	(2) Fearful (<i>n</i> = 53)	(3) Preoccupied (<i>n</i> = 19)	(4) Dismissing (<i>n</i> = 39)			
Aggressiveness- Revised (AGGR-r)	46.54 (7.62)	44.26(9.16)	48.89 (7.53)	47.64 (9.37)	1.95	.032 (.016)	
Psychoticism-Revised (PSYC-r)	54.87 (12.45)	56.32 (10.97)	58.21 (9.94)	55.05 (11.16)	0.51	.009 (-.008)	
Disconstraint-Revised (DISC-r)	46.68 (7.80)	47.60 (10.45)	50.21 (9.78)	50.90 (9.40)	2.11	.035 (.018)	
Negative Emotionality/Neuroticism- Revised (NEGE-r)	51.91 (9.66)	58.77 (9.83)	63.11 (11.16)	53.87 (9.26)	9.20**	.136 (.121)	1 < 2, 3; 4 < 3
Introversion/Low Positive Emotionality- Revised (INTR-r)	46.81 (10.30)	52.96 (10.79)	50.68 (7.02)	51.77 (11.20)	3.99**	.064 (.048)	1 < 2

Note. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. RQ = Relationship Questionnaire.

p* < .05. *p* < .01.

Table 1.5

Means and Standard Deviations of MMPI-2-RF Interpersonal Scales by RQ Attachment Categories

Scale	<i>M (and SD) for group</i>				<i>F(x, y)^a</i>	η^2 (ω^2)	Post - hoc
	(1) Secure (<i>n</i> = 68)	(2) Fearful (<i>n</i> = 53)	(3) Preoccupied (<i>n</i> = 19)	(4) Dismissing (<i>n</i> = 39)			
Family Problems (FML)	48.54 (9.43)	53.09 (11.56)	55.79 (16.11)	49.49 (8.88)	2.60	.054 (.037)	
Interpersonal Passivity (IPP)	52.16 (9.05)	55.74 (11.33)	48.84 (7.87)	51.33 (10.34)	2.91*	.047 (.031)	
Social Avoidance (SAV)	44.91 (10.07)	51.98 (11.62)	50.74 (10.31)	52.03 (11.34)	5.71**	.089 (.073)	1 < 2, 4
Shyness (SHY)	48.60 (7.10)	55.81 (11.18)	54.53 (9.65)	49.26 (7.26)	8.30**	.125 (.109)	2 > 1, 4
Disaffiliativeness (DSF)	52.41 (11.41)	55.47 (14.32)	53.37 (14.42)	62.51 (15.95)	4.72**	.075 (.059)	1 < 4

Note. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. RQ = Relationship Questionnaire.

^a Degrees of freedom for ANOVA analyses of all scales are (3,175) except for FML, where degrees of freedom are (3, 62).

p* < .05. *p* < .01.

Table 1.6

Correlations between ECR-R-GSF Anxiety and Avoidance Scales and the MMPI-2-RF Validity and Restructured Clinical (RC) Scales

Variable	Anxiety	Avoidance
<i>Validity Scales</i>		
Infrequent Responses (F-r)	.52**	.36**
Infrequent Psychopathology Responses (Fp-r)	.18*	.29**
Infrequent Somatic Responses (Fs)	.31**	.33**
Symptom Validity (FBS-r)	.40**	.13
Uncommon Virtues (L-r)	-.15*	-.05
Adjustment Validity (K-r)	-.53**	-.31**
<i>RC Scales</i>		
Demoralization (RCd)	.62**	.33**
Somatic Complaints (RC1)	.43**	.35**
Low Positive Emotions (RC2)	.31**	.26**
Cynicism (RC3)	.44**	.32**
Antisocial Behavior (Rc4)	.18*	.16*
Ideas Of Persecution (RC6)	.26**	.18*
Dysfunctional Negative Emotions (RC7)	.59**	.35**
Aberrant Experiences (RC8)	.24**	.27**
Hypomanic Activation (RC9)	.21**	.10

Note. ECR-R-GSF = Experiences in Close Relationships Scale-Revised-General Short Form. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 1.7

Correlations between ECR-R-GSF Anxiety and Avoidance Scales and the MMPI-2-RF Personality Psychopathology Five (PSY-5) and Interpersonal Scales

Variable	Anxiety	Avoidance
<i>PSY-5 Scales</i>		
Aggressiveness-Revised (AGGR-r)	.02	-.05
Psychoticism-Revised (PSYC-r)	.26**	.27**
Disconstraint-Revised (DISC-r)	.07	.07
Negative Emotionality/Neuroticism-Revised (NEGE-r)	.54**	.29**
Introversion/Low Positive Emotionality-Revised (INTR-r)	.17*	.43**
<i>Interpersonal Scales</i>		
Family Problems (FML)	.34**	.19**
Interpersonal Passivity (IPP)	.04	.16*
Social Avoidance (SAV)	.17*	.47**
Shyness (SHY)	.38**	.23**
Disaffiliativeness (DSF)	.06	.35**

Note. ECR-R-GSF = Experiences in Close Relationships Scale-Revised-General Short Form. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2-Restructured Form.

* $p < .05$. ** $p < .01$.

Table 1.8

*Summary of Multiple Regression Analyses for MMPI-2-RF Validity Scales
Predicting ECR-R-GSF Anxiety and Avoidance Scores (N = 179)*

Variable	β	
	Anxiety	Avoidance
Gender	.13*	-.10
Age	-.04	.10
Infrequent Responses (F-r)	.29**	.20*
Infrequent Psychopathology Responses (Fp-r)	-.08	.10
Infrequent Somatic Responses (Fs)	-.02	.15
Symptom Validity (FBS-r)	.22**	-.09
Uncommon Virtues (L-r)	-.02	.05
Adjustment Validity (K-r)	-.38**	<u>-.16</u>
R^2 (Adjusted R^2)	.43 (.40)	.20 (.16)

Note. ECR-R-GSF = Experiences in Close Relationships Scale-Revised-General Short Form. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2-Restructured Form.

* $p < .05$. ** $p < .01$.

Table 1.9

Summary of Multiple Regression Analyses for MMPI-2-RF Restructured Clinical Scales Predicting ECR-R-GSF Anxiety and Avoidance Scores (N = 179)

Variable	β	
	Anxiety	Avoidance
Gender	.10	-.05
Age	-.03	.08
Demoralization (RCd)	.44**	-.03
Somatic Complaints (RC1)	.16*	.17*
Low Positive Emotions (RC2)	-.08	<u>.19</u>
Cynicism (RC3)	.20**	.21*
Antisocial Behaviour (Rc4)	-.03	.10
Ideas Of Persecution (RC6)	.04	-.05
Dysfunctional Negative Emotions (RC7)	.22*	.06
Aberrant Experiences (RC8)	-.14	.15
Hypomanic Activation (RC9)	-.02	-.07
R^2 (Adjusted R^2)	.49 (.46)	.24 (.19)

Note. ECR-R-GSF = Experiences in Close Relationships Scale-Revised-General Short Form. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2-Restructured Form.

* $p < .05$. ** $p < .01$.

Table 1.10

Summary of Multiple Regression Analyses for MMPI-2-RF Personality Psychopathology Five scales Predicting ECR-R-GSF Anxiety and Avoidance Scores (N = 179)

Variable	β	
	Anxiety	Avoidance
Gender	.12	-.09
Age	-.06	.00
Aggressiveness-Revised (AGGR-r)	-.08	-.06
Psychoticism-Revised (PSYC-r)	.11	.19**
Disconstraint-Revised (DISC-r)	.08	.23**
Negative Emotionality/Neuroticism-Revised (NEGE-r)	.53**	.16*
Introversion/Low Positive Emotionality-Revised (INTR-r)	.09	.42**
R^2 (Adjusted R^2)	.34 (.31)	.31 (.28)

Note. ECR-R-GSF = Experiences in Close Relationships Scale-Revised-General Short Form. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2-Restructured Form.

* $p < .05$. ** $p < .01$.

Table 1.11

Summary of Multiple Regression Analyses for MMPI-2-RF Interpersonal Scales Predicting ECR-R-GSF Anxiety and Avoidance Scores (N = 179)

Variable	β	
	Anxiety	Avoidance
Gender	.01	-.04
Age	-.02	.11
Family Problems (FML)	.26**	.22**
Interpersonal Passivity (IPP)	-.08	.07
Social Avoidance (SAV)	.07	.39**
Shyness (SHY)	.34**	-.02
Disaffiliativeness (DSF)	-.00	.24**
R^2 (Adjusted R^2)	.23 (.20)	.33 (.30)

Note. ECR-R-GSF = Experiences in Close Relationships Scale-Revised-General Short Form. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2-Restructured Form.

* $p < .05$. ** $p < .01$.

Table 1.12

*Stepwise Regression (Forward selection) Analysis Final Model for
MMPI-2-RF Scales Predicting ECR-R-GSF Anxiety Scores (N = 179)*

Variable	β Anxiety
Demoralization (RCd)	.40**
Dysfunctional Negative Emotions (RC7)	.22**
Cynicism (RC3)	.19**
R^2 (Adjusted R^2)	.46 (.46)

Note. ECR-R-GSF = Experiences in Close Relationships Scale-Revised-General Short Form. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 1.13

*Stepwise Regression (Forward selection) Analysis Final Model for
MMPI-2-RF Scales Predicting ECR-R-GSF Avoidance Scores
(N = 179)*

Variable	β Avoidance
Social Avoidance (SAV)	.35**
Cynicism (RC3)	.19**
Disaffiliativeness (DSF)	.20**
Somatic Complaints (RC1)	.20**
R^2 (Adjusted R^2)	.37 (.35)

Note. ECR-R-GSF = Experiences in Close Relationships Scale-Revised-General Short Form. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

CHAPTER THREE

Study Two: Extending the Investigation

Using the popular two-dimensional model of attachment (e.g., Brennan, et al., 1998; Fraley, et al., 2000; Mikulincer & Shaver, 2007) and the four typology of attachment by Bartholomew and Horowitz (1991), Study One established that self-reported attachment patterns can be reflected in various scales of the Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF; Tellegen & Ben-Porath, 2008). Some researchers (e.g., Feeney, 2002; Karantzas, Feeney, & Wilkinson, 2010), however, have pointed out the limitation of a two-dimensional model in the understanding of the influence on attachment on various outcomes (e.g., relationship and psychological), and suggested the need to take into consideration specific attachment facets in attachment-related research. This highlights the need for the current research to examine the relationships among specific facets of attachment and specific scales of the MMPI-2-RF, to further increase the understanding of the relationships between attachment and the MMPI-2-RF.

Multiple Facets of Attachment

The two dimensional model of attachment is believed to be the most accepted as the underlying foundation of adult attachment (Feeney, 2002), where all other facets of attachment are subset of these two dimensions. Since its introduction, many researchers have used this model as the theoretical framework in studies examining the influence of attachment in various psychological and relationship outcomes (e.g., Watt, McWilliams, & Campbell, 2005; Wei, Heppner, et al., 2006; Wei, Vogel et al., 2005). A strictly two-dimensional model of attachment, however, may result in valuable information being lost (Feeney, 2002), limiting one's understanding on attachment's influence on psychopathology. Specific attachment facets are useful in revealing important factors contributing to maladaptive functioning (Karantzas, et al., 2010), and they can provide

useful information on the distinct differences among individuals (Fossati, Feeney, Donati, Donini, Novella, Bagnato, Acquarini, et al., 2003b).

A recent examination of the model structure of a multi-dimensional attachment measure, the Attachment Style Questionnaire (ASQ; Feeney, et al., 1994) found that the anxiety and avoidance dimensions were not higher-order dimensions as previously thought, but were instead, part of a nested model amongst the five ASQ factors at the first-order level (Karantzas, et al., 2010). Based on their results, Karantzas and colleagues (2010) suggested that anxiety and avoidance dimensions should not be viewed as a mere summary of specific attachment factors, and highlighted the importance of taking both broad and specific facets into consideration when conducting attachment-related work in research and clinical practice.

Using Italian clinical and non-clinical samples, Fossati and colleagues (2003b) found differences in the five ASQ facets scores between the clinical and non-clinical samples, and within the clinical sample. Differences were also found among the ASQ factors in the way they relate to parental bonding styles, and between specific ASQ factors loading on the same primary dimension in the way they relate to various variables in the study (Fossati, et al., 2003b). Based on Fossati and colleagues' findings, Feeney (2002) argued that multiple attachment facets should be retained as they are able to provide a more complete picture than the two broader dimensions. The retainment of the attachment facets in the counselling and clinical contexts also allows more effective therapy by contributing to better treatment planning (Fossati, et al., 2003b; Karantzas, et al., 2010).

The two dimensional model has also been frequently criticised for the absence of direct assessment for security (e.g., Bäckström & Holmes, 2007; Fraley, et al., 2000; Mikulincer & Shaver, 2007). In this model, secure attachment is defined as the absence of both attachment anxiety and avoidance (Mikulincer & Shaver, 2007). Bäckström &

Holmes (2007) argued that this conceptualisation is incongruent with the theory of attachment, drawing readers to Mikulincer's and Florian's (1998) viewpoint that secure attachment provides resources that guide individuals to appraise things more positively and to cope with stressful events more constructively. Pointing out to the amount of literature available on the importance of secure attachment for various positive relational and psychological outcomes, Bäckström and Holmes further argued that the lack of attachment anxiety and avoidance are not secure attachment, but neutral points of attachment. In addition, secure attachment reflects the positive aspects of attachment security (Bowlby, 1973, 1980), and hence needs to be measured directly.

While Study One has examined the relationship between secure attachment and the selected MMPI-2-RF scales, secure attachment in that study was assessed using a categorical attachment measure. A dimensional measure for secure attachment is deemed necessary as categorical and dimensional forms of measures are argued to be conceptually different (Shi, Wampler, & Wampler, 2013) and would possibly yielding different results. Adult attachment researchers also tend to favour dimensional attachment measures due to the greater psychometric properties and sensitivity of multiple-item measures (Feeney, 2002). The inclusion of an investigation using a dimensional secure attachment measure would help align this research investigation with the current adult attachment research.

Attachment, Conflict Communication Methods, and Selected Outcomes Measures

While theorized to have a direct influence on mental health, attachment is also likely to have indirect influences through interpersonal communication strategies such as conflict management methods (Mikulincer & Shaver, 2007). Given that attachment is believed to be responsible for many various outcomes, including interpersonal and psychological difficulties, questions can be raised if attachment could be the overarching explanation for negative interpersonal and psychological outcomes, or if

conflict management methods are equally important in explaining these outcomes. To address this question, the second part of the research also hopes to examine whether conflict management methods can provide additional explanations on individuals' psychopathology and interpersonal issues above and beyond these individuals' attachment styles.

Conflict and its management strategies.

Conflict is an inevitable, natural process (Pistole & Arricale, 2003) in any form of relationship. It can occur when individuals have actual or perceived incompatible goals, or incompatible behaviours towards compatible goals (Fisher, 2000). Conflict is a double-edged sword as it can be constructive, providing opportunities for improvement in communication and enhancement in intimacy (Pietromonaco, Greenwood, & Barrett, 2004), and it can also be destructive, creating unhappiness and frustration, erode trust, and disintegrate relationships without possibility of restoration.

With conflict being an inevitable and natural process, the handling of conflicts becomes a natural part of the daily activities in a person's life (Brew & Cairns, 2004). Constructive conflict management strategies can help reduce interpersonal distress and maladaptive strategies can aggravate this distress (Mikulincer & Shaver, 2007). An early model of conflict management was a two-dimensional "dual concern model" developed by Blake and Mouton (1964). The first dimension of this model identified was concern for self, which explains the extent to which a person attempts to satisfy his/her own concerns. The second dimension, on the other hand, involves concern for others. It explains the degree to which a person wants to satisfy the concern of others (Rahim & Bonoma, 1979). This model of conflict management was said to be an extension of Leary's (1957) work on interpersonal communication, where communication is described as two bi-polar dimensions of cooperation-opposition and domination-submission (Bowles, 2002, 2005). Since its introduction, the dimensions of

the dual concern model of conflict management have been well accepted as the basis to evaluate major conflict management styles (Kim, Wang, Kondo, & Kim, 2007).

The Rahim Organizational Conflict Inventory II (ROCI-II; Rahim, 1983b) is an example of such measures that base their evaluations of individuals' conflict management styles on the dual concern model of conflict management. Using this two dimensional model, Rahim (1983a) proposed five specific styles of conflict communication: integrating, obliging, dominating, avoiding and compromising. Integrating style involves high concern for self and others; obliging style sees low concern for self and high concern for others; dominating style involves high concern for self and low concern for others; avoiding style sees low concern for self and other; compromising style involves intermediate concern for self and others (Kim, et al., 2007; Rahim, 1983a). The ROCI-II has since been widely used and accepted as an effective model of communication (Bowles, 2002).

A more recent conflict communication model that followed Leary's explanation of interpersonal communication was the Focus of Communication Model (FOCM; Bowles, 2002). According to the FOCM, communication "is a process used to satisfy needs and drives, emanating from scarcity, and that unmet needs and drives result in conflict in the individual and about the individual in the environment" (Bowles, 2009, p. 54). Using this model of conflict communication, a six factor description of communication arose. These six factors are Success: Task-focused, Concession, Withdrawing, Other Person focused, and Confusion (Bowles, 2002). Individuals who are focused on Success reported to communicate in ways to ensure success (Bowles, 2004) and would tend to display anger, disagreement and demand (Bowles, 2002). By being Task-focused, individuals would tend to ask, persist and reason (Bowles, 2002). Concession is characterised by giving in to others (Bowles, 2004), being associated with agreeableness and engaging in concession related communication (Bowles, 2002).

Individuals focused on Withdrawing would tend to withdraw, do nothing and ignore, while those focused on other people would tend to behave in ways to keep peace (Bowles, 2002). The focus on Confusion is characterised by behaviours to confuse others such as making things ambivalent and being dismissive (Bowles, 2002; 2004).

Cluster analyses conducted by Bowles in various studies (e.g., 2002, 2004, 2010) on data obtained using the Focus of Communication Questionnaire (FOCQ; Bowles, 2002), a conflict communication measure with FOCM as its theoretical foundation, found that the six factors could be further clustered into two groups. The clustering of the six components, however, has not been consistent throughout the available studies, with only the Task and Confusion components being the most differentiating factors across the studies (Bowles, 2004, 2010). In his recent paper, Bowles' (2010) cluster analysis grouped Task, Other-person and Concession in a cluster, labelled as On-task; and Confusion, Withdrawing and Success together, as Off-task. His study also found that the On-task cluster was associated with positive conflict-related outcomes such as fewer conflicts, lower severity of conflicts, and greater likelihood of conflict resolution in relatively short period of time. The Off-task cluster, on the other hand, was found to be associated with negative conflict-related outcomes, including a higher number of conflicts experiences, fewer satisfactory conflict outcomes and more ineffective arguing (Bowles, 2010).

While few studies have examined conflict management strategies and psychological outcomes, the scant existing research has found an association (e.g., Askari, Noah, Hassan, & Baba, 2013; Chung-Yan & Moeller, 2010). Using a sample of 161 direct care nursing staff, Montoro-Rodriguez and Small (2006) found that psychological morale, job satisfaction and occupational stress were associated with conflict management styles. Specifically, a preference for confrontational and avoidance styles was positively associated with measures assessing morale and burnout, and a

preference for cooperative style was associated with positive feelings about the job (Montoro-Rodriguez & Small, 2006). In a more recent study, Chung-Yan & Moller (2010) examined psychosocial costs of conflict management styles in a sample of 311 employed young adults by measuring levels of social dysfunction, anxiety and depression. While Chung-Yan & Moller (2010) found that the use of integrating/compromising conflict managing styles is psychosocially beneficial for workers, this positive effect was only up to a certain point, beyond which increased psychosocial strain is experienced in high work conflict situations (Chung-Yan & Moeller, 2010). The use of various conflict management strategies is also likely to influence interpersonal outcomes, where some conflict resolution strategies are likely to reduce the number of conflict experiences and increase the occurrence of more satisfactory outcomes, while others are likely to increase these conflict experiences and reduce satisfactory outcomes, which can in turn increase distress (Bowles, 2010; Friedman, Tidd, Currall, & Tsai, 2000).

Attachment and conflict management strategies.

Attachment theory has been widely used to understand interpersonal behaviours and experiences in adult relationships (Collins, Guichard, Ford, & Feeney, 2004). This theory is believed to be able to provide a framework for understanding the different ways individuals handle conflicts (Pietromonaco, et al., 2004), and attachment research has provided insight into how individuals would react to and manage interpersonal conflicts (Mikulincer & Shaver, 2007).

Conflicts can reveal attachment processes by activating an individual's attachment system or triggering behaviours that may be relevant to different attachment goals (Feeney, 2011; Pietromonaco, et al., 2004). Interpersonal conflict is a threat to one's attachment bond (Feeney, 2004) and it triggers the activation of attachment behaviours that are manifested in the ways conflicts are handled. Because the degree in

which conflict is perceived as threatening differs across attachment styles, individuals tend to vary in the type of conflict management styles used (Bippus & Rollin, 2003; Pistole, 1989; Pistole & Arricale, 2003).

Individuals with secure attachment tends to view themselves and others positively (Bartholomew, 1990), have high level of trust (Simpson, 1990) and have less emotionally reactive appraisals of threat (Gaines et al., 1997). Hence they are less likely to perceive conflict as a threat but instead focus on the challenging aspect of conflict (Mikulincer & Shaver, 2007). This allows the securely attached to communicate about conflict more openly and are more likely to use more constructive behaviours to resolve conflict, such as compromising and integrating, and seeking mutually derived solutions (Pietromonaco, et al., 2004; Pistole & Arricale, 2003).

Individuals who are insecurely attached, on the other hand, have negative views of either self, others or both (Bartholomew, 1990), are less trusting than the securely attached (Simpson, 1990) and are more emotionally reactive towards the appraisal of threats (Gaines, et al., 1997). Insecurely attached individuals are more likely to appraise interpersonal conflicts as threatening towards the attachment bond (Pistole & Arricale, 2003) and tend towards the use of poorer conflict management skills, such as avoiding, arguing and obliging (Creasey, Kershaw, & Boston, 1999). Looking at differences among the insecurely attached, individuals who are anxiously attached are more likely to catastrophise conflict, display intense negative emotions, ruminate obsessively, fail to attend to and understand their partners, and either be dominating or submissive when faced with conflicts (Mikulincer & Shaver, 2007). Avoidant individuals are likely to minimize the significance and importance of the conflict and their partners' complaints, avoid conflicts, and dominate when withdrawal is not possible (Mikulincer & Shaver, 2007).

The literature reveals that both attachment and conflict management strategies are found to be associated with various psychological and interpersonal outcomes. In addition, attachment was suggested to play a role in individuals' choice of conflict management strategies (e.g., Pistole & Arricale, 2003). Given the relationship between attachment and conflict management strategies, it can be questioned whether the association between conflict management strategies and psychological and interpersonal outcomes are due to a major common factor between the variables, that is, attachment. In other words, do conflict management strategies still have a role in predicting psychological and interpersonal outcomes when controlling for attachment factors? Can it provide additional explanation to individual differences in psychological well-being and interpersonal functioning?

The Aims of Study Two

The present study aims to investigate 1) the relationship between attachment and the MMPI-2-RF, and 2) the roles of attachment and conflict management strategies on psychological and interpersonal outcomes. This study was adapted from Study One and modified in two major ways. The first major modification was the replacement of the two-dimensional attachment measure with a multi-dimensional attachment measure. This is to examine if systematic relationships between individuals' attachment and psychological outcomes could be broken down into more specific of attachment facets. More specifically, this study examines the relationships between the specific aspects of attachment and the MMPI-2-RF scores, and explores differences between specific attachment aspects that belong to the same primary attachment dimension. The second addition is to introduce a measure assessing conflict management/communication methods. This is to investigate if the ways individuals communicate in conflict would provide additional explanations on individuals' psychological functioning. This study hopes to examine whether conflict communication variables will continue to be

significant predictors of psychological and interpersonal outcomes when attachment is controlled for. The psychological outcomes of interest in this part of the study are those that were examined in previous studies of conflict management styles and psychological functioning, e.g., levels of morale, depression and anxiety. The interpersonal outcome of interest in this study is related to relational quality. Selection of the MMPI-2-RF scales for these analyses will be based on the results of the first part of the study, and the scales' representations of the selected psychological and interpersonal outcomes. ,

Hypotheses.

Hypothesis 1 - ASQ and MMPI-2-RF.

With respect to the dimensional model of attachment, based on Study One's results, it is hypothesized that

- a. Keeping the level of ASQ Avoidant Attachment constant, it is hypothesized that ASQ Attachment Anxiety would have positive relationships with MMPI-2-RF's F-r, FBS, RCd, RC1, RC3, RC7, NEGE-r, FML, and SHY. It is also hypothesized that ASQ Attachment Anxiety will have a negative relationship with K-r.
- b. Keeping the level of ASQ Attachment Anxiety constant, it is hypothesized that ASQ Avoidant Attachment would have positive relationships with F-r, RC1, RC3, PSYC-r, DISC-r, NEGE-r, INTR-r, FML, SAV and DSF.

In addition, it is also hypothesized that

- c. Given that ASQ Confidence are related to attachment security, it will have a negative relationships with the MMPI-2-RF scales measuring psychopathology and interpersonal difficulties, including RCd, RC1, RC2, RC3, NEGE-r, INTR-r, FML, SAV, SHY and DSF.

- d. As ASQ Relationship as Secondary and Discomfort with Closeness belong to attachment avoidance, these factors would have positive relationships with F-r, RC1, RC3, PSYC-r, DISC-r, NEGE-r, INTR-r, FML, SAV and/or DSF.
- e. ASQ Preoccupation with Relationships and ASQ Need for Approval are expected to have positive relationships with FBS, RCd, RC1, RC3, RC7, NEGE-r, FML, and/or SHY, and a negative relationship with K-r.

Due to the lack of evidence, no hypothesis has been drawn on the differences between ASQ Relationship as Secondary and ASQ Discomfort with Closeness and between ASQ Preoccupation with Relationships and ASQ Need for Approval.

Hypothesis 2 - Attachment, Conflict Communication, MMPI-2-RF.

Selection of the MMPI-2-RF scales for this analysis is dependent on a number of factors including the results from the above analyses of Study 2 and their representation on the outcomes selected to be examine. Given the dependency on results in the above analyses, specific hypotheses for this section of Study 2 are not proposed. However, it is predicted that, independently, conflict communication methods would significantly predict psychological and interpersonal outcomes. While the conflict communication methods variable is likely to remain as a significant predictor of the interpersonal outcomes, it is not expected to predict psychological outcomes after the analyses controls for attachment. Based on results in Study One and the current literature, attachment is hypothesized to significantly predict the selected psychological and interpersonal outcomes.

Following the results presentation format of Study One, Study Two's results will also be presented in the form of manuscripts in preparation for future publication. Dividing the results into two manuscripts, the first manuscript of Study Two, presented in the next chapter (Chapter Four), is related to the findings on the relationships between specific attachment facets and the MMPI-2-RF. The second manuscript of this

study can be found in the subsequent chapter (Chapter Five), where findings related to attachment, conflict management strategies, and selected psychological and interpersonal outcomes would be presented.

CHAPTER FOUR

Manuscript 2

Title: Attachment And Adjustment: The Attachment Style Questionnaire (ASQ) And The MMPI-2-RF

Authors: Chin, Z.-H. & Wilkinson, R. B.

Status: Manuscript in preparation

This paper is part of the second cross-sectional quantitative study (Study Two) that was conducted to follow up on results from the paper presented in Chapter Two. Study Two is divided into two parts, and this paper presents the first part of the study that attempted to address the limitations on the use of a two-dimensional view of attachment and the lack of an attachment security measure. Using a multi-dimensional attachment measure and a new sample of 218 university undergraduates, the first part of Study Two aims to investigate if Study One's findings can be replicated with a different attachment measure. It also hopes to further understand the relationship between attachment and mental health by examining association between specific attachment facets and the MMPI-2-RF scales scores.

The Candidate's Contribution

Similar to Manuscript 1, the conceptualisation of Study Two, literature review, research design (e.g., shortlisting measures and setting up the online questionnaire), participation recruitment, administration, analysis of results, and authoring this paper were the principal responsibility of myself, the candidate. Dr Wilkinson, in his capacity as a supervisor, provided guidance in various areas including conceptual development, methodology (e.g., choosing appropriate measures), analysis methods, as well as reviewing recruitment materials and the survey before their launch. Dr Wilkinson also assisted with proof reading and editing for the paper.

ATTACHMENT AND ADJUSTMENT: THE ATTACHMENT STYLE
QUESTIONNAIRE (ASQ) AND THE MMPI-2-RF

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Abstract

Using a two-dimensional model attachment measure, Chin and Wilkinson (in preparation) showed that attachment patterns are reflected in various scales of the MMPI-2-Restructured Form test (MMPI-2-RF; Ben-Porath & Tellegen, 2008). However, their results are limited by the lack of an attachment security scale and the benefit of using more specific attachment facets. The current study used a multi-dimensional attachment measure, the Attachment Style Questionnaire (ASQ; Feeny, Noller & Hanrahan, 1994) and the MMPI-2-RF with a sample of undergraduates ($N = 218$) to investigate if Chin's and Wilkinson's results could be replicated with a different attachment measure and to further understand the relationships between specific attachment factors scales, including attachment security, and the selected MMPI-2-RF scales. All of the ASQ attachment factors were found to have statistically significant relationships with various MMPI-2-RF scales. Specifically, the attachment security scale was found to have negative associations with all scales measuring psychopathology and interpersonal issues; attachment anxiety related scales were found to be best predicted by MMPI-2-RF scales assessing psychopathology; and attachment avoidant related scales were found to be best predicted by those assessing interpersonal related issues. Both research and clinical implications of the findings are discussed.

Keywords: MMPI-2-RF; ASQ; attachment security, attachment anxiety; attachment avoidance

Attachment and Adjustment: The Attachment Style Questionnaire (ASQ) and The MMPI-2-RF

Using the popular two-dimensional model of attachment (e.g., Brennan, Clark, & Shaver, 1998; Fraley, Waller, & Brennan, 2000; Mikulincer & Shaver, 2007), Chin and Wilkinson (in preparation) found that self-reported attachment patterns can be reflected in various scales of the Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF; Tellegen & Ben-Porath, 2008). A strictly two dimensional view of attachment may, however, result in the loss of valuable information (Feeney, 2002), limiting one's understanding of the influence of attachment on psychopathology. Specific attachment facets are useful in revealing important factors contributing to maladaptive functioning (Karantzas, Feeney, & Wilkinson, 2010), and they provide useful information on the distinct differences among individuals (Fossati, Feeney, Donati, Donini, Novella, Bagnato, Acquarini, et al., 2003a). To further increase the understanding of the relationships between attachment and the MMPI-2-RF, this study examines the relationships among specific facets of attachment and specific scales of the MMPI-2-RF.

Attachment theory (Bowlby, 1969/1982) postulates that individuals have the innate need to form strong emotional bonds to increase their chance of survival and reproduction amidst environmental threats and demands (Mikulincer & Shaver, 2007). When faced with distressing situations, individuals' primary attachment strategy is to seek proximity to reliable others to establish safety and support (Bowlby, 1969/1982). Individuals who do not have such reliable others available engage secondary attachment strategies (hyperactivating or maximising expressions of attachment need; and deactivating or minimising expressions of attachment need) to cope with their distress (Dozier, Stovall-McCloguh, & Albus, 2008; Mikulincer & Shaver, 2007). The individuals' choice of attachment strategies is dependent on their attachment styles,

which are individuals' most accessible working models that influence their relational cognitions, behaviours and feelings (Mikulincer & Shaver, 2007). An attachment style is developed and shaped through one's history of attachment experiences via his/her interactions with early care-givers (Fraley & Shaver, 2000).

The most researched concept in attachment theory is attachment styles (Mikulincer & Shaver, 2007); a concept first introduced by Ainsworth and her colleagues (1967, 1969, 1978) through observations and laboratory studies of mother-infant separations and reunifications. Many researchers have since extended Ainsworth's work and attachment theory to adolescents and adult populations and developed various interview and self-report measures of attachment styles (e.g., Hazan & Shaver, 1987; Main, Kaplan, & Cassidy, 1985).

Interview and self-report measures of attachment styles are the two main methodological traditions of adult attachment research, and attempts made to compare them have found that these two approaches appear to assess different components of attachment (Bartholomew & Shaver, 1998; Simpson & Rholes, 1998). Although interview attachment measures have their benefits, self-report measures will be the focus of this study as they are more widely used and accessible due to their ease of administration and scoring. While many of the self-report measures were developed to assess romantic attachment styles, there are also a few measures that assess non-romantic relational attachments (e.g., Armsden & Greenberg, 1987; Mallinckrodt, Gantt, & Coble, 1995). Researchers have also increasingly acknowledged the need to examine both relationship-specific attachment styles and general attachment styles (i.e., attachment across relationships) in attachment research (Mikulincer & Shaver, 2007).

Self-report attachment measures include both categorical or forced-choice measures (e.g., Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987) and dimensional measures (e.g., Brennan, et al., 1998; Feeney, Noller, & Hanrahan, 1994),

and many are found to have good reliability and validity. It has been argued that attachment anxiety and avoidance are the two key dimensions common to all the self-report measures of attachment (Brennan, et al., 1998; Crowell, Fraley, & Shaver, 2008). According to Mikulincer and Shaver (2007), attachment anxiety is related to individuals' worries concerning significant other's availability and how they are valued, a strong desire for emotional intimacy and protection, and the use of hyperactivating attachment strategies. Attachment avoidance, on the other hand, is related to individuals' level of discomfort with intimacy and dependence on others, inclination to emotional distance and independence, and use of deactivating attachment strategies (Mikulincer & Shaver, 2007).

Attachment theory was first developed to explain the effect of loss on adjustment (Bowlby, 1969/1982), and has since generated considerable research examining the relationships between individual differences in attachment and psychological health (e.g., Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Shaver et al., 1996; Wei, Vogel, Ku, & Zakalik, 2005). The majority of these studies have found that poorer mental health, including emotional problems and adjustment difficulties, is associated with self-reported insecure attachment styles (Mikulincer & Shaver, 2007). Specifically, insecure attachment is commonly found to be associated with higher levels of depression and anxiety (e.g., Bucci et al., 2012; Wautier & Blume, 2004) and to the development of personality and eating disorders (Fossati, Feeney, Donati, Donini, Novella, Bagnato, Carretta, et al., 2003b; Shanmugam, Jowett, & Meyer, 2012). Attachment anxiety, as compared to attachment avoidance, has been found to have stronger associations with poor psychological health (Mikulincer & Shaver, 2007). Despite evidence of relationships between self-reported attachment and indicators of psychological distress, an examination of the online databases reveals few studies that investigate how self-report attachment measures relate to the Minnesota

Multiphasic Personality Inventory (MMPI). Before the study by Chin and Wilkinson (in preparation), no study has been identified to focus on the MMPI-2-RF in the investigation of the relationship between attachment and psychopathology.

The Minnesota Multiphasic Personality Inventory (MMPI) is a widely used clinical measure of personality and psychopathology (Camara, Nathan, & Puente, 2000) that examines an individual's level of emotional adjustment and attitude toward test taking. It was originally developed by Hathaway and McKinley (1940) to assess adult patients and determine severity of psychiatric disturbance (Groth-Marnat, 2009). The MMPI was later modified to the MMPI-2 in 1989 to address issues regarding outdated normative data, lack of standardised sample and items being objectionable and having racial bias (Groth-Marnat, 2009; Helmes & Reddon, 1993). The MMPI-2 was also criticised for the heterogeneity of the scales and the lengthy test duration (Groth-Marnat, 2009). The MMPI-2-RF was subsequently developed in 2008 to further improve the psychometric and theoretical properties of the MMPI (Ben-Porath, 2012). It initially contained eight validity and 42 substantive scales. A ninth validity scale was added in the subsequent version of the test. The core of the test is the nine restructured clinical (RC) and five revised personality psychopathology five (PSY-5) scales (Groth-Marnat, 2009). The MMPI-2-RF's scales were found to have sound psychometric properties, including good construct and criterion validities (Ben-Porath, 2012; Tellegen & Ben-Porath, 2008), and had advantages over the MMPI-2 due to its shortened time administration and scoring, and its ease of interpretation (Greene, 2011). The MMPI-2-RF has been suggested to be a good substitute of the MMPI-2, especially when brevity is required (Groth-Marnat, 2009).

In an attempt to address the lack of studies investigating the relationship between self-report attachment and the MMPI and its variants, Chin and Wilkinson (in preparation) examined the relationships between selected MMPI-2-RF scale scores and

two self-report attachment measures, the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991), and the Experiences in Close Relationships Scale-Revised-General Short Form (ECR-R-GSF; Wilkinson, 2011). In their study, Chin and Wilkinson found that the selected MMPI-2-RF scales related to psychological distress and overall symptoms are particularly related to attachment anxiety with scales focused on interpersonal problems being more associated with attachment avoidance. Statistically significant differences in some of the specific MMPI-2-RF scales scores were found among the four RQ attachment categories, of which, the securely attached group scored the lowest in scales measuring psychopathology. In particular, Chin and Wilkinson found that the Preoccupied and Fearful groups had higher dissatisfaction towards life, more dysfunctional negative emotions and fewer positive emotional experiences than the Secure and Dismissing groups. They also found that these groups are more distrusting in others than the Secure group. The Dismissing group reported higher distrust in others, greater dislikes in others and higher social avoidance than the Secure group; while the Fearful group reported higher social avoidance than the Secure group and greater social anxiety than the Dismissing group.

With respect to the popular two-dimensional model of attachment, Chin and Wilkinson (in preparation) found that higher attachment anxiety was related to a higher tendency to over report current distress, higher level of demoralisation, more somatic complaints, greater distrust in others, more dysfunctional negative emotions, higher levels of neuroticism and shyness, and more family problems. Higher levels of attachment avoidance were related to higher levels of social avoidance, neuroticism and psychoticism; more somatic complaints, “disconstrained” behaviours and family problems; and greater distrust in others and dislikes of others. In an overall analysis, they found that the MMPI-2-RF scales that assess level of demoralisation, distrust in others and dysfunctional negative emotions were the strongest predictors of attachment

anxiety while scales measuring social avoidance, cynicism (distrust in others), dislikes of others and being around them, and levels of somatic complaints were the strongest predictors of attachment avoidance.

Using the four typology attachment groups and the anxiety-avoidance two dimensional model of attachment, Chin's and Wilkinson's (in preparation) results provided evidence that individuals' attachment patterns are reflected in the selected MMPI-2-RF scales. However, a two-dimensional view of attachment may limit our ability to understand the relationship between attachment and psychopathology, which is especially important in clinical settings where effective treatment requires more specific identification of factors contributing to maladaptive functioning (Feeney, 2002; Karantzas, et al., 2010). During their attempt to develop a dimensional measure to examine the attachment of individuals with little or no romantic experiences, and to address problems with earlier attachment measures, Feeney, Noller and Hanrahan (1994) developed the Attachment Style Questionnaire's (ASQ; Feeney, et al., 1994). The original factor analysis of the ASQ items produced a three-factor solution (Secure, Anxiety and Avoidance) and a five-factor solution (Confidence, Discomfort with Closeness, Relationships as Secondary, Need for Approval and Preoccupation with Relationships). They suggested that the Confidence dimension is related to attachment security; Need for Approval and Preoccupation with Relationships are part of attachment anxiety; and Discomfort with Closeness and Relationships as Secondary reflect attachment avoidance. A recent factor analysis conducted by Karantzas and colleagues (2010) to test whether the ASQ five dimensions can be fitted into the popular two-dimensional structure found that the avoidance and anxiety dimensions are at the first-order level nested amongst the five factors, rather than at a higher-order level. The results provided evidence for the need to retain specific attachment dimensions in clinical contexts, and to not assume that the broad attachment anxiety and avoidance

factors would suffice as a summary for these specific dimensions (Karantzas, et al., 2010).

A frequently reported limitation of the ECR and its variants' two-dimensional attachment model is the absence of assessment for attachment security (e.g., Bäckström & Holmes, 2007; Fraley, et al., 2000; Mikulincer & Shaver, 2007). In this two-dimensional model of attachment, secure attachment is regarded as the mere absence of both attachment anxiety and avoidance (Mikulincer & Shaver, 2007). Bäckström & Holmes (2007) argue that this conceptualisation of secure attachment is incongruent with attachment theory, highlighting that secure attachment is a resource that allows individuals to make more positive appraisals on and cope with stressful events more constructively. They further argue that given the large amount literature on the importance of attachment security for many things, the lack of attachment anxiety and avoidance are neutral points of attachment, rather than secure attachment. Secure attachment is suggested to reflect the positive aspect of attachment security (Bowlby, 1973, 1980). While Chin and Wilkinson's (in preparation) study has findings on the secure group's relationship with the MMPI-2-RF scales using a categorical measure, a dimensional measure for secure attachment is necessary as both forms of measures are conceptually different (Shi, Wampler, & Wampler, 2013) and thus possibly yield different results.

The benefits of examining specific attachment facets and the need for a secure attachment dimension measure highlight the possibility to have a more in-depth understanding of the influence of attachment on individuals' psychological functioning. This in turn points out the need for further investigation of the relationship between attachment and the MMPI-2-RF by replacing the two-dimensional self-report measure with a multi-dimensional one that includes the assessment of attachment security.

The Present Study

To address the limitations of using a two-dimensional measure in understanding how attachment measures are related to the selected MMPI-2-RF scales, the current study aims to employ the Attachment Style Questionnaire to investigate if the systematic relationships found between attachment and the MMPI-2-RF could be replicated using an alternative self-report attachment measure. It aims to further increase understanding of the relationship between attachment and psychological functioning by examining the relationships between specific attachment facets and selected MMPI-2-RF scales, and to investigate whether the secure-related attachment facet would differ from the other insecure-related facets in its relationships with the MMPI-2-RF scales.

Based on the results of Chin and Wilkinson (in preparation), the MMPI-2-RF scales measuring psychopathological symptoms are hypothesized to have greater association with attachment anxiety. In particular, it is hypothesized that higher levels of attachment anxiety as measured by the ASQ will be associated with a greater tendency to over-reporting, lower level of psychological adjustment, more reported symptoms of depression and anxiety, including social anxiety, higher levels of neuroticism, greater distrust in others, and more family problems. Attachment avoidance as measured by the ASQ is hypothesized to be associated with more somatic complaints and disconstrained behaviours, higher levels of social avoidance, neuroticism, psychoticism, and more interpersonal related issues, including social avoidance and distrusts in others. Attachment avoidance is also postulated to have better association with interpersonal related MMPI-2-RF scales.

With respect to the five ASQ attachment facets, ASQ Confidence is theorised to be related to attachment security (Feeney, et al., 1994). Given attachment security is related to good psychological functioning (Bowlby, 1969/1982), it is hypothesised that ASQ Confidence would be negatively related to all of the selected MMPI-2-RF scales

that assess psychopathology and distress. Given that ASQ Need for Approval and ASQ Preoccupation with Relationships scales belong to attachment anxiety and ASQ Discomfort with ASQ Closeness and Relationships as Secondary scales are associated with attachment avoidance (Feeney, et al., 1994), it is postulated that these scales would have similar relationships to the selected MMPI-2-RF scales as attachment anxiety and avoidance respectively. Specific relationship differences between the two attachment facets in each broader factor will be explored in this study.

Method

Participants

Two hundred and fifty-three (72 males and 181 females) volunteer undergraduates at the Australian National University with an age range of between 18 and 54 years ($M = 20.23$ years, $SD = 4.28$ years) were recruited as part of a larger study. Of those, 44.7% reported being in a romantic relationship at the time of the study. Participants received course credits for taking part in the study. 75.9% of the participants reported that they identified themselves as “Australians” and 20.9% reported that they identified themselves as Asians (e.g., Chinese, Singaporeans, Malaysians and Koreans).

Materials

The Attachment Style Questionnaire (ASQ; Feeney, et al., 1994) consists of 40 items that describe an individual’s feelings and behaviours in “close relationships”. Participants are presented with statements and asked to rate their response to each statement on a 6-point Likert-type scale from 1 (*Totally Disagree*) to 6 (*Totally Agree*). Standard scoring generates five scales: Confidence, Relationship as Secondary, Discomfort with Closeness, Need for Approval and Preoccupation with Relationships. Attachment Anxiety and Avoidant Attachment scales were also computed based on the recommendations of Mikulincer and Shaver (2007, p. 494). Scale scores were created

by recoding as necessary and taking the mean of relevant items. The ASQ scales have been demonstrated to have acceptable validity and reliability (Karantzas et al., 2010). In the current study, all scales were internally consistent with Cronbach's alpha coefficients ranging from .77 to .89.

The MMPI-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008), consists of 338 True/False items to assess an individual's level of emotional adjustment and test taking attitude. Participants were asked to indicate if each of the 338 statements applied to them. Participants were permitted to not respond to items that did not apply to them or that they did not know about. Scores calculated were converted to T-scores based on the MMPI-2-RF's scoring conversion charts (MMPI-2-RF; Ben-Porath & Tellegen, 2008). The internal consistency coefficients (alpha) for the Validity, Restructured Clinical Scales, Personality Psychopathology Five scales and Interpersonal scales ranged from .49 to .90. These values are similar to those found with the original norm sample of the MMPI-2-RF (Tellegen & Ben-Porath, 2008).

Procedure

Participants completed computer administered versions of the questionnaires with an average completion time of approximately 55 minutes. Presentation of the questionnaires was counter-balanced to control for order effects. Upon completion, participants were presented with the debriefing information and provided with contact details should they have any further questions.

Results

Based on MMPI-2-RF's test validity criteria (Ben-Porath & Tellegen, 2008) and the multivariate outliers criterion of Mahalanobis distance at $p < .001$ (Tabachnick & Fidell, 2007), 35 cases were removed from the data set. Non-normal distributions of the MMPI-2-RF scales scores were observed and expected due to the clinical nature of the scales. As higher than average scores are expected in clinical scales and are valid

contribution to the data set, transformation of scores due to probable univariate outliers was deemed inappropriate. After screening, a total of 218 cases were considered in the analyses. In order to evaluate the relationships between the specific ASQ facets of attachment and the MMPI-2-RF scales, bivariate correlations and multiple regression analyses were conducted. Reported significant differences (or the lack of) in the following sections refers to the presence or absence of statistically significant results.

Correlation Analyses

Intercorrelations among the five ASQ factors ranged from .20 to .67 (see Table 2.1), which are generally higher than previous estimates (Feeney, et al., 1994; Karantzas, et al., 2010). Correlation coefficients between the ASQ Attachment Anxiety, ASQ Avoidant Attachment and the five ASQ facets are also presented in Table 2.1. As expected Need for Approval and Preoccupation with Relationships are particularly associated with Attachment Anxiety whereas Discomfort with Closeness and Relationships as Secondary are particularly associated with Avoidant Attachment.

[INSERT TABLE 2.1 ABOUT HERE]

Correlations between the ASQ scale scores and the MMPI-2-RF scale scores are presented in Tables 2.2, 2.3, 2.4, and 2.5. All of the MMPI-2-RF scales, except for *Uncommon Virtues (L-r)* and *Adjustment Validity (K-r)*, *Aggressiveness-Revised (AGGR-r)* and *Disconstraint-Revised (DISC-r)* are negatively correlated with ASQ Confidence. Most of the MMPI-2-RF scales are positively correlated with the other four ASQ factors. A few differences from Chin and Wilkinson's (in preparation) study were observed. The AGGR-r and FBS-r were found to have a significant positive correlation with ASQ Avoidant Attachment. No significant correlations were found among the two ASQ factors and RC4. The significant positive correlation found between *Interpersonal Passivity (IPP)* and ASQ Attachment Anxiety was contrary to the previous study, where this relationship was with ECR-R-GSF Attachment Avoidance instead of Attachment

Anxiety. Disaffiliativeness (DSF) was also found be positively correlated with ASQ Attachment Anxiety, which was not present in the previous study.

[INSERT TABLES 2.2, 2.3, 2.4 AND 2.5 ABOUT HERE]

Regression Analyses

One of the purposes of the study was to examine the predictive power of a combination of selected MMPI-2-RF scales in relation to self-report attachment scales. Thus, a series of regression analyses were conducted with gender and age controlled for in all the analyses. Underlying normality, homoscedasticity and independence of errors regression assumptions were assessed and found to be not violated.

Validity scales.

Overall, the Validity scales were better predictors for anxiety related scales (Attachment Anxiety, Need for Approval and Preoccupations with Relationships) than they were for avoidance related scales (Avoidant Attachment, Discomfort with Closeness and Relationships as Secondary) (refer to Table 2.6). In particular, the Adjustment Validity (K-r) scale was the biggest predictor for ASQ Attachment Anxiety, Need for Approval and Preoccupations with Relationships in the regression equation. Other Validity scales that were found to have significant but smaller contributions to the amount of variance in these anxiety-related scales were Symptom Validity (FBS-r) and Uncommon Virtues (L-r). While not found in the specific facets of attachment anxiety, Infrequent Responses (F-r) scores were found to have significant predictive value on the general Attachment Anxiety scores. Gender and age were also found to have significant associations solely with Need for Approval. Results suggest that individuals who tend to over-report psychological distress (or report more psychopathology and/or emotional distress), present with a non-credible combination of somatic and/or cognitive symptoms, admit to more minor faults and shortcomings and report lower psychological

adjustment are likely to have higher scores in the anxiety related scales. Females and younger individuals are also likely to report greater need for approval.

[INSERT TABLE 2.6 ABOUT HERE]

With respect to avoidant related scales, it was F-r that was the biggest predictor, followed by Infrequent Psychopathology (Fp-r) for all avoidant related scales and, subsequently, K-r for ASQ Avoidant Attachment and Discomfort with Closeness. Results suggest that individuals who have higher tendency to over-report psychological distress and psychopathology are likely to have higher attachment avoidance, including being uncomfortable with intimacy and viewing relationships as secondary. Individuals reporting lower psychological adjustment are likely to have higher attachment avoidance, particular greater discomfort with intimacy.

The Validity scales did not predict much of ASQ Confidence, which is the only attachment security related measure in the study. While F-r was the biggest predictor of Confidence, it only explained 8.5% of the variance. Other Validity scales that contributed to significant but smaller variance were Fp-r and K-r. These predictors were the same as those of Avoidant Attachment, but in the opposite direction. Results suggest that individuals who are less likely to over-report and have better psychological adjustment, are likely to have higher secure attachment, in particular greater confidence in self and others.

Restructured Clinical (RC) scales.

Similar to the Validity scales, the Restructured Clinical (RC) scales were better predictors for anxiety-related scales than avoidant related scales (refer to Table 2.7 and 2.8). Within the anxiety scores, Need for Approval scores (53.0% of the explained variance) were better predicted than Preoccupation with Relationships scores (36.8% of the explained variance). The biggest predictor for Need for Approval scores was Demoralization (RCd). Other RC scales that predict Need for Approval scores were

Somatic Complaints (RC1), Low Positive Emotions (RC2) and Dysfunctional Negative Emotions (RC7). Interestingly, RC7 was the only predictor for Preoccupation with Relationships scores. Attachment Anxiety shared the same predictors with Need for Approval and Preoccupation with Relationships. Results suggest that individuals who reported higher level of demoralisation, fewer positive emotional experiences and more dysfunctional negative emotional experiences are likely to have higher attachment anxiety. Specifically, those who reported more dysfunctional negative emotional experience are likely to report greater concerns with relationships and higher tendency to demonstrate anxious reaching out to others to fulfil dependency needs. Individuals who reported higher level of demoralisation, more somatic complaints and fewer positive emotional experiences in addition to more dysfunctional negative emotional experiences are likely to have greater concerns for others' acceptance and confirmation.

[INSERT TABLES 2.7 AND 2.8 ABOUT HERE]

With respect to attachment avoidance, Cynicism (RC3) was the biggest predictor for the attachment avoidant related scales, and it was the only predictor for Relationships as Secondary scores. Low Positive Emotions (RC2) was also a significant, but smaller, contributor of the variances of the other avoidant related scales. The results suggest that individuals who report having fewer positive emotional experiences and greater distrusts in others are likely to have higher attachment avoidance, including being uncomfortable with intimacy. Those who only reported greater distrust in others are likely to view relationships as unimportant as compared to achievements.

The biggest predictor for attachment security was RC2, explaining a significant amount of Confidence's variance. RC3 was also a predictor of attachment security. Individuals who reported more positive emotional experiences and greater trust in others are likely to have higher attachment security, particularly having high confidence

in self and others. Similar to the Validity scales, both attachment avoidance and security related scores have the same predictors opposite valence.

Personality Psychopathology Five (PSY-5) scales.

The PSY-5 scales were also found to be better predictors for anxiety-related scales than avoidant related scales (refer to Table 2.9). Negative Emotionality/Neuroticism-Revised (NEGE-r) was the biggest predictor for all the anxiety related scores, and was the only predictor for Preoccupation with Relationships. Need for Approval scores were further predicted by Aggressiveness-Revised (AGGR-r), and Attachment Anxiety scores were also predicted by AGGR-r and Introversion/Low Positive Emotionality-Revised (INTR-r). Results suggest that individuals who reported more negative emotional experiences with higher catastrophising and pessimistic tendencies, fewer positive emotional experiences, including social avoidance and restricted interest, and lower levels of interpersonal aggressions and assertions are likely to have higher attachment anxiety scores. In particular, those who reported more negative emotional experiences and have pessimistic and catastrophising thinking styles are likely to worry more about relationships. Individuals who additionally reported greater interpersonal passivity and submissiveness are likely to have greater needs for others' approval.

INTR-r was found to be the common biggest predictor for all avoidant-related scales. Other PSY-5 scales that also have significant but smaller contribution to the variance of Relationships as Secondary scores were AGGR-r and Disconstraint-Revised (DISC-r). Psychoticism-Revised (PSYC-r), on the other hand, was the only other predictor of Discomfort with Closeness. Avoidant Attachment was found to share the same predictors with Discomfort with Closeness and Relationships as Secondary. Individuals who reported a lack of positive emotional experiences, including greater social avoidance and restricted interest, higher levels of interpersonal aggressions and

assertions, and more experiences of thought disturbances, feelings of alienation and disconstrained behaviours (e.g., impulsivity, sensation seeking) are likely to have higher attachment avoidance. Specifically individuals are likely to report greater discomfort with intimacy when they reported more thought disturbance and feelings of alienation (PSYC-r), and higher level of social introversion (i.e., fewer positive emotional experiences, greater social avoidance and more restricted interests). Individuals who reported fewer positive emotional experiences, greater social introversion, higher levels of interpersonal aggressions and assertions, and more disconstrained behaviours are more likely to view relationships as secondary to achievements.

With respect to attachment security, INTR-r was the biggest predictor for Confidence, appearing to be the biggest predictor among the other MMPI-2-RF scales. NEGE-r was also a predictor of Confidence scores. Results suggest individuals who reported being more socially engaged, have more positive emotional experiences, fewer negative emotional experiences and lower levels of interpersonal passivity and submissiveness are likely to have higher attachment security.

[INSERT TABLES 2.9 AND 2.10 ABOUT HERE]

Interpersonal scales.

Overall, the Interpersonal scales were better predictors of attachment security than insecurity (refer to Table 2.10). In particular, the Social Avoidance (SAV) scale was the biggest predictor for Confidence in the regression equation. Other interpersonal scales that also had significant but smaller contribution to Confidence's variance were Family Problems (FML), Shyness (SHY) and Disaffiliativeness (DSF). Results suggest that individuals who reported lower social avoidance and anxiety, fewer family problems and liking people and being around them are likely to have more secure attachment, having more confidence in self and others.

Among the insecure-related attachment groups, the Interpersonal scales were better predictors for avoidance scores than the anxiety scores. DSF was the biggest predictor for Avoidant Attachment, Discomfort with Closeness and Relationships as Secondary in the regression equations. FML, SAV were also significant predictors for Discomfort with Closeness and Avoidant Attachment. FML and Interpersonal Passivity (IPP), on the other hand, were the other significant predictors for Relationship as Secondary. Results suggest that individuals who reported a greater preference to being alone and dislike in others, more family problems and higher social avoidance are likely to have higher attachment avoidance, including greater discomfort with intimacy. Individuals are more likely to view relationships as unimportant when they report more family problems, lower interpersonal passivity (including being more assertive and less submissive), greater preference to being alone and dislike in others and higher social avoidance.

With respect to anxiety related scales, SHY was the biggest predictor for Attachment Anxiety, Need for Approval and Preoccupation with Relationships. FML was also found to have significant relationships with the anxiety-related scales. IPP was a significant predictor for only the Need for Approval scores. Individuals who reported higher levels of social anxiety and more family problems are likely to have higher attachment anxiety, including greater need for approval and being more worried about relationships. Individuals who reported higher levels of unassertiveness and submissiveness are also likely to have greater need for approval.

Selected Significant MMPI-2-RF scales.

To obtain a clearer understanding of the relationships between the attachment dimensions and the selected MMPI-2-RF scales multiple, forward selection, step-wise regression analyses were conducted. All MMPI-2-RF scales variables that were found

to be significant predictors of the attachment dimensions in earlier individual analyses were included in this set of analyses.

Attachment anxiety.

In the final regression equation predicting Attachment Anxiety, three predictors were significant RCd, NEGE-r and RC2 (refer to be Table 2.11). NEGE-r was the biggest predictor followed by RCd. These predictors explained large proportion (58%) of the variance. Results suggest that individuals who report more negative emotional experiences (higher levels of neuroticism), higher levels of demoralisation and fewer positive emotional experiences are likely to have higher attachment anxiety.

[INSERT TABLE 2.11 ABOUT HERE]

With respect to the specific anxiety-related facets, RCd, RC7 and AGGR-r were the final predictors in the regression equation for Need for Approval scores, with RCd being the biggest predictor (refer to Table 2.12). Individuals who report higher levels of demoralisation, interpersonal aggressions and assertions, and more dysfunction negative emotional experiences are likely to report greater need for approval. Preoccupation with Relationships scores were better predicted by NEGE-r and K-r in the final regression equation (refer to Table 2.13). Results suggest that individuals who report lower psychological adjustment, more negative emotional experiences, and greater catastrophising and pessimism tendency are likely to be more worried about relationships.

[INSERT TABLES 2.12 and 2.13 ABOUT HERE]

Attachment avoidance.

DSF, F-r, RC3, INTR-r and AGGR-r were the predictors for Avoidant Attachment in the final regression equation, with DSF being the biggest predictor (refer to Table 2.14). This suggests that individuals who have a tendency to over-report psychological distress and who report greater dislike of others and being around them,

greater distrust in others, and higher levels of introversion and interpersonal aggression and assertion are likely to have higher attachment avoidance.

[INSERT TABLES 2.14 AND 2.15 ABOUT HERE]

Discomfort with Closeness had four predictors left in the final regression equation (refer to Table 2.15). In particular, RC3 was the biggest predictor for Discomfort with Closeness scores. The other MMPI-2-RF predictors for Discomfort with Closeness scores were DSF, INTR-r and PSYC-r. This suggests that individuals who reported greater distrust in others, greater dislike of others and being around them, fewer positive emotional experiences, greater social avoidance, and more thought disturbances and feelings of alienation are likely to report greater discomfort with intimacy.

Relationships as Secondary, on the other hand, had three predictors in the final regression equation (refer to Table 2.16). Similar to Avoidant Attachment, DSF was the biggest predictor for Relationships as Secondary. F-r and AGGR-r were the other MMPI-2-RF scales that have significant but smaller contribution to the explained variance. This suggests that individuals who have the tendency to over-report psychological distress and report greater dislikes of others and being around them, and higher levels of interpersonal aggressions and assertions are more likely to view relationships as unimportant.

[INSERT TABLES 2.16 AND 2.17 ABOUT HERE]

Attachment security.

Four MMPI-2-RF scales were significant predictors in the final regression equation for ASQ Confidence (refer Table 2.17) and contributed to a relatively large amount of variance explained (51%). All were negatively related to Confidence with RC2 being the biggest predictor. The other MMPI-2-RF scales that were also found to have significant but smaller contribution to the variance of ASQ Confidence were DSF,

SAV and NEGE-r. Individuals who reported higher positive emotional experiences, greater liking of others and being around them, lower social avoidance, fewer negative emotional experiences, are more optimistic and has lower likelihood to catastrophise negative events, are likely to have more confidence in self and others, thus having higher attachment security.

Discussion

Using the Attachment Style Questionnaire, significant relationships were found between the specific attachment facets and selected MMPI-2-RF scales. Overall, the results of this study are broadly in line with the hypotheses. In the individual analyses, the Validity, Restructured Clinical (RC) and Personality Psychopathology Five (PSY-5) scales were found to be better predictors for anxiety related scales than avoidant related scales. The Interpersonal scales, on the other hand, were found to be better predictors for the security related scale than insecurity related scales. Among the insecure related scales, Interpersonal scales were better predictors for avoidant related scales than anxiety related scales. The R^2 values vary significantly, falling between the small to large range. The results found in this study are generally similar to those found by Chin and Wilkinson (in preparation). Combined regression analyses of all significant predictors for each of attachment scales found that anxiety related scales were best predicted by the scales assessing psychological distress; avoidant related scales were best predicted by interpersonal related scales, including distrust in and dislike of others; and secure attachment was predicted by a combination of both psychological distress and interpersonal related scales.

Attachment Anxiety

With respect to attachment anxiety, as expected and similar to Chin and Wilkinson (in preparation), anxiety related scales were found to be most predicted by MMPI-2-RF scales measuring psychological distress. The final regression analyses

found that Attachment Anxiety was predicted by RCd, NEGE-r and RC2; Need for Approval was predicted by RCd, RC7 and AGGR-r; and ASQ Preoccupation with Relationships was predicted by NEGE-r and K-r. While Need for Approval and Preoccupation with Relationships each share a predictor with Attachment Anxiety, they do not share any predictors between themselves. This highlighted the differences in the attachment anxiety related factors when assessing psychological symptoms, supporting the suggestion for the need to consider more specific attachment facets (e.g., Feeney, 2002; Karantzas et al., 2010).

The MMPI-2-RF psychological distress scales' better association with attachment anxiety can be explained through attachment anxiety's characteristics. Attachment anxiety reflects individuals' use of hyperactivating strategies, such as emphasizing and exaggerating psychological problems and neediness, to obtain their attachment figures' attention and concerns (Cassidy, 1994; Mikulincer & Shaver, 2007). The use of such strategies ultimately prevents anxiously-attached individuals from regulating their negative emotions, resulting in the experience of an uncontrollable flow of negative thoughts and feelings, which eventually can result in the development of psychopathology (Mikulincer & Shaver, 2007). Therefore, anxiously-attached individuals are likely to report high levels of psychological distress and symptoms. This positive relationship between negative emotions and attachment anxiety is consistent with the observed positive associations found between attachment anxiety-related scales and MMPI-2-RF scales measuring levels of negative emotional experiences (i.e., RC7 and NEGE-r). These findings are also consistent with other studies that report significant positive relationships between attachment anxiety scores and anxiety measure scores (e.g., Doi & Thelen, 1993; Strodl & Noller, 2003; Watt, McWilliams, & Campbell, 2005).

NEGE-r, related to negative emotional experiences and neuroticism (Ben-Porath, 2012), was found to predict both Attachment Anxiety and Preoccupation with Relationships, but not Need for Approval in the final regression analyses. Attachment anxiety factors' positive relationship with NEGE-r in this study was consistent with previous studies that have used different personality measures assessing Neuroticism (e.g., Mikulincer, Shaver, Gillath, & Nitzberg, 2005; Nofle & Shaver, 2006). It is unsurprising that obsessive worries about relationships, which also includes anxiously seeking out to others to gain dependency, had a positive association with levels of neuroticism as neuroticism is defined as "the tendency to report negative moods and to complain about emotional problems and adjustment difficulties" (Mikulincer & Shaver, 2007, p. 373). The anxious need to seek out to others is likely to propel individuals to constantly report their distress so as to obtain the desired attention and concerns. Individuals who have a high need for approval, however, would be less willingly to directly seek out to others but instead uses indirect methods to minimise the likelihood of rejection (Mikulincer & Shaver, 2007), providing a possible explanation of the lack of relationship between Need for Approval and NEGE-r.

The different characteristics of Need for Approval and Preoccupation with Relationships also provide possible reasons for the negative association between AGGR-r and the former attachment facet, and the negative association between K-r and the latter attachment facet. Fear of rejection is likely to be better associated with the lack of interpersonal aggression and assertion to ensure others' approval; and preoccupation with relationships are likely to be better associated with reported lower psychological adjustment as verbalising distress is possibly one of the most direct ways to get others' support and concern.

The positive relationship between RCd and attachment anxiety indicates that individuals who experience greater dissatisfaction with life and lower morale are likely

to have high attachment anxiety. This finding could be explained by the tendency of anxiously attached individuals to use a 'hopeless and helpless' pattern to explain their situations (e.g., Gamble & Roberts, 2005; Williams & Riskind, 2004). Increased hopelessness and helplessness are associated with high RCd (Ben-Porath, 2012; Ben-Porath & Tellegen, 2008). While levels of demoralization and dissatisfaction with life were found to predict individuals' needs for approval, it did not predict their preoccupation with relationships. As mentioned earlier, individuals who wish to intensify support-seeking efforts can be hindered by their need for approval. To reduce the likelihood of rejection, individuals are more likely to use indirect methods to seek help (Mikulincer & Shaver, 2007), and hence creating hindrance in obtaining adequate support to achieve attachment security effectively. Issues related to helplessness and hopelessness can arise due to these conflicting goals.

Attachment Avoidance

Avoidant related scales were found to be predicted mainly by scales assessing negative interpersonal characteristics. Specifically, results of the regression analysis using all significant predictors found that ASQ Avoidant Attachment's final predictors were DSF, F-r, RC3, INTR-r and AGGR-r. In the similar analysis, Discomfort with Closeness was found to be predicted by RC3, DSF, INTR-r and PSYC-r; and Relationships as Secondary was found to be predicted by DSF, F-r and AGGR-r. Notably, the avoidant related attachment factors differed slightly in their predictors. This, again, supports the value of examining specific attachment facets.

All three avoidant related factors were found to be predicted by DSF and RC3. Individuals who reported higher levels of distrust in others, and dislike of people and being around them are likely to be highly avoidant, being more uncomfortable with interpersonal intimacy and more likely to view relationships as secondary to achievements. Avoidant attachment has been linked to the negative model of others

(e.g., Bartholomew, 1990; Feeney, et al., 1994), hence it is expected that distrust in and dislike of others are related to the avoidant related ASQ scales. In investigating the relationship between sociability and attachment styles, researchers have found that avoidance is associated with preference of isolation than being affiliated with others (e.g., Bartholomew & Horowitz, 1991; Cyranowski, Bookwala, Feske, Houck, & et al., 2002), further supporting this study's findings.

ASQ Avoidant Attachment and Discomfort with Closeness were found to be predicted by INTR-r. Given that INTR-r is associated with a lack of positive emotional experiences and avoidance of social situations and interactions (Ben-Porath, 2012), these findings can be explained by avoidant individuals' tendency to suppress or inhibit emotions and preference for emotional distance and independence (Mikulincer & Shaver, 2007). As part of attachment avoidance, individuals who are uncomfortable with interpersonal intimacy are also likely to be expected to avoid social situations and interactions to reduce the possibility of getting close to others.

Discomfort with Closeness was also found to be positively predicted by PSYC-r, suggesting individuals who report more thought disturbance and being alienated from others are likely to have higher discomfort with interpersonal intimacy. While unable to provide a clear explanation for this findings, the positive relationship could likely be related more to the reported feelings of alienation, where discomfort with closeness could result in distancing from others and hence the reported feelings of alienation.

ASQ Avoidant Attachment and Relationships as Secondary both had positive relationships with AGGR-r, suggesting individuals who reported greater interpersonal aggression and assertion are likely to have higher attachment avoidance, including higher likelihood to view relationships as less important than achievements. While physical aggression are less likely associated with avoidant attachment (Bartholomew & Allison, 2006), the positive relationship found between avoidant attachment and

AGGR-r can be expected as avoidant individuals desired emotional distance and autonomy (Mikulincer & Shaver, 2007), and being interpersonally assertive and aggressive can help to achieve these interpersonal goals (Bartholomew & Allison, 2006). Agreeableness, a factor of the personality model, was found to negatively relate to AGGR-r (Ben-Porath, 2012) and attachment avoidance (e.g., Nofle & Shaver, 2006; Shaver & Brennan, 1992). This supported the positive association found between AGGR-r and attachment avoidance in this study. Given that AGGR-r is associated with using aggression as a way to achieve goals (Ben-Porath, 2012), a positive relationship between AGGR-r and Relationships as Secondary can be expected as individuals who treat relationships as secondary to achievements are likely to disregard fostering positive relationship and be more assertive, and possibly aggressive, to gain achievements and independence.

Interestingly, ASQ Avoidant Attachment and Relationships as Secondary were also found to be positively associated with F-r, which is a MMPI-2-RF scale assessing over-reporting tendency. This runs contrary to previous suggestions that avoidant attachment is related to minimising of psychological distress to maintain emotional distance and independence (Dozier, et al., 2008; Mikulincer & Shaver, 2007). Further investigation and replication for this finding is needed to conclude if the relationship between over-reporting tendency and avoidant attachment is valid. Given that F-r assessed the number of infrequent responses on psychological, cognitive and somatic symptoms, it is possible that this positive relationship could be alternatively explained by attachment avoidance's negative impact on individuals' mental health (e.g., Cassidy, 1994; Mikulincer & Shaver, 2007). Avoidant individuals lack adequate resources to cope with inevitable stressors that eventually lead to mental health issues (Mikulincer & Shaver, 2007). Individuals who are uncomfortable with interpersonal intimacy are

unlikely to over-report as sharing of emotional difficulties can be seen as a way to increase support from and intimacy with others.

Attachment Security

ASQ Confidence was found to be predicted by RC2, DSF, SAV and NEGE-r. Consistent with the hypothesis, all of the MMPI-2-RF scales, which assess interpersonal problems or psychological distress, were negatively related to attachment security. This suggests that secure individuals are less likely to have psychological issues and more likely to report affiliation and social interaction with others. Attachment security increases individuals' coping and emotion regulation abilities when faced with stressful situations (Mikulincer & Shaver, 2007), hence minimising secure individuals' vulnerability to develop psychological issues. Attachment security related scale's positive relationships with DSF and SAV are consistent with literature, where secure individuals are likely to have a positive view of others (e.g., Bartholomew, 1990).

Research and Clinical Implications

This study's findings provided further supporting evidence that attachment patterns are reflected in the MMPI-2-RF. The relationships between various attachment constructs and MMPI-2-RF scales support the existing literature on the characteristics of attachment avoidance and attachment anxiety and their association with interpersonal factors and psychopathology. The findings have also added to the growing literature on the use of MMPI-2-RF, providing valuable information on the usefulness of the MMPI-2-RF in assessing psychopathology. Different unique predictors were found for most of attachment facets, providing support for the need to examine both broader and specific attachment constructs to better understand the relationship of attachment with psychological adjustment.

The study's findings also provided support for clinicians to use the MMPI-2-RF as a way to indirectly assess an individuals' attachment style, which plays a role their

psychological well-being. Similarly, the study has provided support for the importance of assessing specific attachment aspects to allow more efficient and effective treatment planning (e.g., Feeney, 2002). The relationships found between attachment constructs and various psychological issues, as measured by the MMPI-2-RF, can provide clinicians with useful information on possible aspects contributing to their clients' maladaptive psychological functioning, which is useful for treatment planning.

Limitations and Future Directions

While the specific attachment facets have been found to be associated with some of the selected MMPI-2-RF scales, this study has used an undergraduate university sample for its investigation. Further studies replicating the results using different populations would be recommended so as to provide broader evidence on attachment patterns in the MMPI-2-RF. Moreover, it would be beneficial to examine whether there are differences in results among populations, especially between clinical and non-clinical population, so as to provide more useful information for clinicians to consider using these measures and the study's results in their assessment and treatment planning.

Another limitation identified in the study is the difficulty in determining causation given that this study is correlational. Further investigation is recommended to determine whether differences in attachment patterns cause differences in psychopathology or vice versa. Consideration could be given to using longitudinal methods or attachment priming methods (e.g., Mikulincer, Birnbaum, Woddis, & Nachmias, 2000) in order to better establish causal primacy.

The reliance of self-report attachment measures is also a limitation identified. Self-report attachment measures are believed to assess an aspect of attachment that is potentially different from those measured by interview attachment measures (e.g., Roisman et al., 2007; Simpson & Rholes, 1998). In addition, these two forms of attachment measures were found to predict different outcomes or the same outcomes

differently (Roisman et al., 2007). Hence results of the study using only self-report measures may not have provided a full picture on the relationships between attachment and the MMPI-2-RF. The use of an interview-style attachment measure in a similar study may be necessary and helpful to obtain alternative information on the relationship between attachment and the MMPI-2-RF. In addition, the use of self-report measure may compromise the actual findings through individuals' defences, such as impression management, where participants may not have reported true attachment inclination. The use of a different attachment measure that takes into account social desirability effects or the consideration of social desirability effects in the analysis may reduce its influence on the study's results.

An interesting finding in the study is the positive relationship between attachment avoidance and F-r. While F-r assesses over-reporting tendency on psychological distress, it is also possible that the positive relationship is due to genuine psychological distress. In addition, similar to that of Chin's and Wilkinson's (in preparation), this study did not manage to observed significant relationships between attachment avoidance and the MMPI-2-RF under-reporting related scales. Hence, the results raise questions on whether attachment avoidance is related to a possible tendency to over-report. Future research can consider investigating over- and/or under reporting tendencies relationship with attachment avoidance.

Conclusion

The results of the study have confirmed that, despite using an alternative attachment measure, attachment patterns are still detected in the MMPI-2-RF with almost similar relationships as found by Chin and Wilkinson (in preparation). Additionally, differences in the patterns of relationships between the more fine-grained attachment scales and MMPI-2-RF scales highlight the importance of assessing specific attachment facets of individuals to better understand their behavioural and cognitive

tendencies, and to develop more specific treatment targets to effectively reduce psychological distress. Further investigation of these relationships on a clinical population is recommended to see if there may be any similarities or differences in the relationships between attachment and the MMPI-2-RF.

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Tables of Manuscript 2

Table 2.1

Intercorrelations Among the Attachment Style Questionnaire (ASQ) Facets

Variable	Confidence	Discomfort With Closeness	Relationships as Secondary	Need for Approval	Preoccupations With Relationships	Attachment Anxiety	Avoidant Attachment
Confidence	-						
Discomfort With Closeness	-.59**	-					
Relationships as Secondary	-.38**	.60**	-				
Need for Approval	-.51**	.36**	.17*	-			
Preoccupations With Relationships	-.44**	.31**	.20**	.67**	-		
Attachment Anxiety	-.69**	.44**	.25**	.88**	.85**	-	
Avoidant Attachment	-.67**	.96**	.74**	.33**	.30**	.43**	-

* $p < .05$. ** $p < .01$.

Table 2.2

Correlations Between ASQ Attachment Facets and the MMPI-2-RF Validity Scales

Variable	Confidence	Discomfort With Closeness	Relationships as Secondary	Need for Approval	Preoccupations With Relationships	Avoidant Attachment	Attachment Anxiety
Infrequent Responses (F-r)	-.46**	.45**	.41**	.44**	.42**	.49**	.51**
Infrequent Psychopathology Responses (Fp-r)	-.34**	.38**	.35**	.29**	.29**	.43**	.35**
Infrequent Somatic Responses (Fs)	-.29**	.28**	.23**	.32**	.33**	.29**	.37**
Symptom Validity (FBS-r)	-.33**	.23**	.18**	.40**	.39**	.23**	.45**
Uncommon Virtues (L-r)	.11	.02	.02	-.29**	-.26**	.03	.23**
Adjustment Validity (K-r)	.39**	-.36**	-.26**	-.56**	-.57**	-.35**	-.61**

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.3

Correlations Between ASQ Attachment Facets and the MMPI-2-RF Restructured Clinical (RC) Scales

Variable	Confidence	Discomfort With Closeness	Relationships as Secondary	Need for Approval	Preoccupations With Relationships	Avoidant Attachment	Attachment Anxiety
Demoralization (RCd)	-.52**	.32**	.26**	.69**	.57**	.34**	.71**
Somatic Complaints (RC1)	-.28**	.25**	.19**	.30**	.39**	.25**	.38**
Low Positive Emotions (RC2)	-.62**	.30**	.16*	.51**	.40**	.34**	.58**
Cynicism (RC3)	-.33**	.50**	.40**	.37**	.32**	.50**	.32**
Antisocial Behavior (RC4)	-.06	.08	.15*	.12	.15*	.11	.11
Ideas Of Persecution (RC6)	-.13	.29**	.29**	.12	.25**	.30**	.21**
Dysfunctional Negative Emotions (RC7)	-.48**	.35**	.28**	.66**	.59**	.36**	.69**
Aberrant Experiences (RC8)	-.17	.34**	.27**	.23**	.30**	.34**	.29**
Hypomanic Activation (RC9)	-.04	.25**	.32**	.18**	.32**	.25**	.22**

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.4

Correlations Between ASQ Attachment Facets and the MMPI-2-RF Personality Psychopathology Five (PSY-5) Scales

Variable	Confidence	Discomfort With Closeness	Relationships as Secondary	Need for Approval	Preoccupations With Relationships	Avoidant Attachment	Attachment Anxiety
Aggressiveness-Revised (AGGR-r)	.10	.11	.27**	-.15*	.05	.14*	-.10
Psychoticism-Revised (PSYC-r)	-.21**	.37**	.25**	.25**	.27**	.37**	.31**
Disconstraint-Revised (DISC-r)	.09	.07	.20**	-.05	-.01	.09	-.08
Negative Emotionality/Neuroticism-Revised (NEGE-r)	-.43**	.31**	.24**	.60**	.65**	.31**	.69**
Introversion/Low Positive Emotionality-Revised (INTR-r)	-.61**	.34**	.21**	.24**	.15*	.39**	.35**

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.5

Correlations Between ASQ Attachment Facets and the MMPI-2-RF's Interpersonal Scales

Variable	Confidence	Discomfort With Closeness	Relationships as Secondary	Need for Approval	Preoccupations With Relationships	Avoidant Attachment	Attachment Anxiety
Family Problems (FML)	-.24**	.24**	.27**	.27**	.33**	.28**	.33**
Interpersonal Passivity (IPP)	-.19**	.03	-.13	.21**	.01	.00	.15*
Social Avoidance (SAV)	-.56**	.39**	.26**	.12	.09	.44**	.26**
Shyness (SHY)	-.45**	.20**	.15*	.39**	.33**	.23**	.45**
Disaffiliativeness (DSF)	-.42**	.48**	.43**	.13*	.05	.54**	.17*

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.6

Summary of Multiple Regression Analyses for MMPI-2-RF Validity Scales Predicting ASQ Subscales Scores ($N = 218$)

Variable	β						Avoidant Attachment	Attachment Anxiety
	Confidence	Discomfort with closeness	Relationships as secondary	Need for approval	Preoccupation with Relationships			
Gender	.04	-.05	.10	-.13*	-.03		-.00	-.08
Age	-.07	.09	-.80	-.12*	-.07		.05	-.06
Infrequent Responses (F-r)	-.29**	.32**	.37**	.14	.07		.37**	.19*
Infrequent Psychopathology Responses (Fp-r)	-.15*	.21**	.20**	.06	.06		.25**	.09
Infrequent Somatic Responses (Fs)	.06	-.05	-.09	-.02	.03		-.07	-.02
Symptom Validity (FBS-r)	-.11	-.05	-.05	.16*	.17*		-.07	.18**
Uncommon Virtues (L-r)	.04	.10	.06	-.18**	-.13*		.10	-.14*
Adjustment Validity (K-r)	.16*	-.19*	-.06	-.32**	-.37**		-.16*	-.35**
R^2	.27	.28	.23	.43	.38		.31	.47
(Adjusted R^2)	(.24)	(.25)	(.20)	(.40)	(.36)		(.28)	(.45)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.7

Summary of Multiple Regression Analyses for MMPI-2-RF Restructured Clinical Scales Predicting ASQ Subscale Scores (N = 218)

Variable	β				
	Confidence	Discomfort with closeness	Relationships as Secondary	Need for approval	Preoccupation with Relationships
Gender	.01	-.05	.10	-.12*	-.03
Age	-.08	.08	-.08	-.11*	-.05
Demoralization (RCd)	-.04	-.03	.06	.38**	<u>.20</u>
Somatic Complaints (RC1)	.03	-.06	-.09	-.14*	.03
Low Positive Emotions (RC2)	-.49**	.24**	.10	.14*	.12
Cynicism (RC3)	-.20**	.39**	.28**	-.03	-.01
Antisocial Behavior (RC4)	.02	-.03	.02	.05	.02
Ideas Of Persecution (RC6)	.01	.04	.13	-.04	.05
Dysfunctional Negative Emotions (RC7)	-.18	.01	.00	.33**	.29**
Aberrant Experiences (RC8)	.04	.13	-.02	-.03	-.06
Hypomanic Activation (RC9)	.04	.04	.14	.02	.15
R^2 (Adjusted R^2)	.46 (.43)	.31 (.28)	.22 (.18)	.55 (.53)	.40 (.37)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.8
*Summary of Multiple Regression Analyses for MMPI-2-RF Restructured
 Clinical Scales Predicting ASQ Attachment Anxiety and Avoidant
 Attachment Subscales Scores (N = 218)*

Variable	β	
	Avoidant Attachment	Attachment Anxiety
Gender	.01	-.06
Age	.04	-.04
Demoralization (RCd)	-.05	.32**
Somatic Complaints (RC1)	-.08	-.06
Low Positive Emotions (RC2)	.30**	.23**
Cynicism (RC3)	.40**	-.00
Antisocial Behavior (RC4)	-.01	-.00
Ideas Of Persecution (RC6)	.06	.03
Dysfunctional Negative Emotions (RC7)	.01	.32**
Aberrant Experiences (RC8)	.11	-.04
Hypomanic Activation (RC9)	.05	.05
R^2 (Adjusted R^2)	.34 (.30)	.58 (.56)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.9

Summary of Multiple Regression Analyses for MMPI-2-RF Personality Psychopathology Five Scales Predicting ASQ Subscales Scores ($N = 218$)

Variable	β					Avoidant Attachment	Attachment Anxiety
	Confidence	Discomfort with closeness	Relationships as Secondary	Need for approval	Preoccupation with Relationships		
Gender	.08	-.13	-.01	<u>-.12</u>	.01	-.08	-.04
Age	.02	.04	-.12	-.16**	-.09	-.01	-.11*
Aggressiveness-Revised (AGGR-r)	.01	.12	.26**	-.18**	.00	.17**	-.11*
Psychoticism-Revised (PSYC-r)	-.07	.29**	<u>.13</u>	.01	-.01	.27**	.05
Disconstraint-Revised (DISC-r)	-.08	<u>.14</u>	.19**	.11	.02	.14*	.04
Negative Emotionality/Neuroticism-Revised (NEGE-r)	-.22**	.07	.08	.54**	.65**	.05	.60**
Introversion/Low Positive Emotionality-Revised (INTR-r)	-.56**	.36**	.30**	.08	-.02	.43**	.16**
R^2	.45	.28	.24	.43	.43	.32	.52
(Adjusted R^2)	(.43)	(.26)	(.21)	(.41)	(.41)	(.30)	(.50)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.10

Summary of Multiple Regression Analyses for MMPI-2-RF Interpersonal Scales Predicting ASQ Subscales Scores ($N = 218$)

Variable	β						Avoidant Attachment	Attachment Anxiety
	Confidence	Discomfort with closeness	Relationships as Secondary	Need for approval	Preoccupation with Relationships			
Gender	.06	-.05	<u>.12</u>	-.17**	-.08	.01	-.12*	
Age	-.01	.03	-.10	-.15*	-.11	-.01	<u>-.11</u>	
Family Problems (FML)	-.13*	.15*	.15*	.17**	.26**	.16**	.23**	
Interpersonal Passivity (IPP)	-.05	-.06	-.20**	.15*	-.04	-.09	.07	
Social Avoidance (SAV)	-.38**	.29**	.16*	-.07	-.03	.33**	.07	
Shyness (SHY)	-.17**	-.04	.02	.33**	.29**	-.03	.33**	
Disaffiliativeness (DSF)	-.20**	.34**	.36**	.02	-.07	.39**	.00	
R^2	.42	.31	.28	.27	.20	.39	.30	
(Adjusted R^2)	(.40)	(.28)	(.26)	(.25)	(.18)	(.37)	(.27)	

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.11

*Stepwise Regression (Forward selection) for MMPI-2-RF Scales
Predicting ASQ Attachment Anxiety Scores (N =218)*

Variable	β Attachment Anxiety
Demoralization (RCd)	.34**
Negative Emotionality/Neuroticism- Revised (NEGE-r)	.35**
Low Positive Emotions (RC2)	.17**
R^2 (Adjusted R^2)	.59 (.58)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.12

*Stepwise Regression (Forward selection) for MMPI-2-RF Scales
Predicting ASQ Need For Approval Scores (N =218)*

Variable	β
	Need For Approval
Demoralization (RCd)	.40**
Dysfunctional Negative Emotions (RC7)	.35**
Aggressiveness-Revised (AGGR-r)	-.12*
R^2 (Adjusted R^2)	.52 (.51)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.13

*Stepwise Regression (Forward selection) for MMPI-2-RF Scales
Predicting ASQ Preoccupation with Relationships Scores (N =218)*

Variable	β
	Preoccupation with Relationships
Negative Emotionality/Neuroticism- Revised (NEGE-r)	.50**
Adjustment Validity (K-r)	-.21**
R^2 (Adjusted R^2)	.44 (.44)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.14
*Stepwise Regression (Forward selection) for MMPI-2-RF Scales
 Predicting ASQ Avoidant Attachment Scores (N =218)*

Variable	β
	Avoidant Attachment
Disaffiliativeness (DSF)	.31**
Infrequent Responses (F-r)	.16**
Cynicism (RC3)	.25**
Introversion/Low Positive Emotionality-Revised (INTR- r)	.25**
Aggressiveness-Revised (AGGR-r)	.13*
R^2 (Adjusted R^2)	.49 (.48)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.15
*Stepwise Regression (Forward selection) for MMPI-2-RF Scales
 Predicting ASQ Discomfort with Closeness Scores (N =218)*

Variable	β Discomfort with Closeness
Cynicism (RC3)	.30**
Disaffiliativeness (DSF)	.26**
Introversion/Low Positive Emotionality- Revised (INTR-r)	.23**
Psychoticism-Revised (PSYC-r)	.19**
R^2 (Adjusted R^2)	.42 (.41)

Note. ASQ = Attachment Style Questionnaire.

MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2-
Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.16

*Stepwise Regression (Forward selection) for MMPI-2-RF Scales
Predicting ASQ Relationships as Secondary Scores (N =218)*

Variable	β Relationships as Secondary
Disaffiliativeness (DSF)	.34**
Infrequent Responses (F-r)	.28**
Aggressiveness-Revised (AGGR-r)	.25**
R^2 (Adjusted R^2)	.33 (.32)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

Table 2.17
*Stepwise Regression (Forward selection) for MMPI-2-RF Scales
 Predicting ASQ Confidence Scores (N =218)*

Variable	β Confidence
Low Positive Emotions (RC2)	-.39**
Disaffiliativeness (DSF)	-.24**
Social Avoidance (SAV)	-.21**
Negative Emotionality/Neuroticism- Revised (NEGE-r)	-.14*
R^2 (Adjusted R^2)	.52 (.51)

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota
 Multiphasic personality Inventory- 2- Restructured Form.

* $p < .05$. ** $p < .01$.

CHAPTER FIVE

Manuscript 3

Title: Conflict Communication, Self-Report Attachment Style, Psychological Health, And Interpersonal Outcomes

Authors: Chin, Z.-H. & Wilkinson, R. B.

Status: Manuscript in preparation

This paper is part of the second cross-sectional quantitative study (Study Two) that was conducted to follow up on results from the paper presented in Chapter Two. As mentioned earlier, Study Two consists of two parts. This paper presents the second part of Study Two that aims to investigate if attachment can be an overarching factor explaining selected psychological and interpersonal outcomes. Specifically, conflict communication variable was added in the study to determine if conflict communication methods play an additional role in explaining these outcomes above and beyond attachment style. Based on earlier results, MMPI-2-Restructured Form RCd, RC2, RC7 and FML scales were chosen as this investigation's outcome measures. Associations between self-report attachment styles and conflict communication methods were also examined in this paper.

The Candidate's Contribution

The conceptualisation of Study Two, literature review, research design (e.g., shortlisting measures and setting up the online questionnaire), participation recruitment, administration, analysis of results, and authoring this paper were the principal responsibility of myself, the candidate. Dr Wilkinson, in his capacity as a supervisor, provided guidance in various areas including conceptual development, methodology (e.g., choosing appropriate measures), analysis methods, as well as reviewing recruitment materials and the online survey before their launch. Dr. Wilkinson also assisted with proof reading and editing for the paper.

CONFLICT COMMUNICATION, SELF-REPORT ATTACHMENT STYLE,
PSYCHOLOGICAL HEALTH, AND INTERPERSONAL OUTCOMES

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Abstract

Attachment has been postulated to have both direct and indirect influences on psychological and interpersonal outcomes. This study investigates whether attachment can be an overarching factor explaining selected psychological and interpersonal outcomes (experiences of demoralisation, low positive emotions, dysfunctional negative emotions, and family problems), as measured by the MMPI-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008), or whether conflict communication methods play an additional role in explaining these outcomes above and beyond attachment style. With a sample of undergraduates ($N = 218$), results showed that conflict communication methods did not significantly predict psychological health when the variance accounted for by attachment style was considered. Conflict communication methods (specifically FOCQ Resolve) did, however, remain a negative significant predictor of individuals' experiences of family problems after attachment expectancies were accounted for. Both research and clinical implications of the findings are discussed.

Keywords: MMPI-2-RF, ASQ, conflict communication methods, FOCQ

Conflict Communication, Self-Report Attachment Style, Psychological Health, And Interpersonal Outcomes

Attachment theory (Bowlby, 1969/1982) has placed an important role on supportive interpersonal relationships in adaptive human development, where individual's mental health is said to be closely linked to relationships with close others who provide support and protection (Bretherton & Munholland, 2008). While theorized to have a direct influence, attachment has also been postulated to have indirect influences on mental health through characteristic interpersonal communication, such as conflict management methods, which in turns affects interpersonal difficulties (Mikulincer & Shaver, 2007). Given that attachment is believed to be responsible for many various outcomes, including interpersonal and psychological difficulties, this raises questions on whether attachment is the overarching explanation for negative interpersonal and psychological outcomes, where conflict management methods are secondary factors. This study examines whether conflict management methods can provide additional explanatory power when predicting individuals' psychopathology and interpersonal issues above and beyond individual, characteristic attachment styles.

According to attachment theory (Bowlby, 1969/1982), all individuals have an innate need to form strong emotional bonds with others to survive and reproduce amidst environmental threats and demand (Mikulincer & Shaver, 2007). Interactions with early care-givers and subsequent attachment experiences with significant others develop and shape individuals' working models of attachment and attachment styles (Rholes, Kohn, & Simpson, 2014). Attachment working models are said to reflect conscious and unconscious processes, providing individuals with guidelines to organise and gain or limit access to attachment-relevant information and guiding their behaviours, feelings and cognitions (Creasey, Kershaw, & Boston, 1999; Main, Kaplan, & Cassidy, 1985; Mikulincer & Shaver, 2007). These working models are carried forward into adulthood,

providing information on individuals' general expectations of relationships and continual influences on social perceptions and behaviours (Collins, Guichard, Ford, & Feeney, 2004; Creasey, et al., 1999). Individuals' attachment styles are conceptualized to be the "broad relationship expectancies regarding emerging relationships" (Creasey, et al., 1999, p. 526) and reflect the "most chronically accessible working model" (Mikulincer & Shaver, 2007, p. 25).

First documented by Ainsworth and her colleagues (1967, 1969, 1978) through observational and laboratory studies of mother-infant dyads, research on individual differences in attachment styles have since been extensively conducted. Ainsworth's work has been extended to individual differences in attachment in both adolescent and adult populations, including the development of interview and self-report measures of attachment styles for these populations (e.g., Hazan & Shaver, 1987; Main, et al., 1985). Due to its greater accessibility, including ease of administering and scoring, self-report measures have been widely used in attachment research. Besides those that assess romantic relationship attachment styles (e.g., Brennan, Clark, & Shaver, 1998), self-report measures that assesses non-romantic, relationship-specific and general attachment are also available in the literature (e.g, Fraley, Hefferman, Vicary, & Brumbaugh, 2011; Mallinckrodt, Gantt, & Coble, 1995; Wilkinson, 2011).

Based on a review of extant self-report measures, Brennan and colleagues (Brennan, et al., 1998) have argued that two attachment dimensions, anxiety and avoidance, underlie insecure expectations of attachment relationships. Attachment anxiety relates to the strong desire for reassurance and intimacy, fears of rejection and the use of hyper-activating strategies to cope with attachment insecurity (Karantzas, Feeney, & Wilkinson, 2010; Mikulincer & Shaver, 2007). Attachment avoidance, on the other hand, relates to distrust in others, avoidance of intimacy and the use of deactivating secondary attachment strategies (Mikulincer & Shaver, 2007; Rholes, et al.,

2014). While these two primary dimensions have largely been the focus to examine attachment's association with various outcome in attachment research (e.g., Collins & Feeney, 2004; Jacobson, 2003; Nofle & Shaver, 2006), researchers have also increasingly acknowledged the need for a separate measure of attachment security (e.g., Bäckström & Holmes, 2007). While secure attachment has been conceptualised as having low attachment anxiety and avoidance (e.g., Mikulincer & Shaver, 2007), Bäckström & Holmes (2007) argued that this conceptualisation of secure attachment is incongruent with the theory of attachment. Secure attachment is believed to reflect the positive aspect of attachment security (Bowlby, 1973, 1980), providing individuals with resources to appraise things more positively, and cope with stressful events more constructively (Bäckström & Holmes, 2007). The lack of attachment anxiety and avoidance are, hence, neutral points of attachment, rather than secure attachment (Bäckström & Holmes, 2007). Besides the need for a separate measure of attachment security, researchers have also suggested the need to consider specific facets of attachment in addition to the broad dimensions, especially so in clinical settings where more specific identification of attachment factors can help in effective treatment planning (Feeney, 2002; Karantzas, et al., 2010).

Attachment theory has been widely used to understand interpersonal behaviours and experiences in adult relationships (Collins, et al., 2004), and attachment research has provided insight to how individuals would react to and manage interpersonal conflicts (Mikulincer & Shaver, 2007). Conflict, an inevitable and natural process (Pistole & Arricale, 2003) in any form of relationship, can be seen as a threat to attachment bonds (Feeney, 2004; Pietromonaco, Greenwood, & Barrett, 2004). The way individuals handle conflicts varies as the degree in which conflict is perceived as a threat differs among different attachment styles (Bippus & Rollin, 2003; Pietromonaco, et al., 2004; Pistole & Arricale, 2003).

Secure individuals are likely to focus more on the challenging aspects of conflicts, and are likely to use more constructive conflict management strategies, communicating more constructively and collaborating with the other party (Mikulincer & Shaver, 2007; Pietromonaco, et al., 2004). Insecure attachment, on the other hand, was found to be associated with negative appraisals of interpersonal conflicts (e.g., threatening to attachment goals), and the use of less effective strategies to manage/resolve conflicts (Creasey, et al., 1999). Specifically, individuals who are anxiously attached are more likely to catastrophise conflict, display intense negative emotions, ruminate obsessively, fail to attend to and understand their partners, and either be dominating or submissive when faced with conflicts (Mikulincer & Shaver, 2007). Avoidant individuals are likely to minimize the significance and importance of the conflict and their partners' complaints, avoid conflicts, and dominate when withdrawal is not possible (Mikulincer & Shaver, 2007).

Few studies have examined conflict management strategies and psychological outcomes (e.g., morale, anxiety and depression), but the scant existing research has found an association between these two variables (e.g., Askari, Noah, Hassan, & Baba, 2013; Chung-Yan & Moeller, 2010). Using a sample of 161 direct care nursing staff, Montoro-Rodriguez and Small (2006) found that psychological morale, job satisfaction and occupational stress were associated with conflict management styles. Specifically, a preference for confrontational and avoidance styles was positively associated with measures assessing morale and burnout, and a preference for cooperative style was associated with positive feelings about the job (Montoro-Rodriguez & Small, 2006). The use of various conflict management strategies is also likely to influence interpersonal outcomes, where some conflict resolution strategies are likely to reduce the number of conflict experiences and increase the occurrence of more satisfactory outcomes, while others are likely to increase these conflict experiences and reduce

satisfactory outcomes, which can in turn increase distress (e.g., Bowles, 2010; Friedman, Tidd, Currall, & Tsai, 2000).

Attachment research has also provided much insight into individual differences in various psychological and interpersonal outcomes. Secure attachment is commonly found to be associated with lower levels of general distress, depression and anxiety (e.g., McWilliams & Bailey, 2010; Mikulincer, Horesh, Eilati, & Kotler, 1999; Muris, Meesters, van Melick, & Zwambag, 2001), and more positive emotional experiences (e.g., Tidwell, Reis, & Shaver, 1996). Insecure attachment (attachment anxiety, avoidance or both), on the other hand, is found to be associated with higher levels of depression and anxiety (e.g., Bucci et al., 2012; Wautier & Blume, 2004) and increased risk in developing personality and eating disorders (Fossati et al., 2003; Shanmugam, Jowett, & Meyer, 2012). Attachment anxiety, as compared to attachment avoidance, typically has a stronger association with poor psychological health (Mikulincer & Shaver, 2007). In relation to interpersonal outcomes, insecure attachment is generally associated with more instances of interpersonal difficulties experiences, including loneliness and hostility towards others (e.g., Mikulincer & Shaver, 2001; Moller, Fouladi, McCarthy, & Hatch, 2003; Wei, Vogel, Ku, & Zakalik, 2005). Secure attachment has been found to be associated with positive interpersonal outcomes, including lower levels of loneliness and interpersonal problems, and more positive relational experiences (e.g., Bippus & Rollin, 2003; Deniz, Hamarta, & Ari, 2005; Haggerty, Hilsenroth, & Vala-Stewart, 2009).

The Present Study

Both attachment and conflict management strategies are found to be associated with various psychological and interpersonal outcomes. In addition, attachment has also been suggested to have an influence on individuals' usage of conflict management strategies. Given the relationship between attachment and conflict management

strategies, it is unclear whether the association between conflict management strategies and psychological and interpersonal outcomes are due to conflict management strategies' influence, or whether this association is due to a major common factor such as attachment. In other words, do conflict management strategies still predict psychological and interpersonal outcomes after controlling for attachment factors? This investigation may also help shine light on whether the way individuals manage/communicate in conflict is able to provide additional explanation with respect to psychological well-being and interpersonal functioning.

To address these questions, the current study aims to investigate the systematic relationships of interpersonal and psychological outcomes with self-reported attachment and self-reported conflict communication methods. In addition, it aims to examine if conflict communications methods remain as significant predictors of these outcomes in the presence of individuals' attachment styles. Given the current literature regarding self-report measures of attachment style (e.g., Chin & Wilkinson, in preparation; Mikulincer & Shaver, 2007; Nofle & Shaver, 2006; Williams & Riskind, 2004), it is expected that attachment anxiety-related scales will be positively associated with psychological and interpersonal difficulties. Attachment avoidant-related scales are also expected to have a positive association with these outcomes, but association with psychological outcomes are expected to be weaker than for the attachment anxiety-related scales. Secure related scales, on the other hand, are expected to have a negative association with measures assessing psychological and interpersonal difficulties.

In the absence of the attachment factors, the conflict communication variables are expected to have significant association with the selected scales measuring psychological outcomes. Specifically, conflict communication strategies related to cooperation and resolution of conflicts, including collaborating, are expected to be negatively associated with psychopathology; and strategies related to avoidance and

confrontation are positively associated with psychopathology (Montoro-Rodriguez & Small, 2006). However, when attachment is controlled for, conflict communication variables are not expected to predict psychological health. Attachment variables are likely to be the sole predictors for psychological outcomes.

Conflict communication strategies are expected to have a greater impact on interpersonal outcomes than on psychological health outcomes, and hence are expected to have a significant association with interpersonal outcomes in both the absence and presence of attachment factors. Given that strategies related to cooperation and resolution tend to be associated with the higher number of conflicts resolved and greater satisfactory outcomes (e.g., Bowles, 2010), it is expected that these strategies would have a negative association with outcomes related to interpersonal difficulties. Conflict resolution strategies related to avoidance and confrontation are likely to have a positive association with outcomes related to interpersonal difficulties as these strategies tend to be associated with fewer conflicts resolve (e.g., Friedman, et al., 2000).

Method

Participants

Two hundred and fifty-three (72 males and 181 females) volunteer Australian National University undergraduates with an age range of between 18 and 54 years ($M = 20.23$ years, $SD = 4.28$ years) were recruited to participate in the study. Of those, 44.7% reported being in a romantic relationship at the time of the study. In addition, 75.9% of the participants reported that they identified themselves as “Australians” and 20.9% reported that they identified themselves as Asians (e.g., Chinese, Singaporeans, Malaysians and Koreans). Participants received course credits for taking part in the study. Data of the participants was also used in a previous research examining attachment patterns in the MMPI-2-RF (Chin & Wilkinson, in preparation).

Materials

Self-reported, dimensional attachment expectancies were assessed with the Attachment Style Questionnaire (ASQ; Feeney, Noller, & Hanrahan, 1994), which consists of 40 items that described an individual's feelings and behaviours in "close relationships". Participants were presented with statements and asked to rate their response for each statement on a 6-point Likert-type scale from 1 (*Totally Disagree*) to 6 (*Totally Agree*). Standard scoring generates five scales: Confidence, Relationships as Secondary, Discomfort with Closeness, Need for Approval and Preoccupation with Relationships. Confidence is the only attachment security scale; Discomfort with Closeness and Relationships as Secondary are associated with attachment avoidance; and Need for Approval and Preoccupation with Relationships are associated with attachment anxiety (Feeney, et al., 1994). The ASQ has been demonstrated to have acceptable validity and reliability (Karantzas et al., 2010). All five ASQ scales were found to be internally consistent (refer to Table 3.1).

[INSERT TABLE 3.1 ABOUT HERE]

Self-reported communication methods in conflicts were assessed with the Focus of Communication Questionnaire (FOCQ; Bowles, 2002), which consists of 35 statements that describe how people communicate. Participants were requested to recall the conflicts they had involving other people and to indicate the type of conflicts (home, school, work and others) that they bring to mind. They are then presented with statements and asked to rate the degree in which each statement represents them on a 5-point Likert scale (*1 = Almost never, 5 = Almost always*) while thinking about these conflicts. Standard scoring generates six scales: Success (Competitive) Focus, Withdraw Focus, Task (Collaborate) Focus, Other-person (Accommodate) Focus, Confusion, and Concession (Compromise) Focus. All subscales, except Concession Focus ($\alpha = .593$), have good internal consistency, ranging from .70 to .83 (refer to Table

1), and these were consistent with those found by Bowles (2010).

Psychological health and interpersonal outcomes were assessed with selected scales from the MMPI-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008). More specifically, the selected outcome measures for this investigation were the MMPI-2-RF scales that measure levels of demoralization (RCd), low positive emotional experiences (RC2), dysfunctional negative emotional experiences (RC7) and family problems (FML). The MMPI-2-RF consists of 338 True/False items to assess an individual's level of emotional adjustment and test taking attitude. Participants were asked to indicate if each of the 338 statements applied to them. Participants were permitted to not respond to items that did not apply to them or that they did not know about. Scores calculated were converted to T-scores based on the MMPI-2-RF's scoring conversion charts (MMPI-2-RF; Ben-Porath & Tellegen, 2008). The RCd was selected as it represents the common factor that is responsible for the high intercorrelations among the MMPI Clinical Scales and reflects overall level of morale (Ben-Porath, 2012). The RC2 and RC7 were selected for their representations of anxiety and depressive symptoms. FML was selected to represent interpersonal related issues as it is the only MMPI-2-RF Interpersonal scale that assesses negative interpersonal experiences rather than interpersonal attitudes and behaviours (e.g., social avoidance, passivity). These MMPI-2-RF scales were also reported to be significant predictors for most of the ASQ attachment facets in another study using the same sample (Chin & Wilkinson, in preparation). The internal consistency coefficients (alpha) for these scales range from .65 to .89 (refer to Table 3.2). As shown in Table 3.2, values were calculated separately for males and females participants, and these values are similar to those found with the original norm sample of the MMPI-2-RF (Tellegen & Ben-Porath, 2008).

[INSERT TABLE 3.2 ABOUT HERE]

Procedure

Participants completed computer administered versions of the questionnaires with an average completion time of approximately 60 minutes. Presentation of the questionnaires was counter-balanced to control for order effects. Upon completion, participants were presented with a debriefing screen and provided with contact information should they have any further questions.

Results

Based on MMPI-2-RF's test validity criteria (Ben-Porath & Tellegen, 2008) and a multivariate outliers criterion of Mahalanobis distance at $p < .001$ (Tabachnick & Fidell, 2007), 34 cases were removed from the data set. Non-normal distributions of the MMPI-2-RF scales scores were observed and expected due to the clinical nature of the scales. As clinical sample having scores higher than the normative sample in clinical scales are expected and are valid contribution to the data set, transformation of scores due to probable univariate outliers was deemed inappropriate. After screening, a total of 219 cases were considered in the analyses.

Principle Component Analysis On FOCQ Components

To reduce the number of components in the main analysis of the study, a principal component factor analysis was conducted on the six FOCQ factors (Success Focus, Withdraw Focus, Task Focus, Other-person Focus, Confusion, and Concession Focus) with oblique rotation (direct oblimin). An examination of the Kaiser-Meyer Olkin measure of sampling adequacy ($KMO = .63$) suggest that the sample was factorable. Two components were retained because of the convergence of the scree plot and the fulfilment of the Kaiser's criterion of eigenvalues over 1. The items that cluster on the same factor suggest that Component 1 (negative loading of Success; positive loadings of Withdraw and Concession) represents a tendency to avoid conflicts, including being more agreeable, not displaying anger and demanding, withdrawing and

ignoring, and will be labelled as FOCQ Avoid. Component 2 (Negative loading of Confusion; Positive loadings of Task and Other-person) represents a tendency to resolve conflicts, including asking, reasoning, listening to others, keeping peace and being clear, and will be labelled as FOCQ Resolve.

Scores for the two FOCQ components were obtained by recoding and summing items as appropriate. Reliability analysis revealed Alpha values of .80 for FOCQ Avoid and .84 for FOCQ Resolve. Based on multivariate outliers criterion of Mahalanobis distance at $p < .001$ (Tabachnick & Fidell, 2007) with the variables that will be used in the main analysis, that is, the five ASQ factors, one more case were removed, and 218 cases were considered in the subsequent analyses.

Correlation Analysis

To evaluate the specific relationships among the attachment facets, FOCQ components and selected MMPI-2-RF scales, bivariate correlation analysis was conducted and results are presented in Table 3.3. Intercorrelations among the five ASQ factors (Table 3.3) ranged from .23 to .66, which are generally higher than previous estimates (Feeney, et al., 1994; Karantzas, et al., 2010). While some intercorrelation values were found to be relatively high, these values are less than .70, and hence all variables will be retained in the analyses (Pallant, 2011). FOCQ Resolve and FOCQ Avoid weakly and positively correlate with one another. FOCQ Resolve was found to have significant correlation with all five ASQ facets; positively correlating with ASQ Confidence and negatively correlating with the remaining four ASQ facets. FOCQ Avoid only correlated negatively with ASQ Relationships as Secondary and positively with ASQ Need for Approval. The strength of the correlations among the variables was generally found to be not strong, with the highest value being only .34.

With respect to the selected MMPI-2-RF scales, ASQ Confidence was found to be negatively related to these scales. The remaining four ASQ facets, on the other hand,

were found to be positively associated with these scales. FOCQ Resolve was found to have significant negative correlations with only RCd, RC7, and FML and FOCQ Avoid was found to be negatively related to FML but positively related to RCd and RC2.

[INSERT TABLE 3.3 ABOUT HERE]

Regression Analyses

While examining the attachment dimensions' and FOCQ scales scores' predictive value on selected MMPI-2-RF scales, the study is also interested in examining whether the conflict communication factors are still significant predictors of these MMPI-2-RF scales when attachment factors are concurrently considered. To test this, a hierarchical regression analysis was conducted for each of the selected MMPI-2-RF scale scores. In each analysis, the FOCQ components scores were entered in the first step followed by the attachment dimensions scores in the second step. Assumption check concluded that regression assumptions of normality, homoscedasticity and independence of error were not violated

Tables 3.4 and 3.5 present the results of hierarchical regression analyses. When FOCQ components were entered alone in the first step, FOCQ Resolve was found to have significant negative predictive relationships with all the four dependent variables: *Demoralization* (RCd), *Low Positive Emotions* (RC2), *Dysfunctional Negative Emotions* (RC7) and *Family Problems* (FML). FOCQ Avoid was found to have positive predictive relationships with only RCd and RC2. Together, the FOCQ components explained a significant but small amount of variance in all selected indicators of psychological and interpersonal functioning.

[INSERT TABLES 3.4 AND 3.5 ABOUT HERE]

When attachment factors were introduced in the second step of model, a significant increment in variance was observed in all four dependent variables. In addition, the FOCQ components became insignificant predictors for all the indicators of

psychological health (RCd, RC2 and RC7). FOCQ Resolve, however, continued to be a significant, but weak, negative predictor of FML (3.46% of the variance).

ASQ Confidence was found to be the strongest predictor for RC2. The anxiety-related attachments scales were generally the strongest predictors for the remaining three dependent variables. Specifically, ASQ Need for Approval was the strongest predictor for RCd and RC7 and ASQ Preoccupation with Relationships was the strongest and only attachment predictor for FML. Attachment avoidance-related scales scores were not significant predictors for any of the four dependent variables of the study.

Discussion

Overall, the results indicate that conflict communication is predictive of interpersonal problems, particularly related to the family, but not psychological health once shared variance with individual differences in attachment style is accounted for. Results of the study are found to be broadly in line with the hypotheses.

To reduce the number of variables for the analyses, a principal component factor analysis was conducted with the six factors of the FOCQ. Similar to the cluster analyses reported by Bowles (2002, 2004, 2010), two components emerged, FOCQ Resolve (Task, Confusion, Other-person) and FOCQ Avoid (Withdraw, Concession, Success). The two-factors solution found in this study provided some evidence that FOCQ may have a hierarchical factor structure with the six dimensions being further grouped into two dimensions, which is consistent with current literature's proposal for a dual model of conflict management strategies (e.g., Blake & Mouton, 1964; Pruitt & Rubin, 1986). These two components also appear to generally fit into Leary's (1957) explanations of communication being on a two bi-polar dimensions, domination-submission and cooperation-opposition, which underlies Bowles' Focus of Communication Model (FOCM; Bowles, 2002, 2005). Specifically, FOCQ Avoid is

likely consistent with the “domination-submission” dimension. However, while low FOCQ Resolve scores are considered to be associated with uncooperative behaviours, they do not appear to be aligned with the negative hostility (e.g., anger, hatred) aspect of “opposition” end of Leary’s second dimension. Hence, FOCQ Resolve is likely related to, rather than aligned with, the “cooperation-opposition” dimension of Leary’s model of communication. FOCQ Resolve composite scores were obtained through the summation of items belonging to Task, Other-person and recoded items of Confusion. FOCQ Avoid composite scores were obtained through the summation of the items belonging to Withdraw, Concession, and recoded items of Success. High reliability values were obtained supporting the convergence of the items on the underlying constructs.

While similarity was found in the number of components emerging from the principal component analysis, how the six FOCQ factors were grouped in this study differ slightly from those of Bowles (2002, 2004, 2010). In his recent paper, Bowles’ (2010) cluster analysis grouped Task, Other-person and Concession in a cluster, labelled as On-task; and Confusion, Withdrawing and Success together, as Off-task. However, it is important to note that this clustering has not been consistent, with only Task and Confusion being the most differentiating factors across the studies (Bowles, 2004, 2010). Interesting, while Task and Confusion are on different factors across Bowles’ studies, they represented the same component but in opposite direction in the current study. This opposing direction is consistent with Bowles’ (2009) claims that confusion focused communication was an opposite factor of task and other-person focused communication in the circumplex arrangement of factors. Further investigation of the structure of FOCQ is recommended in view of the discrepancy.

Using this two-factors solution as the representation of the ways individuals manage/communicate in conflicts, correlational analyses were conducted to examine the

relationships among the variables. The results suggest that securely attached individuals are more likely to use conflict resolution communication methods. Insecurely (high in attachment anxiety- and/or avoidance related scale scores) attached individuals, on the other hand, are less likely to use these methods, with some having the likelihood to use avoidance strategies. These findings are consistent with current literature on the relationships between attachment and the type of conflict management strategies used (e.g., Creasey & Hesson-McInnis, 2001; Domingue & Mollen, 2009; Pietromonaco, et al., 2004). In addition, results have also shown minor differences found among the insecure attachment related scales. Specifically, ASQ Relationships as Secondary and Need for Approval also had significant relationships with FOCQ Avoid. The results suggest that those who view relationships as secondary are also less likely to avoid or withdraw from conflicts, and are more likely to use dominating strategies, such as demanding and being less agreeable. The negative association between ASQ Relationships as Secondary and FOCQ Avoid can be expected as individuals who treat relationships as secondary to achievement would be less likely to be concerned with the need to foster relationships during conflicts, and are likely to use demanding methods to win in conflicts. High need of others' approval was also found to be associated with a higher tendency to use communication strategies to avoid or withdraw from conflicts. Individuals' fear of rejection is likely to gear them to utilise conflict avoiding methods, including submission, to avoid rejections from others (Mikulincer & Shaver, 2007). While attachment and conflict communication variables are found to be correlated, they are not highly correlated. Given this limitation, interpretations of these results are to be considered with caution and further investigation of the relationships among the attachment and FOCQ factors is recommended.

Supporting the study's hypotheses, while FOCQ components were found to correlate with MMPI-2-RF scales measuring psychological outcomes, these

relationships became non-significant once the shared variance with attachment styles was accounted for. Conflict communication methods, as measured by the FOCQ, did not provide predictive value over and above attachment in predicting individuals' levels of demoralization, low positive emotional experiences and dysfunctional negative experiences. Attachment, as measured by ASQ, was the sole predictor of the MMPI-2-RF RCd, RC2 and RC7 scores. Specifically, as expected, secure related attachment expectancies were found to be a negative predictor of RCd and RC2, and anxiety related attachment expectancies were found to be positive predictors of all three psychological outcome MMPI-2-RF scales. These findings are generally consistent with expectations except for the findings for FOCQ Avoid. No significant association was found between FOCQ Avoid and RC7 and FML.

This study's findings related to attachment are consistent with the current literature on attachment and mental health using various attachment style and psychological health measures (e.g., Lopez, Mauricio, Gormley, Simko, & Berger, 2001; Murphy & Bates, 1997; Wayment & Vierthaler, 2002). Avoidant-related attachment scale scores, in this study, did not significantly predict the scores of the MMPI-2-RF scales associated with psychological health. While this absence of significant findings is not expected, it is consistent with the lack of consistency observed in current research on the association between attachment avoidance and psychopathology measures (see Mikulincer & Shaver, 2007 for review of studies).

The significant correlations of conflict communication strategies with psychological outcomes are consistent with previous findings (e.g., Chung-Yan & Moeller, 2010; Montoro-Rodriguez & Small, 2006). However, in the current study, the associations were found to be relatively weak. As expected, when attachment was controlled for in the second step of the regression equations, these conflict communication variables did not significantly predict the same psychological outcome.

These results suggest that the association found between individuals' conflict management behaviours and psychological outcomes in previous studies are likely not due to conflict management strategies per se but due to a more general trait that has an influence on the use of these conflict management strategies. In this case, attachment is likely the overarching factor in the explanation of psychological outcomes, and conflict communication methods are secondary factors. Modification of conflict resolution training that results in positive influence on mental health (e.g., Askari, et al., 2013) could be due to the indirect modification of the individuals' attachment working models through such training. Conflict resolution training that encourages individuals to use constructive strategies helps improve communication with others and increase positive relational experiences (Pietromonaco, et al., 2004). The continual new positive attachment-relevant experiences, in turn, can contribute to the shaping of individuals' positive relational working models of self and others (Mikulincer & Shaver, 2007).

While conflict management strategies did not provide additional explanation of psychological outcomes, this study found that they did provide additional predictive value with respect to MMPI-2-RF FML scores over and above attachment. ASQ Preoccupation with Relationships and FOCQ Resolve were the only significant predictors of FML in the final equation model, with the attachment predictor positively and the FOCQ predictor negatively predicting FML scores. Attachment anxiety-related scales positive association with reported family problems found in this study is consistent with the existing evidence where insecure attachment is generally observed to be positively related to various interpersonal difficulties (e.g., Khodabakhsh, 2012; Wei, et al., 2005; Wilhelmsson Göstas, Wiberg, Engström, & Kjellin, 2012). Based on the positive association found between constructive conflict management strategies and positive interpersonal outcomes (e.g., Bowles, 2010), FOCQ Resolve possibly represents a set of constructive forms of conflict management strategies given this

category's negative association with reported family problems. These findings suggest that while attachment explained a large proportion of the change in FML scores' variance, attachment-influenced conflict communication methods are also significant predictive factors of interpersonal outcomes. In the presence of attachment, conflict communication strategies are still important factors in providing additional information to explain individuals' family problems. The lack of significant association found between FOCQ Avoid and FML could be explained by characteristics of FOCQ Avoid scores. High FOCQ Avoid scores suggested higher tendency to utilise methods related avoidance and withdrawal from conflicts and low scores are likely related to the engagement of confrontational behaviours in conflicts; and both set of behaviours can lead to interpersonal problems (e.g., Friedman, et al., 2000). Hence, it is unsurprising that the study was unable to detect a significant association between FOCQ Avoid and reported number of family problems.

Muklincer and Shaver (2007) have proposed that attachment is likely to influence psychological functioning indirectly through its influence on the way individuals handle conflicts. Specifically, individuals' attachment expectancies guide the ways individuals handle conflicts. Conflict resolutions strategies chosen are likely to impact individuals' interpersonal experiences, and ineffective strategies may increase vulnerability to psychological disorders through increased interpersonal distress and negative experiences (Mikulincer & Shaver, 2007). However, the results of the current study indicate that the apparent association between conflict communication and psychological health may only be a result of the shared variance with individual differences in attachment expectancies. The situation is different with respect to interpersonal functioning, with the results indicating at least a *prima facie* case for conflict communication strategies to be mediating the relationship between attachment and family related interpersonal problems.

Research and Clinical Implications

This study has provided additional evidence on the presence of two major dimensions in conflict communication and an additional way of interpreting the FOCQ measure. The results contributed to the existing literature on the association between attachment and psychological outcomes, such as how insecure attachment related factors continue to be found to have positive association with psychopathological symptoms. Minor differences in the correlational analysis results among the ASQ five facets supported the need to consider specific attachment aspects in research and clinical practice (e.g., Feeney, 2002).

While the study's results do provide support for association between conflict communication methods and psychological outcomes, this association only occurred in the absence of attachment. The lack of significant association between these variables when attachment is controlled for raises questions on the true effect of conflict communication methods on psychological outcomes, and calls for the need for further investigation in this area.

A number of clinical implications have also emerged from these findings. The results show the influence of attachment in various psychological and interpersonal outcomes, supporting the need to examine individuals' attachment to better understand psychological and interpersonal difficulties. Attachment was found to be a major factor in predicting psychological health indicators, highlighting the importance of identifying and addressing the potential interpersonal basis of individuals' psychological distress. The additional variance explained by the conflict communication methods in the interpersonal outcomes of this study suggests, however, that in certain circumstances, only targeting the general trait might not be sufficient to address individuals' difficulties. While it is important to work on individuals underlying relational working models in

improving interpersonal functioning, it is equally important to provide these individuals with the necessary skills when addressing those interpersonal difficulties.

Limitations and Future Directions

One of the limitations identified earlier was the weak correlation found between conflict communication methods and the attachment and psychological variables. Further investigation, using various attachment, psychological and conflict management/communication measures, is required to determine the validity of the relationships found in this study. If replications of the study do find relatively stronger and/or consistent significant associations among the conflict communication methods, attachment and psychological variables, analyses examining both potential mediational and moderational effects should be conducted.

In addition, while this study captured a relatively wide age range (18 – 54 years) of individuals with different ethnicities, the sample is made up of university undergraduates in a western culture. This potentially limits the findings and generalisation to other populations should be considered cautiously. Replication of the study with different samples is also recommended to determine whether the current findings are reliable. It is also recommended to use other attachment, conflict communication/management, psychological health and interpersonal measures in the replications of the study to determine reliability and validity of the results. This is especially important with the psychological and interpersonal outcome measures given some of the initial criticisms on the MMPI-2-RF, such as the limited clinical sensitivity of the scales (e.g., Butcher, 2011; Nichols; 2011).

Another limitation identified in this study is the use of self-report attachment measures. Self-report attachment measures are found to be dissimilar from the interview attachment measures in the assessment of individual differences in adult attachment and predictions of various outcomes (Roisman, et al., 2007). In addition, self-report

attachment styles are potentially biased by individuals' defences (Simpson & Rholes, 1998) and interview attachment measures may "bypass defences that could bias self-report attachment styles" (Simpson & Rholes, 1998, p. 7). The use of an interview-style attachment measure in a similar study may be helpful to obtain more comprehensive information on the relationship between attachment constructs and patterns of psychopathology as assessed by measures such as MMPI-2-RF.

Conclusion

Attachment expectancies were found to be the major factor in explaining psychological outcomes in the presence of conflict communication methods, an attachment-influenced factor. Conflict communication methods were, however, also shown to be important in providing additional explanation with respect to individuals' interpersonal problems, specifically family problems. The results highlight the importance of individual differences in attachment expectancies and suggest the need to consider the potential interpersonal basis of individuals' psychological distress in both research and clinical work. While providing research and clinical implications, further investigations for better understanding of the relationship among the three variables of the study, and replications of study to examine the generalisability of the results are recommended.

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Tables of Manuscript 3

Table 3.1

Cronbach Alpha Values of the Attachment Style Questionnaire (ASQ) and Focus of Communication Questionnaire (FOCQ) Subscales.

Scale	Total ($N = 253$)
ASQ Confidence	.82
ASQ Discomfort with Closeness	.89
ASQ Relationships as Secondary	.79
ASQ Need for Approval	.77
ASQ Preoccupation with Relationships	.78
FOCQ Success	.70
FOCQ Withdraw	.80
FOCQ Task	.83
FOCQ Other Person	.80
FOCQ Confusion	.82
FOCQ Concession	.59

Table 3.2

Cronbach Alpha Values of the Selected MMPI-2-RF Scales

Scale	Male (<i>n</i> =72)	Female (<i>n</i> =181)	Total (<i>N</i> = 253)
Demoralization (RCd)	.87	.90	.89
Low Positive Emotions (RC2)	.65	.78	.75
Dysfunctional Negative Emotions (RC7)	.78	.84	.83
Family Problems (FML)	.73	.66	.68

Note. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2-
Restructured Form

Table 3.3

Correlations Among ASQ Attachment Facets, Selected MMPI-2-RF Scales and the FOCQ Factors (N = 218)

Variable	ASQ Confidence	ASQ Discomfort with Closeness	ASQ Relationship as Secondary	ASQ Need for Approval	ASQ Preoccupation with Relationships	FOCQ Resolve	FOCQ Avoid
ASQ Confidence	-						
ASQ Discomfort with Closeness	-.61**	-					
ASQ Relationships as Secondary	-.43**	.60**	-				
ASQ Need for Approval	-.51**	.38**	.23**	-			
ASQ Preoccupation with Relationships	-.43**	.32**	.23**	.66**	-		
FOCQ Resolve	.23**	-.15*	-.34**	-.14*	-.17*	-	
FOCQ Avoid	-.06	.01	-.19**	.24**	.01	.14*	-
Demoralization (RCd)	-.52**	.33**	.29**	.69**	.57**	-.17*	.13*
Low Positive Emotions (RC2)	-.63**	.30**	.17*	.52**	.40**	-.11	.18**
Dysfunctional Negative Emotions (RC7)	-.46**	.35**	.30**	.64**	.58**	-.20**	.04
Family Problems (FML)	-.23**	.23**	.27**	.27**	.33**	-.29**	-.13*

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. FOCQ = Focus of Communication Questionnaire.

* $p < .05$. ** $p < .01$.

Table 3.4
*Hierarchical Regressions of RCd and RC2 MMPI-2-RF Scales on FOCQ
 Factors, Controlled for Attachment (Step 2) (N = 218)*

	R ² (adjust R ²)	ΔR ²	Step1 β	Step 2 β
<i>Demoralization (RCd)</i>				
Step 1 FOCQ Resolve			-.19**	-.01
FOCQ Avoid	.05 (.04)	.05**	.16*	.03
Step 2 ASQ Confidence				-.22**
ASQ Discomfort with Closeness				-.11
ASQ Relationships as Secondary				.11
ASQ Need for Approval				.48**
ASQ Preoccupation with Relationships	.54 (.52)	.49**		.16*
<i>Low Positive Emotions (RC2)</i>				
Step 1 FOCQ Resolve			-.14*	.02
FOCQ Avoid	.05 (.04)	.05**	.20**	.08
Step 2 ASQ Confidence				-.59**
ASQ Discomfort with Closeness				-.13
ASQ Relationships as Secondary				-.05
ASQ Need for Approval				.25**
ASQ Preoccupation with Relationships	.48 (.46)	.43**		.03

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. FOCQ = Focus of Communication Questionnaire.

* $p < .05$. ** $p < .01$.

Table 3.5

Hierarchical Regressions of RC7 and FML MMPI-2-RF Scales on FOCQ Factors, Controlled for Attachment (Step 2) (N = 218)

	R ² (adjust R ²)	ΔR ²	Step1 β	Step 2 β
<i>Dysfunctional Negative Emotions (RC7)</i>				
Step 1 FOCQ Resolve			-.21**	-.04
FOCQ Avoid	.05 (.04)	.05**	.07	-.04
Step 2 ASQ Confidence				-.10
ASQ Discomfort with Closeness				-.01
ASQ Relationships as Secondary				.09
ASQ Need for Approval				.42**
ASQ Preoccupation with Relationships	.49 (.47)	.44**		.23**
<i>Family Problems (FML)</i>				
Step 1 FOCQ Resolve			-.27**	-.19**
FOCQ Avoid	.09 (.08)	.09**	-.10	-.12
Step 2 ASQ Confidence				.01
ASQ Discomfort with Closeness				.06
ASQ Relationships as Secondary				.08
ASQ Need for Approval				.11
ASQ Preoccupation with Relationships	.19 (.17)	.10**		.19*

Note. ASQ = Attachment Style Questionnaire. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. FOCQ = Focus of Communication Questionnaire.

* $p < .05$. ** $p < .01$.

CHAPTER SIX

Overall Discussion

Overall, the focus of the current research was to investigate if adult attachment related expectancies, often referred to as attachment styles, are reflected in individuals' psychological adjustment specifically as measured by the MMPI-2-RF. This was done in the hope that the research findings would inform clinical practice and further encourage clinicians to consider applying attachment theory to their clinical work. In this investigation, two independent cross-sectional studies, using different samples of undergraduate volunteers, were conducted to examine the relationships between selected self-report attachment measures and the MMPI-2-RF. In addition, a conflict communication methods measure was introduced in the second study to investigate whether attachment is a major factor for selected outcomes measured by the MMPI-2-RF, or whether the variance of these outcomes can be additionally explained by the way people communicate in conflicts, a set of behaviours suggested to be also influenced by attachment. In general, the results of the studies are broadly in line with the hypotheses. Supporting the hypotheses, these results demonstrate that individual differences in attachment styles and dimensional scores are reflected in scores of selected MMPI-2-RF scales. The results also indicate that conflict communication was predictive of interpersonal problems, particularly related to the family. However, as expected, conflict communication was not predictive of psychological health once shared variance with individual differences in attachment style was accounted for.

Attachment and MMPI-2-RF

Both studies found that the selected MMPI-2-RF scales were generally better associated with anxiety-related attachment variables than the avoidant-related attachment variables. The results indicate that these MMPI-2-RF scales were better in differentiating high-/low-anxiety related groups than differentiating high-/low-

avoidance-related groups, and predicting scores in the attachment anxiety-related than for attachment avoidance-related dimensional scales. As expected, anxiety-related attachment factors, in general, were positively associated with the MMPI-2-RF scales scores. In addition, they were consistently found to be positively related to depression and anxiety-related MMPI-2-RF scales across the two studies. Attachment avoidance-related factors were also generally found to have positive associations with MMPI-2-RF scales assessing psychopathology and interpersonal difficulties. The secure-related attachment factors, on the other hand, were found to be negatively associated with reported levels of psychological symptoms and interpersonal issues. Compared to the insecure attachment variables, secure attachment had better associations with the MMPI-2-RF Interpersonal scales. The avoidant-related styles and attachment avoidance dimension, as compared to their anxiety-related counterparts, were found to have stronger links to the MMPI-2-RF scales assessing interpersonal difficulties, such as lack of trust and social avoidance. The differences found between the attachment anxiety- and avoidance-related factors are consistent with the attachment-psychopathology literature, where more significant findings are observed for attachment anxiety than attachment avoidance.

In addition to the differences found between major attachment groups, differences were also observed among specific attachment facets assessed by the dimensional attachment measures. Both anxiety- and avoidance-related attachment facets differed from one another in the specific MMPI-2-RF scales that were identified as significant predictors of their scores. For example, while the Attachment Style Questionnaire (ASQ) Need for Approval and Preoccupation with Relationships scales each shared a predictor with ASQ Attachment Anxiety, they did not share any predictors between themselves. ASQ Discomfort with Closeness and ASQ Relationships as Secondary, on the other hand, only shared one common predictor

between themselves. These differences highlights the limitations faced if a sole focus is placed on broad attachment factors when assessing for individual differences and factors contributing to maladaptive functioning. The differences found in the studies have also supported the researchers who have called for the need to consider more specific attachment facets in clinical settings (e.g., Feeney, 2002; Karantzas et al., 2010).

Attachment anxiety and MMPI-2-RF.

Attachment anxiety's greater linkage with the selected MMPI-2-RF scales assessing psychopathology can be explained by its influence on individuals. As pointed out in an earlier section, attachment-related anxiety relates to individuals' strong need for emotional intimacy and protection and their fears of rejection (e.g., Karantzas, et al., 2010). This intense need for display of supports and concern from their primary attachment figure drives individuals to use hyperactivating strategies, intensifying their emotions and exaggerating their psychological neediness (Cassidy, 1994; Mikulincer & Shaver, 2007). This tendency to use hyperactivating strategies by the anxiously attached individuals disrupts normal emotional regulation within the self, resulting in an uncontrollable flow of negative thoughts and emotions, inhibiting the ability to experience positive emotions, which increases their vulnerability psychopathology (Mikulincer & Shaver, 2007). Hence, it is unsurprising that anxiously-attached individuals are more likely to report high levels of psychological distress and symptoms. The continual experiences of negative thoughts and emotions, and the inability to experience positive emotions may also provide an explanation for the studies' findings of relationships between attachment anxiety-related scales and MMPI-2-RF scales assessing levels of positive and negative emotional experiences (i.e., RC2, RC7 and NEGE-r). The significantly positive relationships found between attachment anxiety scores and the anxiety- and depression- related scores were consistent with the findings of previous studies who have used various attachment and psychopathology measures

(e.g., Besser & Priel, 2003; Strodl & Noller, 2003; Treboux, et al., 2004; Watt, et al., 2005; Williams & Riskind, 2004). The MMPI-2-RF's *Demoralization* (RCd) scale was generally found to be a significantly positive predictor of attachment anxiety. This suggests that individuals who reported greater dissatisfaction with life and lower morale are likely to have higher attachment anxiety. Anxiously-attached individuals tend to appraise and experience their situations using a 'hopeless and helpless' pattern (e.g., Gamble & Roberts, 2005; Williams & Riskind, 2004). Increased perceptions of hopelessness and helplessness are associated with high RCd (Ben-Porath, 2012; Ben-Porath & Tellegen, 2008), and hence the positive association found is likely to be a function of this appraisal tendency. In addition, individuals with high levels of attachment anxiety have a negative model of self (Bartholomew & Horowitz, 1991). This implies that these anxiously-attached individuals are more prone towards negative cognitive processes of self, increasing likelihood to feel demoralised and develop mental health issues (Mikulincer & Shaver, 2007). RCd is associated with depression-related disorders (Ben-Porath & Tellegen, 2008) and the high level of RCd score is consistent with findings that the majority of the individuals with a mood disorder have a preoccupied attachment (or high attachment anxiety and low attachment avoidance) state of mind (Rosenstein & Horowitz, 1996).

While generally found to be a predictor of attachment anxiety, differences were observed among the specific attachment facets. Levels of demoralization and dissatisfaction with life were found to predict individuals' need for approval, but not their preoccupation with relationships. Individuals who wish to intensify support-seeking efforts can be hindered by their need for approval. To reduce the likelihood of rejection, individuals are more likely to use indirect methods to seek help (Mikulincer & Shaver, 2007), thereby hindering their ability to obtain adequate support to achieve attachment security effectively. Issues related to helplessness and hopelessness can arise

due to the conflicting goals, the need for approval and the need to seek out supports and concerns.

Another MMPI-2-RF scale that the attachment-anxiety facets were found to differ in was the NEGE-r scale, which is related to negative emotional experiences and neuroticism (Ben-Porath, 2012). Specifically, while NEGE-r was found to significantly predict both ASQ Attachment Anxiety and Preoccupation with Relationships in the final regression analyses of Study Two, it did not significantly predict ASQ Need for Approval. Attachment anxiety factors' positive relationship with NEGE-r found in this research is consistent with previous studies that have used different personality measures assessing Neuroticism (e.g., Mikulincer, Shaver, Gillath, & Nitzberg, 2005; Nofhle & Shaver, 2006). Given that neuroticism is defined as "the tendency to report negative moods and to complain about emotional problems and adjustment difficulties" (Mikulincer & Shaver, 2007, p. 373), it is unsurprising that individuals' obsessive worries about relationships (i.e., preoccupation with relationships), which also includes anxiously seeking out others to gain dependency, was found to have a positive association with levels of neuroticism. The anxious need to seek out to others is likely to propel individuals to constantly report their distress so as to obtain the desired attention and concerns. As mentioned earlier, individuals who have high need for approval, however, would be less willingly to directly seek out others but instead use indirect methods to minimise the likelihood of rejection (Mikulincer & Shaver, 2007). The behaviour characteristic of one's need for approval provides a possible explanation for the lack of relationship between Need for Approval and NEGE-r. This lack of relationship is likely due to the reduced tendency to extreme exaggeration of negative emotions rather than the reduced experience of negative emotions, as supported by the positive relationship between Need for Approval and RC7 (Dysfunctional Negative Emotions).

The different characteristics of Need for Approval and Preoccupation with Relationships also provide a possible reason for the negative association between AGGR-r and the former attachment facet, and the negative association between K-r and the latter attachment facet. The need for others' approval, or one's fear of rejection, is likely to be better associated with the lack of interpersonal aggression and assertion to ensure others' approval and acceptance; and preoccupation with relationships are likely to be better associated with reported lower psychological adjustment as verbalising distress is possibly one of the most direct ways to get others' supports and concerns.

Although this relationship was not found across both studies, it is worthy to note that level of cynicism (RC3) was found to have a positive relationship with attachment anxiety in Study One. Individuals with insecure-anxious attachment tend to view the world as unpredictable and frightening, inhibiting them from exploring their social environments (Sroufe, 1983). This provides some support for the relationship found between RC3 and attachment anxiety, where individuals who have more attachment anxiety would view the world, including other people, more negatively (Collins & Read, 1990). The anxiously attached individuals' negative view of the world also provides an explanation for the relationship between shyness and attachment anxiety found in this study. Supporting this findings are the various studies with infants, children, and adolescents that have found anxious attachment positively linked to shyness in a range of social situations (Booth-LaForce & Oxford, 2008; Kochanska, 1998; Rubin et al., 2009, cited in Rubin, Coplan, Bowker, & Menzer, 2011). Insecurely attached individuals have also been found to describe their family of origins and current family less positively than securely attached individuals (Diehl, Elnick, Bourbeau, & Labouvie-Vief, 1998), supporting the positive link between reported family problems and attachment anxiety and avoidance.

With respect to attachment groups, the Preoccupied group was conceptualised to

have high attachment anxiety and low attachment avoidance and the Fearful group as having both high attachment anxiety and avoidance. Despite being a non-clinical sample, the pure high anxiety group (Preoccupied) had MMPI-2-RF scores between the subclinical ($60 \leq T < 65$) and clinical range ($T \geq 65$). The high levels of distress and negative emotions found for the Preoccupied group in the research support the notion that preoccupied individuals' generally tend to show higher levels of distress and anxiety (Bartholomew & Horowitz, 1991; Kobak & Sceery, 1988; Mikulincer & Orbach, 1999), which is a result of their hypervigilance to potential sources of stress and threat (Bartholomew, Kwong & Hart, 2001). While the high scores could indicate higher level of reports of psychological disturbance, it is also important to note that these high scores could also be due to the smaller sample size of the Preoccupied group in the study, which could have exaggerated the true group scores. The Fearful group's mean MMPI-2-RF scale scores, except for RCd that was in the subclinical range, were all within the normal range. The lower than expected reported psychological distress could be explained by the inhibition of expressing anxiety and seeking support due to their fear of rejection (Bartholomew, et al., 2001).

Attachment avoidance and MMPI-2-RF.

The weaker linkage found between attachment avoidance and the psychological-distress related MMPI-2-RF scales was expected due to the emotion suppression characteristic of attachment avoidance. Avoidant individuals are inclined towards the need to deactivate the attachment system based on past experiences of unavailable attachment figures when faced with stressful situations. The inhibition of emotions (including fear, anxiety and distress) is needed to maintain the goal of deactivation (Main & Weston, 1982). The expression of negative emotions is viewed as a display of vulnerabilities and dependency on others, which is not desirable for those with avoidant attachment (Mikulincer & Shaver, 2007). With this need to maintain emotional distance,

individuals with avoidant attachment/high attachment avoidance scores are expected to deny having or mask the actual level of their psychological distress. This provides a possible explanation on the lack of clinically and sub-clinically ranged MMPI-2-RF scales mean scores assessing psychopathology in the research's Dismissing group, where these individuals would tend to have high attachment avoidance (Bartholomew & Horowitz, 1991).

While attachment avoidance is conceptualized by the downplaying of distress and dependency, the studies did not find significant positive relationships between attachment avoidance and K-r (measure of under-reporting of psychological functioning). A likely explanation is the avoidant individuals' possible inhibition or exclusion from awareness of thoughts or feelings that imply vulnerability, neediness or dependence (Mikulincer & Shaver, 2007). More specifically, avoidant people are inclined towards using deactivating strategies at an unconscious level (Cassidy & Kobak, 1988). If avoidant strategies are subconsciously employed, the Adjustment Validity (K-r) scale, a scale that assesses intentional under reporting, is unlikely to be able to detect under-reporting in individuals who have high attachment avoidance.

As pointed out earlier, attachment avoidance, as compared to anxiety, was found to have greater linkage with interpersonal difficulties related MMPI-2-RF scales. In addition, the two specific attachment avoidant facets, ASQ Discomfort with Closeness and Relationships as Secondary, did not share PSYC-r, AGGR-r, INTR-r and F-r as predictors of their scores. Consistent across the studies, attachment avoidance related factors were found to be positively predicted by scales related to dislike (DSF) and distrust of others (RC3). The positive link between attachment avoidance and RC3 is consistent with Bartholomew's (1990) conceptualization of individuals who have high levels of attachment avoidance, in which these individuals are believed to incline towards a negative 'model of others'. In general, insecurely attached individuals (high

on attachment anxiety and/or attachment avoidance) tend to hold generalised and stable negative images of others (Collin & Read, 1990; Mikulincer & Shaver, 2007), hence providing further support for the positive link between RC3 and the two attachment dimensions.

The positive relationships between attachment avoidance and the MMPI-2-RF DSF scale (measures degree of dislikes of people and being around them) could also be explained by its association with the negative model of others. This positive relationship with the DSF scale in all studies and the SAV scale (assessment of social avoidance) in the first study, provided further support for the notion that individuals who have high attachment avoidance would tend to avoid interactions that require emotional involvement, intimacy and/or interdependence (Mikulincer & Shaver, 2007). A study by Kaitz and colleagues (2004) found that people who scored higher on avoidance were less tolerant of physical proximity and expressed more discomfort when their personal space is intruded upon. This provided support to the positive links between attachment avoidance and the two MMPI-2-RF scales that measure individuals' level of social avoidance and disaffiliativeness. During the investigation of the relationship between sociability and attachment styles, researchers have found that avoidance is associated with preference of isolation than being affiliated with others (e.g., Bartholomew & Horowitz, 1991; Cyranowski, Bookwala, Feske, Houck, & et al., 2002), further supporting our findings. Consistent with the literature related to high avoidance attachment, the Dismissing group's DSF scale score was in the subclinical range, suggesting that when compared to their peers, the individuals with a dismissing attachment tend to greatly dislike people and being around them.

Attachment avoidance was found to be predicted by INTR-r, a MMPI-2-RF scale associated with a lack of positive emotional experiences and avoidance of social situations and interactions (Ben-Porath, 2012), in the individual regression analysis of

the first study and final overall regression analysis of the second study. Discomfort with Closeness was also found to be predicted by INTR-r in the final overall regression analysis. INTR-r is said to be associated with a lack of positive emotional experiences and avoidance of social situations and interactions (Ben-Porath, 2012). Hence, this association found between INTR-r and Discomfort with Closeness can be explained by avoidant individuals' tendency to suppress or inhibit emotions and preference for emotional distance and independence (Mikulincer & Shaver, 2007). As part of attachment avoidance, individuals who are uncomfortable with interpersonal intimacy are also expected to avoid social situations and interactions to reduce the possibility of getting close to others.

Avoidant Attachment and Relationships as Secondary were both found to be positively predicted by AGGR-r in the final regression equation analysis of the second study, suggesting that individuals who reported greater interpersonal aggression and assertion are likely to have higher attachment avoidance. This also includes higher likelihood of viewing relationships as less important than achievements. The positive relationship found between avoidant attachment and AGGR-r can be expected as avoidant individuals desire emotional distance and autonomy (Mikulincer & Shaver, 2007), and being interpersonally assertive and aggressive can help to achieve these interpersonal goals (Bartholomew & Allison, 2006). It is, however, important to note that physical aggression has been found to be less likely associated with avoidant attachment (Bartholomew & Allison, 2006). Agreeableness, a factor of the personality model, was found to be negatively related to AGGR-r (Ben-Porath, 2012) and attachment avoidance (e.g., Nofle & Shaver, 2006; Shaver & Brennan, 1992). This provides a form of support for the positive association found between AGGR-r and attachment avoidance in this study. Given that AGGR-r is associated with using aggression as a way to achieve goals (Ben-Porath, 2012), a positive relationship

between AGGR-r and Relationships as Secondary can be expected as individuals who treat relationships as secondary to achievements are likely to disregard fostering positive relationship and be more assertive, and possibly more aggressive, to gain achievements and independence.

Study Two also found ASQ Avoidant Attachment and Relationships as Secondary to be positively associated with the F-r, one of the MMPI-2-RF scales that assess over-reporting tendency. This runs contrary to previous suggestions that avoidant attachment is related to minimising of psychological distress to maintain emotional distance and independence (Dozier, et al., 2008; Mikulincer & Shaver, 2007). Further investigation and replication for this finding is needed to conclude if the relationship between over-reporting tendency and avoidant attachment is valid. It is, however, likely that the positive relationship is a result of attachment avoidance's negative impact on individuals' mental health (e.g., Cassidy, 1994; Mikulincer & Shaver, 2007) as F-r assesses over-reporting tendency through the number of infrequent responses on psychological, cognitive and somatic symptoms, and a higher F-r score could also be a function of genuine psychological distress (Ben-Porath & Tellegen, 2008). Avoidant individuals lack adequate resources to cope with inevitable stressors that eventually lead to mental health issues (Mikulincer & Shaver, 2007). Individuals who are uncomfortable with intimacy, however, are unlikely to over-report as sharing of emotional difficulties can be seen as a way to increase support from and intimacy with others.

Comparing the two highly avoidant groups, Fearful (high attachment avoidance and anxiety) and Dismissing (high attachment avoidance; low attachment anxiety), these groups significantly differ in the levels of social anxiety. This suggests that the Fearful group experience higher level of anxiety in social situations compared to the Dismissing group. The significant differences in SHY scores and insignificant

differences in the SAV and DSF scores supported the concept that while both groups shared the behavioural strategies of withdrawing when distressed, they differ in levels of attachment anxiety or distress (Bartholomew & Allison, 2006; Bartholomew, et al., 2001).

Attachment security and MMPI-2-RF.

In relation to secure attachment, the secure attachment-related scale, that is, ASQ Confidence, was found to be negatively predicted by the MMPI-2-RF RC2, DSF, SAV and NEGE-r scales. Individuals with higher attachment security scores are less likely to avoid socially, or experience high levels of negative emotions and dislike of others. Securely attached individuals are more likely to experience positive emotions. In addition, the selected MMPI-2-RF scales scores of the Secure group were all within the normal range, suggesting that the securely attached individuals have a sound psychological functioning and no interpersonal functioning issues. As securely attached individuals are likely to have positive views of self and others (Bartholomew & Horowitz, 1991), it is unsurprising that the Secure group of the study generally reported greater affiliation and social interaction with others. In addition, they are also expected to be less likely to experience intense psychological distress given that attachment security is believed to increase individuals' coping and emotion regulation abilities when faced with stressful situations (Mikulincer & Shaver, 2007), hence minimising secure individuals' vulnerability to develop psychological issues. The findings related to secure attachment in the studies are in line with our hypotheses and consistent with previous studies that have used various measures of psychopathology (e.g., Irons & Gilbert, 2005; McWilliams & Bailey, 2010; Wayment & Vierthaler, 2002).

Attachment, Conflict Communication Methods, and Selected MMPI-2-RF

Outcomes

A principal component analysis (PCA) was conducted on the six FOCQ factors to determine whether coherent FOCQ subsets can be formed to reduce the number of variables involved in the main analyses of the second part of Study Two. This analysis reduced the number of FOCQ factors to two components, which is a similar result obtained from the cluster analyses conducted by Bowles (2002, 2004, 2010). One component, consisting of FOCQ Withdraw, Concession (Compromising), Success (Competitive), represents a tendency to avoid conflicts, including being more agreeable, not displaying anger and demanding, withdrawing and ignoring, labelled as FOCQ Avoid. Higher FOCQ Avoid scores indicate higher tendency to avoid conflicts. The second component, consisting of Task (Collaborative), Confusion, Other-person (Accommodating), represents a tendency to resolve conflicts, including asking, reasoning, listening to others, keeping peace and being clear. The two-factors solution found in this study provided additional evidence that FOCQ can be further grouped into two dimensions, which is consistent with current literature's proposal for a dual model of conflict management strategies (e.g., Blake & Mouton, 1964; Pruitt & Rubin, 1986). In addition, the two dimensions are likely to conform to Leary's (1957) bi-polar model of communication. FOCQ Avoid appears to be aligned with the "Domination-Submission" dimension of Leary's model and FOCQ Resolve appears to be linked to the "Cooperation-Opposition" dimension. The lower FOCQ Resolve scores, however, do not seem consistent with the hostility (e.g., hatred, rage) aspect of the "opposition" spectrum of Leary's communication model. The lower FOCQ Resolve scores, nevertheless, do suggest a lack of cooperation, which according to Wubbels' and colleagues' (e.g., 2002; 1991) interpretation of Leary's "cooperation-opposition"

dimension as the amount of cooperation between the two parties communication, may be considered as the opposite of “cooperation”.

The number of major components identified in the study's PCA was similar to those of Bowles' (2002, 2004, 2010) cluster analyses. However, the way in which the six FOCQ factors were grouped in this study slightly differed from Bowles' clusters. While Bowles' cluster analyses results of the FOCQ factors were not consistent, the Task and Confusion factors were found to be the most differentiating factors across the studies (Bowles, 2004, 2010). Interestingly, these two factors, though found to be in opposite direction, represented the same component in the current study. This opposing direction found between Task and Confusion is consistent with Bowles' (2009) claims that confusion focused communication was an opposite factor of task and other-person focused communication in the circumplex arrangement of factors. In view of this discrepancy, further investigation of the structure of FOCQ is recommended.

With respect to the relationship between attachment and conflict communication methods, results indicate significant but weak correlations between the two conflict communication components and the attachment facets. Given the weak correlational values, the following interpretations of these results are recommended to be considered with caution. The secure attachment-related scale was found to be positively associated and the insecure attachment-related scales were found to be negatively associated with FOCQ Resolve. These findings are consistent with current literature on the relationships between attachment and the type of conflict management strategies used (e.g., Creasey & Hesson-McInnis, 2001; Domingue & Mollen, 2009; Pietromonaco, et al., 2004). In addition, results have also shown minor differences found among the insecure attachment related scales. Specifically, ASQ Relationships as Secondary and Need for Approval were the only two attachment facets that also had significant relationships with FOCQ Avoid. The negative association between ASQ Relationships as Secondary

and FOCQ Avoid can be expected as individuals who treat relationships as secondary to achievement would less likely be concerned with the need to foster relationships during conflicts, and are more inclined towards using demanding methods to win in conflicts. Having a high need of others' approval was also found to be associated with a higher tendency to use communication strategies to avoid or withdraw from conflicts. Individuals' fear of rejection is likely to gear them to utilise conflict avoiding methods, including submission, to avoid rejections from others (Mikulincer & Shaver, 2007).

Four MMPI-2-RF scales, RCd, RC2, RC7 and FML, were selected for the subsequent analyses. This selection was based on a number of factors including results of earlier analyses, and how they represent the outcomes that the research hopes to examine. While the FOCQ components were found to significantly predict the selected MMPI-2-RF scales measuring psychological outcome in the absence of attachment (Step 1), these significant findings were not found when attachment was controlled for. The conflict communication methods, as measured by FOCQ, did not significantly predict individuals' levels of demoralization, low positive emotional experiences and dysfunctional negative experiences after introducing attachment as an independent variable of these outcomes. Attachment, as measured by ASQ, was the sole predictor of the MMPI-2-RF RCd, RC2 and RC7 scores, and these findings are consistent with the relationships found between attachment and psychological symptoms in the current studies and with the current literature on attachment and mental health that have used various attachment and psychological outcome measures (e.g., Lopez, et al., 2001; Murphy & Bates, 1997; Wayment & Vierthaler, 2002).

The significant results on conflict communication strategies' ability to predict psychological outcomes at the first step of the analyses are consistent with previous findings where conflict management strategies were found to be associated with various psychological outcomes (e.g., Chung-Yan & Moeller, 2010; Montoro-Rodriguez &

Small, 2006). The association between the conflict communication strategies and psychological outcomes scores found in the current study were, however, relatively weak. As expected, the conflict communication variables ceased being significant predictors of the selected psychological outcomes when attachment was controlled for. This suggests that the association between how individuals behave during conflict and psychological outcomes found in the previous studies were likely due to a general trait, such as individuals' attachment orientation, that has an influence on both individuals' conflict management strategies and psychological adjustment. Modification of conflict resolution training that results in positive influence on mental health (e.g., Askari, et al., 2013) could be due to the indirect modification of the individuals' attachment working models through such training. Conflict resolution training that encourages the use of constructive strategies has found to improve individuals' communication with others, increasing their positive relational experiences (Pietromonaco, et al., 2004). The continual new, positive attachment-relevant experiences, in turn, can contribute to the shaping of individuals' positive relational working models of self and others (Mikulincer & Shaver, 2007).

Despite the lack of significant findings for psychological health outcomes, conflict communication strategies scores were found to provide additional predictive value to the MMPI-2-RF FML scores in the presence of attachment variables. ASQ Preoccupation with Relationships and FOCQ Resolve were the only significant predictors of FML in the final equation model, with the attachment predictor positively and the FOCQ predictor negatively predicting FML scores. The attachment anxiety-related scales positive association with reported family problems in this study is consistent with the existing evidence on the positive relationship between insecure attachment and various interpersonal difficulties, (e.g., Khodabakhsh, 2012; Wei, et al., 2005; Wilhelmsson Göstas, Wiberg, Engström, & Kjellin, 2012). Based on the positive

association found between constructive conflict management strategies and positive interpersonal outcomes (e.g., Bowles, 2010), FOCQ Resolve possibly represents a set of constructive forms of conflict management strategies given this category's negative association with reported family problems. These findings suggest that despite the presence of a major factor, attachment and attachment-influenced conflict communication methods are still important factors in providing additional information to explain individuals' family problems experiences.

Research and Clinical Implications

The influence of attachment expectancies on various psychological and interpersonal outcomes found in the current studies indicates the need to examine individuals' attachment to better understand psychological and interpersonal difficulties. Attachment was found to be a major factor in predicting psychological health outcomes, highlighting the importance of identifying and addressing the potential interpersonal basis of individuals' psychological distress. The additional variance explained by the conflict communication methods in interpersonal outcomes suggests that in certain circumstances, only targeting the general trait might not be sufficient to address individuals' difficulties. While it is important to work on individuals underlying relational working models in improving interpersonal functioning, it is equally important to provide these individuals with the necessary skills when addressing those interpersonal difficulties.

Evidence of the ability for one to detect attachment patterns in the MMPI-2-RF results provides a possibility for the clinicians to use a single test to understand their clients better. Information on some of the MMPI-2-RF scales results may be able to provide clinicians an understanding of their clients' behavioural and cognitive tendencies with respect to attachment issues. Conversely, this results can also assist clinicians to make informed inferences on expected elevated scores clients would have

in the MMPI-2-RF test with their knowledge of clients' attachment styles. In addition, the differences found among specific attachment facets in unique predictors highlights the need for clinicians to examine both the broader and specific attachment constructs to better understand the relationship of attachment with psychological adjustment (e.g., Feeney, 2002). As a whole, the findings of the research can assist in informing more efficient treatment planning and fostering positive therapeutic relationships beneficial for effective therapy.

Despite MMPI-2-RF being a newer version of the MMPI, many clinicians are still using the MMPI -2 (Framingham, 2011). One of the reasons suggested for this delay in change is the existence of a large research base for the MMPI-2, and the switch would result in the loss of clinical knowledge and uncertainty (Framingham, 2011). The use of the MMPI-2-RF in this research contributes to a growing literature on the MMPI-2-RF. This helps increase the usefulness of the MMPI-2-RF, which may help increase clinicians' confidence to use the latest version of the MMPI.

A number of research implications have also emerged from this research. First of all, the results contribute to the existing literature on attachment and mental health, and provide support to the current understanding of the relationship between attachment and mental health. While unable to find direct evidence that attachment avoidance is linked to under-reporting due to the absence of the positive relationship found between K-r (MMPI-2-RF scale assessing under-reporting), this result provides some support on the hypothesis that the avoidant strategies are utilised at an unconscious level (Mikulincer & Shaver, 2007).

By using the MMPI-2-RF, which consists of multiple scales measuring various psychological symptoms and associated difficulties, this study has also increased the understanding of the differences among the four attachment styles and among the various attachment dimensions. This may help in directing researchers towards more in-

depth investigation of these attachment dimensions. This study has also supported the recommendations by some researchers (e.g., Karantzas, et al., 2010) on the need to also examine specific attachment constructs in attachment research, and the need for a separate attachment security scale (e.g., Bäckström & Holmes, 2007).

The results on FOCQ have provided additional evidence on the presence of two major dimensions in conflict communication and an additional way of interpreting the FOCQ measure. While the study's results did provide support for association between conflict communication methods and psychological outcomes, this association had only occurred in the absence of attachment. The lack of significant association between these variables when attachment is controlled for raises questions on the true effect of conflict communication methods on psychological outcomes, and calls for the need for researchers interested in this field to conduct further investigation for a better picture of the relationship.

Limitations and Future Directions

While the specific attachment facets have been found to be associated with some of the selected MMPI-2-RF scales, a number of limitations have been identified in this research. One of the limitations identified is the population that was used as samples for the study. Despite having an age range between 18 to 54 years, the samples made up of university undergraduates. While research findings may be generalised to individuals who have a university education, these findings cannot be confidently generalised throughout all different populations. Further studies replicating the results using different populations, including clinical population, would be recommended so as to provide further evidence on attachment patterns in the MMPI-2-RF. Given the large number of scales involved, it is also recommended that these future studies collect data from a larger sample to increase one's confidence in claiming that the findings are a true reflection of population of interest. In addition, it would be beneficial to examine

possible differences in results among different populations, especially between clinical and non-clinical populations, so as to provide more useful information for clinicians to consider using these measures and the study's results in their assessment and treatment planning.

In relation to sample size, the unequal group sizes among the four categorical attachment styles, specifically a smaller preoccupied group, acts as a limitation of the study. This may affect the true ability to determine the differences among groups in the various selected MMPI-2-RF scales. Hence, future research can consider controlling sizes among groups by priming participants into the specific attachment styles.

Another observed limitation is the use of only selected MMPI-2-RF scales in the research. Given the size of the MMPI-2-RF test and current scope of the research, it is relatively difficult to use all MMPI-2-RF scales to investigate attachment patterns. However, the other MMPI-2-RF scales not used in this current research may also provide other useful information about the attachment patterns. Hence, it might be beneficial to also investigate how various attachment factors relate to other MMPI-2-RF scales that were not selected in this research. Examples of these scales include the Internalizing scales, which assess specific characteristics related to the RCd (*Demoralization*) and RC7 (*Dysfunctional Negative Emotions*) scales, and the Externalizing scales, which assess aspects of the RC4 (*Antisocial Behavior*) and RC9 (*Hypomanic Activation*) scales. In addition, it is also recommended to replicate the studies using other omnibus psychopathology measures, such as the Personality Assessment Inventory (Morey, 1991) and the Millon Clinical Multiaxial Inventory (Millon, 1977, 1987, 1994, 1997; Millon, Millon, Davis & Grossman, 2006). The MMPI-2-RF has received numerous criticisms, including the lack of sufficient validation, questionable construct validity, and, low reliability estimates for some of the scales (e.g., Butcher, 2011; Nicholas, 2011), and is believed to have yet "gained

acceptance as a replacement for the MMPI-2” (Butcher & Williams, 2012, p. 218).

Given the criticisms of the MMPI-2-RF scales, the use of other validated psychometric measures appears necessary to investigate the validity of findings related to psychological health in this research. This may also be able to provide further insight into the similarities and/or differences of the attachment styles.

The reliance of self-report attachment measures in the research is also a limitation identified. The first concern is raised on whether there could be social desirability effects, where participants may not have reported their true attachment inclination, particularly in regard to avoidant attachment. The use of a different attachment measure that takes into account social desirability or the need to consider social desirability in data analyses may reduce social desirability’s effect on the results. Secondly, self-report and interview attachment measures are found to be largely dissimilar in the assessment of individual differences in adult attachment, and predict different outcomes or the same outcome differently (Roisman, et al., 2007). Interview attachment measures are also believed to be able to “bypass defences that could bias self-report attachment styles” (Simpson & Rholes, 1998, p. 7). Hence, the use of an interview-style attachment measure in a similar study may be helpful to obtain more comprehensive and/alternative information on the relationship between attachment and the MMPI-2-RF.

The research has found significant results regarding conflict communication methods’ relationship with attachment and psychological and interpersonal outcome measures. However, the strength of the relationships was weak and we cannot confidently conclude that these relationships exist. The weak relationship highlighted the possible need to replicate the study to determine whether any association found is valid. The use of a new measure assessing conflict management/communication strategies may also likely raise questions of the results’ validity. Hence, replications

should also involve the use of different conflict resolution measures. If replications of the study find consistent and/or relatively stronger associations among the conflict communication methods, attachment, and psychological variables, analyses examining both potential mediational and moderational effects should be conducted. This is with hope that the results from this analysis are able to provide a clearer picture on attachment's influence on psychopathology.

Finally, the correlational nature of the research limits any claims to causal direction. Further investigation is required to determine whether differences in attachment patterns cause differences in psychopathology or vice versa. This further investigation could include the replication of this study using longitudinal methods, which involve the observations on individuals' attachment and psychopathological patterns over time. One may also consider conducting studies that use attachment priming methods (e.g., Mikulincer, Birnbaum, Woddis, & Nachmias, 2000) in order to better establish causal primacy.

Among the various findings in this study, one particular finding stands out - the positive relationship between attachment avoidance and F-r. While F-r assesses over-reporting tendency on psychological distress, it is also possible that the positive relationship is due to genuine psychological distress. Hence, these results raise questions about whether attachment avoidance is related to a possible tendency to over-report. This is especially so given that both studies did not manage to find positive relationships between attachment avoidance and the MMPI-2-RF under-reporting related scales. Future research can consider investigating over- and/or under reporting tendencies relationship with attachment avoidance.

Despite the limitations identified, there are also a number of strengths in this research. Firstly, this research has used two different sample sizes and three different attachment measures to investigate the relationships between attachment and the

MMPI-2-RF. The replication of major results across different measures and samples increases the validity and reliability of the findings, and the likelihood that these findings are true reflection of the population that was sampled from. In addition, the order effect's possibly influence on the results was not a concern of this research due to the deliberate counter-balancing of the presentation of the questionnaires. While limited to university educated individuals in a western culture, the participants recruited were from a wide age range and diverse ethnicities. This increases the applicability of the findings to a larger group of individuals of different age and ethnical backgrounds.

Final Conclusion

The research revealed that patterns of individual differences in attachment-related expectancies can be detected in MMPI-2-RF profiles. While showing how attachment is related to various MMPI-2-RF scales, the research has also provided insight on how more fine-grained attachment facets differ from one another. In addition, the research findings have also suggested that attachment is a major factor of psychopathology, highlighting the importance of considering the interpersonal basis of psychopathology. Overall, the research has shown how the MMPI-2-RF can be useful in informing clinicians on their clients' attachment styles, and revealed the importance of assessing specific attachment facets of individuals to better understand their behavioural and cognitive tendencies. The findings have provided relevant information for clinicians to develop more specific treatment targets to effectively reduce psychological distress. Further research is recommended to address the limitations identified in the study. In particular, the replications of the studies with different populations (e.g., clinical and older adults) and various attachment and conflict communication measures are recommended to examine if results found in this research are generalisable across various groups. Despite limitations identified, the results have generally provided support for the consideration of attachment theory in clinical work.

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Appendices

Appendix A

Research Practicum Report

The research practicum report is a fulfilment of the Doctor of Psychology (Clinical) dissertation requirement. It presents a study that was conducted to investigate results to those of the main studies can be replicated using a clinical sample. Self-reported attachment styles, psychological and interpersonal outcomes and conflict communication methods of the clinical participants ($n = 15$) were collected using the same measures of the main studies. Specifically, Relationship Questionnaire, Attachment Style Questionnaire, the MMPI-2-RF and the Focus of Communication Questionnaire were used. This small study has used a series of clinical cases with the aim of finding an initial indication that the results from the main studies are applicable to clinical practice. Clinicians' ($n = 6$) views on the value of the use of these measures in treatment planning and intervention were also collected in this study to provide a better picture of clinicians' willingness to obtain information from clients that is often not obtained in clinical practice.

Research Practicum Report

Using various self-report attachment measures, the studies reported here found that attachment patterns can be detected from the Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008). Both broad and specific attachment facets were found to have significant associations with selected MMPI-2-RF scales. The introduction of the conflict communication methods, an attachment-influenced variable, in Study Two revealed that attachment was a major factor in predicting psychopathology as measured by the MMPI-2-RF scales. The conflict communication variables did not significantly predict selected psychological outcomes after attachment variables were controlled for. Attachment, however, was found to share responsibilities with the conflict communication variables in explaining the Family Problems scale, an MMPI-2-RF Interpersonal scale. The conflict communication variable scores were also found to significantly, but weakly, correlate with the five attachment dimensional scores as measured by the Attachment Style Questionnaire (ASQ; Feeney, Noller, & Hanrahan, 1994).

The main studies were conducted with the goal of discovering useful information to help clinicians obtain a better understanding of their clients with psychological and interpersonal difficulties, and provide a framework that could assist these clients in addressing their problems. The results of the studies are believed to be able to assist clinicians to either use the MMPI-2-RF results to understand their clients' relational behavioural and cognitive tendencies or to infer possible elevated MMPI-2-RF scale scores based on their attachment styles. This additional information would assist in the development of more efficient treatment planning and fostering beneficial therapeutic relationships.

While the goal of the research findings is to promote and encourage clinicians to consider assessing clients' attachment style, the studies reported did not employ clinical

samples. In addition, it would also be beneficial to obtain clinicians' views on the importance and/or usefulness of the attachment measures, conflict communication measures and MMPI-2-RF. This is with the hope that this information would provide a better picture of clinicians' willingness to obtain information from clients that is often not obtained in clinical practice.

Present Study

Using a small sample of individuals recruited from psychology clinics and private practices, this study aims to conduct a preliminary investigation on whether a clinical sample, that uses the same measures, would produce similar results to those of the main studies. In addition, the study would also like to examine clinicians' views on the value of the use of these measures in treatment planning and intervention. One of the goals of the study is to identify ways to improve clinicians' assessment of clients with various presenting problems in order to enhance treatment. This small study uses a series of clinical cases with the aim of finding an initial indication that the results from the main studies are applicable to clinical practice.

It is expected that, in comparison with the samples of the main studies, a higher percentage of insecurely attached individuals will be observed in the current clinical sample. Given that attachment anxiety and avoidance are known to be associated with a higher degree of psychological distress (e.g., Besser & Priel, 2003; Wei, Heppner, Russell, & Young, 2006; Williams & Riskind, 2004), it is also expected that the clinical sample will score higher in scales assessing attachment anxiety and avoidance. It is predicted that the clinicians are likely to find the attachment, conflict management and MMPI-2-RF results useful in working with their clients, and be willing to consider using these measures or similar measures in their clinical work. It is expected that, similar to the samples of the main studies, insecure attachment-related scales are generally positively associated with the MMPI-2-RF scales assessing psychopathology

and interpersonal difficulties. ASQ Confidence is also expected to have a negative association with these MMPI-2-RF scales. With respect to categorical self-reported attachment styles, the insecure-related attachment groups, as compared to the secure group, will generally have higher average scores in most of the MMPI-2-RF scales assessing psychopathology and interpersonal difficulties. However, given the sample's clinical nature, it is also possible that the secure-related group and dimensions have a positive association with some of these MMPI-2-RF scales, and are likely dependent on the clinical presentations of the clinical participants.

Method

Participants

Six volunteer clinicians of various levels of experience were recruited to participate in the study. Four of these recruited clinicians were provisional psychologists from the Australian National University (ANU) undertaking the clinical psychology training program and were undergoing their first clinical placement at the ANU Psychology Clinic. The remaining two clinicians were registered clinical psychologists who had approximately 20 years of clinical experience and were working in private practices at the time of the study. Sixteen (7 males and 9 females) volunteer individuals who were seeking psychological services at the time of the study, with an age range of between 23 and 64 years, were invited by the volunteer clinicians to participate in the study. Of those, 66.7% reported being in a romantic relationship at the time of the study. The majority of the clinical participants presented for anxiety and depression related issues and had experienced some form of interpersonal difficulties, including family estrangement, workplace conflicts and trust issues.

Data Collection and Analysis Method

Clinical participants' clinical information, including demographics, presenting problems and diagnoses were obtained through their clinicians who conducted clinical

interviews and assessments prior to the start of the treatment. The clinical participants were also required to complete questionnaires that assess their attachment, conflict communication methods and psychological health and functioning. Specifically, self-reported, dimensional attachment expectancies were assessed with the Attachment Style Questionnaire (ASQ; Feeney, et al., 1994), which consists of 40 items that describe an individual's feelings and behaviours in "close relationships". Clinical participants were presented with statements and asked to rate their response for each statement on a 6-point Likert-type scale from 1 (*Totally Disagree*) to 6 (*Totally Agree*). Standard scoring generates five scales: Confidence, Relationships as Secondary, Discomfort with Closeness, Need for Approval and Preoccupation with Relationships. Attachment Anxiety and Avoidant Attachment scales were also computed based on the recommendations of Mikulincer and Shaver (2007, p. 494). Confidence is the only attachment security scale; Discomfort with Closeness and Relationships as Secondary are associated with attachment avoidance; and Need for Approval and Preoccupation with Relationships are associated with attachment anxiety (Feeney, et al., 1994). In an attempt to allow a meaningful comparison and interpretation of the clinical participants' ASQ attachment facets scores in relation to a community sample, T scores of the current study's participants were calculated based on the sample from Study Two (refer to Table A.1 for Mean and standard Deviation (SD) values of Study Two's ASQ scores).

Categorical attachment styles were assessed with a version of the Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) that was worded to assess attachment in general instead of romantic attachment style. This is a well validated measure that consists of four descriptions matching four theoretical attachment styles. Clinical participants were asked to read the four descriptions and then rate each description on a 7-point Likert-type scale (*1 = Not at all like me, 7 = Very much like me*).

These participants were also required to select one of the descriptions that best represented them.

Self-reported communication methods in conflicts were assessed with the Focus of Communication Questionnaire (FOCQ; Bowles, 2002), which consists of 35 statements that describe how people communicate. The clinical participants were requested to recall the conflicts they had involving other people and to indicate the type of conflicts (home, school, work and others) they were mainly thinking of at the start of the questionnaire. They were then presented with statements and asked to rate the degree in which each statement represent them on a 5-point Likert scale (*1 = Almost never, 5 = Almost always*) while thinking about these conflicts. Standard scoring generates six scales: Success (Competitive) Focus, Withdraw Focus, Task (Collaborate) Focus, Other-person (Accommodate) Focus, Confusion, and Concession (Compromise) Focus. While the results from the two main studies involving conflict communication variables were based on two broad FOCQ factors obtained from a factor analysis of the data, a decision was made to provide the participants the results of the six FOCQ components in the current study due to the possible valuable contribution of the information towards treatment planning.

Psychological health and functioning were assessed with the MMPI-2-Restructured Form (MMPI-2-RF; Ben-Porath & Tellegen, 2008). The MMPI-2-RF consists of 338 True/False items to assess an individual's level of emotional adjustment and his/her test taking attitude. The clinical participants were asked to indicate if each of the 338 statements were applicable to them. These participants were permitted to not respond to items that did not apply to them or that they did not know about. Scores calculated were then converted to T-scores based on the MMPI-2-RF's scoring conversion charts (MMPI-2-RF; Ben-Porath & Tellegen, 2008).

Clinicians were asked to complete a questionnaire designed to collect their views on the measures used in this study in relation to their clients and clinical practice in general. This questionnaire consists of a number of statements and the respondents are asked to rate the degree to which they on a 6-point Likert scale (*1 = Totally Disagree, 5 = Totally agree*). Open-ended questions were also included to allow clinicians to provide more detailed information on the usefulness of these measures, including the measures they would consider using in their practice.

Procedure

Clinicians were recruited through information sessions and flyers displayed at the ANU Psychology Clinic. Clinicians who volunteered were provided with an information sheet about the study, and required to sign a consent form indicating voluntary consent to participate. Upon consent, clinicians were briefed on how to approach clients regarding participation in the study. The need to explicitly state that the decision to participate in the study has no impact on eligibility to seek treatment with the clinicians was emphasized during the briefing.

Clinical participants were recruited through the participating clinicians. Participating clinicians were responsible for providing interested clients with the information sheet and obtaining completed consent forms. Upon consent, clinicians administered the measures to the clinical participants and returned completed questionnaires to the researchers for scoring and report writing purposes. Specifically, the researchers were responsible for scoring the clinical participants' completed questionnaires, and interpreting these results. Based on the results, a testing report was written for each of the clinical participants and given to their respective participating clinicians. A briefing session was set up with each of the clinicians to provide feedback on their participating clients' assessment results.

At the end of the study, clinicians were asked to provide relevant clinical information on the clinical participants and complete the study's questionnaire on their views of the measures used in the study. All clinical information provided to the researchers, including completed questionnaires, were de-identified with the exception of a unique identification code to assist in providing feedback to the clinicians and clinical participants. The participants were given a debriefing sheet after their participation.

Findings

Fifteen out of the 16 cases were considered in the following analyses and comparisons. One case did not meet the criteria for a valid protocol based on the MMPI-2-RF Validity scales (Ben-Porath & Tellegen, 2008). Because of the small size and heterogeneity of the clinical sample, inferential statistical comparisons were not conducted with the focus being on descriptive, clinical comparisons.

Attachment

Using the forced choice component of the RQ, the majority of the participants identified themselves as having an insecure attachment style. Four (26.7%) participants identified themselves as Secure, five (33.3%) participants identified themselves as Fearful, two (13.3%) identified themselves as Preoccupied, and four (26.7%) participants identified themselves as Dismissing. Unlike the distributions found in the analogue samples, the Secure group in the clinical sample was not the largest in the study. The Fearful group had the largest number of participants and the Dismissing group was found to be of equal size with the Secure group. Interestingly, the percentage size of the Preoccupied group was similar to those of the main research, which was the smallest among the attachment groups of the study.

With respect to dimensional, self-report attachment, the clinical sample was compared with the sample from Study Two ($N = 218$). The clinical sample's mean ASQ

scores were similar to those of Study Two (see Table A1). While the clinical sample appeared to have lower ASQ Confidence and Relationships as Secondary mean scores, and higher ASQ Discomfort with Closeness, Need for Approval and Preoccupation with Relationships mean scores, the differences were between 0.02 and 0.30, which is less than 0.50 standard deviations away from Study Two's ASQ scores means.

An examination of the clinical participants' attachment scores revealed some inconsistency between the participants' categorical attachment forced-choice selection and dimensional self-reported attachment T scores (refer to Tables A2 and A3). Overall, the attachment groups' corresponding attachment dimensional scores did not differ much among the groups. Specifically, majority of the ASQ attachment facets scores were in the average range ($40 < T < 60$). While also falling in average range in most of the scores, the Preoccupied group was the only group that had distinct high ($T \geq 65$) ASQ Preoccupation with Relationships scores, and somewhat low ($T \leq 40$) avoidant-related attachment scale scores.

Attachment, Selected MMPI-2-RF and FOCQ

This section will first report on results patterns of the participants who were sorted based on their RQ response on their identified attachment style. This will then be followed by trends observed on the relationships between the clinical sample's attachment dimensional and MMPI-2-RF scales scores.

Categorical, self-reported attachment.

In the following sections, summary results are reported and examples of individual cases are provided to illustrate the results. Pseudonyms are used for the individual cases.

Secure.

The Secure group, on average, was found to have higher mean ASQ Confidence scale scores ($M = 4.31$, $SD = 0.38$) than the other four of the five attachment facets

scales. ASQ Relationships as Secondary ($M = 2.39$, $SD = 0.63$) was the lowest score. T scores of all the five attachment facets, however, were generally within the average range with and ASQ Confidence having the highest T score value. The Secure group was also observed to have similar ASQ Attachment Anxiety ($M = 3.13$, $SD = 0.67$) and Avoidant Attachment ($M = 2.94$, $SD = 0.64$) scores with the base sample, with T scores being 46 and 45 (rounding off to the nearest whole number), respectively. Overall, the Secure group's FOCQ scores suggest that the group's dominant conflict communication method was to collaborate, with a secondary tendency to accommodate others. The FOCQ results also suggest that they are less likely to confuse others during conflicts.

An examination of the MMPI-2-RF scores revealed that the Secure group of clinical participants had few MMPI-2-RF Restructured Clinical (RC) scales mean T scores (rounding off to the nearest whole number) that were in the clinical ($T \geq 65$) and subclinical range ($60 \leq T < 65$), namely *Somatic Complaints* (RC1; $T_{\text{mean}} = 67$, $SD = 9.68$), *Demoralization* (RCd; $T_{\text{mean}} = 63$, $SD = 11.03$), *Ideas of Persecution* (RC6; $T_{\text{mean}} = 60$, $SD = 17.29$) and *Aberrant Experiences* (RC8; $T_{\text{mean}} = 63$, $SD = 7.41$). All other RC, PSY-5, and Interpersonal scales scores were within the average range. Based on the Validity scales, there was no evidence of inconsistent, over- or under-reporting of symptoms in the Secure group.

Lily was a 32 year old female who presented with relationship issues, work stress, mild-moderate anxiety and mild depression. She reported having a secure attachment based on the RQ and had ASQ attachment scale scores generally typical of those of the Secure group in the study. Lily's ASQ Confidence raw and T scores (Raw score = 4.50, T score = 57) were the highest among the five attachment facets, and ASQ Relationships as Secondary scores (Raw score = 1.71, T score = 38) were the lowest. Both her ASQ Attachment Anxiety (Raw score = 3.23, T score = 46) and ASQ Avoidant Attachment (Raw score = 2.69, T score = 42) scales were observed to be in the

average range ($41 \leq T < 60$), falling at the lower end of this range. While her ASQ attachment scores did not fall nicely in a “secure” categorisation, her higher ASQ Confidence score and somewhat low to lower-average insecure attachment related ASQ scale scores (except for ASQ Preoccupation with Relationships) suggested that she tends towards a secure attachment (Feeney, et al., 1994), which is consistent with her RQ response. Similar to the tendency of the Secure group, Lily’s dominant conflict communication method was to accommodate, and her second dominant method was to collaborate with others.

Despite presenting to her clinician to address interpersonal issues with her partner, none of Lily’s MMPI-2-RF Interpersonal scales T scores were in the clinical range. In addition, her *Social Avoidance* (SAV) and *Shyness* (SHY) scores were below 39, suggesting that she enjoys social situations and events and has little to no social anxiety. Her Cynicism (RC3) score was $T = 38$, suggesting trust in others, describing others as well-intentioned and disagreeing to reported cynical beliefs about others. Except for her *Antisocial Behaviors* (RC4) scale score that was in the clinical range, all other RC and PSY-5 scales were within the average range.

Fearful.

The Fearful group’s lowest ASQ attachment facet mean score was the ASQ Relationships as Secondary score ($M = 2.66$, $SD = 1.00$). ASQ Discomfort with Closeness ($M = 3.98$, $SD = 0.53$), Need for Approval ($M = 3.94$, $SD = 0.16$) and ASQ Preoccupation of Relationships ($M = 3.88$, $SD = 0.98$) were the higher scores among the five attachment facets. However, as compared to the base sample (sample of Study Two), all of the Fearful group’s ASQ attachment scores, including ASQ Attachment Anxiety and Avoidant Attachment, were in the average range, with ASQ Confidence having the lowest T score and being at the lower end of this range. The Fearful group’s FOCQ mean scores suggest that the dominant conflict communication methods were to

accommodate and compromise, and are also likely to avoid and withdraw from conflicts. The low Confusion focused score suggest that the Fearful group was least likely to use methods to confuse others during conflicts.

With respect to the group's mean MMPI-2-RF scales scores, the Fearful group's RCd ($T_{\text{mean}} = 70$, $SD = 6.47$) and *Negative Emotionality/Neuroticism-Revised* (NEGE-r; $T_{\text{mean}} = 65$, $SD = 7.29$) scores were found to be in the clinical range. Its RC2 ($T_{\text{mean}} = 62$, $SD = 8.64$), INTR-r ($T_{\text{mean}} = 63$, $SD = 11.58$), SAV ($T_{\text{mean}} = 64$, $SD = 14.52$) and *Disaffiliativeness* (DSF; $T_{\text{mean}} = 62$, $SD = 22.33$) scores were found to be in the subclinical range. All other RC, PSY-5 and Interpersonal scales were found to be in the average range. Similar to the Secure group, the Fearful group was found to have no inconsistent, over- or under-reporting of symptoms.

An example of a participant who identified to fearful attachment in the study is Helen. Helen was a 51 year old female who presented with work-related interpersonal issues and was diagnosed with adjustment disorder with mixed anxiety and depression by her current clinician. Her highest raw ASQ attachment facet score was ASQ Preoccupation with Relationships (Raw score = 5.00, T score = 69), which was closely followed by ASQ Discomfort with Closeness (Raw score = 4.80, T score = 65). Her lowest raw score, on the other hand, was ASQ Relationships as Secondary (Raw score = 3.71, T score = 65). However, as compared to the base sample, Helen was found to have relatively high attachment avoidance-related scales and Preoccupation with Relationships scores, with the remaining two ASQ attachment facets being in the average range. Helen's ASQ Attachment Anxiety (Raw score = 4.15, T score = 59) and Avoidant Attachment (Raw score = 4.06, T score = 63) scores were also relatively similar, falling in the higher end of the average to somewhat high range. Overall, Helen's similarly high attachment anxiety- and avoidance- related scales suggests that she has a fearful attachment as fearful attachment has been theorized to have a

combination of high levels of attachment anxiety and avoidance (e.g., Mikulincer & Shaver, 2007). Overall, Helen's attachment results appeared to be consistent to her RQ response. Helen's dominant conflict communication strategy was to accommodate others. She was also found to have a similar tendency to avoid/withdraw from conflicts.

With respect to her MMPI-2-RF scale scores, Helen's RCd, RC6, *Dysfunctional Negative Emotions* (RC7), NEGE-r and INTR-r scores were found to be in the clinical range. The scores were partially consistent with her presenting problems and diagnosis. Her MMPI-2-RF scores related to interpersonal issues were also found to be in the clinical range, specifically RC3, SAV and DSF, suggesting high levels of social avoidance, distrust in others, and dislike of others and being around them. In addition, Helen's RC8 and PSYC-r scores were also found to be in the subclinical range, suggesting subclinical levels of aberrant experiences. Her Validity scales scores suggested no indications of significant inconsistent, over- or under-reporting.

Preoccupied.

The Preoccupied group consisted of only two participants and hence results are recommended to be interpreted with caution. The Preoccupied group's ASQ attachment avoidance-related scales scores, ASQ Discomfort with Closeness ($M = 2.85$, $SD = 0.78$) and ASQ Relationships as Secondary ($M = 1.79$, $SD = 0.30$), were found to be the lowest among the five attachment facets. ASQ Preoccupation with Relationships ($M = 4.88$, $SD = 0.71$) was found to have the highest score, falling in the high range in comparison with the base sample. The ASQ Attachment Anxiety and Avoidant Attachment mean scores were 4.23 and 2.44 respectively. Comparison with the base sample revealed that the Preoccupied group had somewhat low attachment avoidance and somewhat high attachment anxiety. The ASQ dimensional scores are consistent with suggestions that preoccupied attachment is associated with higher levels of

attachment anxiety and lower levels of attachment avoidance (e.g., Feeney, 1994; Mikulincer & Shaver, 2007).

The Preoccupied group's dominant conflict communication method was found to focus on collaborating. The FOCQ results also suggested a tendency for the group to accommodate and compromise with others when faced with conflicts. The Preoccupied group was found to have the highest number of MMPI-2-RF scales scores in the clinical and subclinical range among the four attachment groups. MMPI-2-RF scores in the clinical range were RCd ($T_{\text{mean}} = 66$, $SD = 15.56$) and RC1 ($T_{\text{mean}} = 72$, $SD = 13.59$). The mean RC2 ($T_{\text{mean}} = 62$, $SD = 8.64$), RC6 ($T_{\text{mean}} = 63$, $SD = 9.90$), RC7 ($T_{\text{mean}} = 62$, $SD = 12.02$), NEGE-r ($T_{\text{mean}} = 63$, $SD = 4.95$) and FML ($T_{\text{mean}} = 62$, $SD = 17.68$) scores were found to be in the subclinical range. All other RC, PSY-5 and Interpersonal scale scores were found to be in the average range. No indications of significant inconsistent, over- or under-reporting were found. The two participants in this group generally have similar ASQ attachment facets score patterns. However, they differed in the actual values of the ASQ T scores. In addition, while both have scores in the clinical and sub-clinical range, these two participants differed in the number and type of MMPI-2-RF scales that T scores that fell within these ranges.

Dylan is an example of an individual with a preoccupied (high attachment anxiety; low attachment avoidance) attachment style. He was a 24 year old male who sought therapy for depression and anxiety, which were reported to be mainly triggered by stress relating to his relationship with his girlfriend. Dylan had high scores on the anxiety-related scales and relatively low avoidance related scores. Specifically, his ASQ Preoccupation with Relationships (Raw score = 5.38, T score = 74) and ASQ Attachment Anxiety (Raw score = 4.46, T score = 63) scores were found to be high in comparison with the base sample. Dylan's ASQ Avoidant Attachment (Raw score = 2.00, T score = 32), ASQ Discomfort with Closeness (Raw score = 2.30, T score = 35)

and Relationships as Secondary (Raw score = 1.57, T score = 36) scores, on the other hand, were found to be in the low to somewhat low range. Dylan's FOCQ results suggested that his dominant conflict communication method was to collaborate with others in face of disputes, with similar tendency to accommodate with others.

With respect to his MMPI-2-RF scales scores, Dylan's RCd (T = 77), RC1 (T = 65), RC4 (T = 68), RC6 (T = 70), RC7 (T = 70), NEGE-r (T = 66) and FML (T = 74) were found to be in the clinical range. He was also found to have low SAV (T = 36), which suggested that he enjoys social situations and events. While there are no indications of significant under-reporting, Dylan's Infrequent Responses T score ($F-r = 86$) suggests possible over-reporting of psychological dysfunction as indicated by a much larger than average number of infrequent responses. This level of infrequent responding may occur in individuals with genuine, substantial psychological difficulties who report credible symptoms.

Dismissing.

With respect to the Dismissing group, while ASQ attachment facets scores suggest that the group tends towards an insecure attachment style, there was no clear cut indication of a dismissing attachment style. Specifically, as compared to the base sample, this group was found to be in the average range in all the ASQ attachment facets, including ASQ Attachment Anxiety and Avoidant Attachment. However, the Dismissing group's mean ASQ Confidence (M = 3.62, SD = 0.48, T = 44) score was the lowest among the attachment facets, and the ASQ Need For Approval (M = 4.40, SD = 0.71, T = 59) score was found to be the highest. Overall, the Dismissing group's dominant conflict communication method was to focus in avoiding and withdrawing from conflicts, with a secondary tendency to compromise.

The Dismissing group's *Interpersonal Passivity* (IPP; $T_{\text{mean}} = 74$, SD = 5.32) and RCd (T = 66, SD = 9.71) mean scores were the two MMPI-2-RF scale scores that

were in the clinical range. Its RC2 ($T_{\text{mean}} = 61$, $SD = 8.38$), RC4 ($T_{\text{mean}} = 64$, $SD = 18.08$), and INTR-r ($T_{\text{mean}} = 62$, $SD = 7.55$) mean scores fell within the subclinical range. All other RC, PSY-5 and Interpersonal scales scores were found to be in the average range. The Validity scales scores suggested no indications of significant inconsistent, over- or under-reporting.

Irene was a 35 year old female participant who had reported herself as having a dismissing attachment style on the RQ. Irene presented to therapy for anxiety and is also experiencing difficulties in communicating in relationships. Her ASQ attachment facets scores did not reflect dismissing attachment but did indicate a greater tendency towards an insecure attachment style given her somewhat low score on ASQ confidence (Raw score = 3.25, T score = 39). She was found to have average scores in all the remaining four ASQ attachment facets scale scores. Her dominant conflict communication method is to withdraw and avoid conflict when dealing with disputes. She was also found to have tendency to collaborate or compromise with others when faced with conflicts.

With respect to her MMPI-2-RF scale scores, Irene's RC1 ($T = 77$), RC4 ($T = 68$), Disconstraint-Revised (DISC-r; $T = 66$) and IPP ($T = 68$) scales scores were found to be in the clinical range. Her RC8 ($T = 63$) score were found to be in the subclinical range. Her AGGR-r ($T = 35$) score, on the other hand, was in a low range that suggested Irene is interpersonally passive and submissive. This is consistent with her high IPP scale score. Her responses to the MMP-2-RF validity items suggest that she cooperated with the evaluation enough to provide useful interpretive information. Specifically, there was no indication of significant inconsistent, over- or under reporting. Her L-r score ($T < 39$) indicates that she may be slightly more conforming than usual and may have a tendency to resort to denial mechanisms.

Comparisons Among the Categorical Groups.

The following section examines comparisons among the attachment groups in selected MMPI-2-RF scales that were found to have significant results in the main research. Arranged according to attachment groups, Table A4 presents the percentage number of participants having clinically ranged scores and the combined percentage number of participants having sub-clinically or clinically scores in the selected MMPI-2-RF scales.

Restructured Clinical (RC) scales.

RC scales that were consistently found to have significant differences among attachment groups are RCd, RC1, RC2, RC3 and RC7. The attachment groups were compared by observing the participants' MMPI-2-RF scores that were within the clinical range. Overall, as compared to the Insecure group (combination of Fearful, Preoccupied and Dismissing), there was a lower percentage of Secure group participants who had RCd, RC1 and RC2 scores within the clinical range. This observation was also found in the Secure-Fearful and Secure-Preoccupied comparisons. The Secure group, however, had an equal percentage of participants having clinical ranged RCd and RC2 scores as the Dismissing group. Results also indicated that the Secure group had a higher percentage of participants as compared to the Insecure group in RC3 and RC7, though it was lower than the Preoccupied group in RC7. When a subclinical range ($60 \leq T < 65$) was taken into account, the Secure group, as compared to the Fearful group, had a lower percentage of participants having RC3 and RC7 scores in subclinical range or higher. The Dismissing group, as compared to the Secure group, had a higher percentage of participants in these ranges for the RCd scores.

Personality Psychopathology Five (PSY-5) scales.

The selected PSY-5 scales for comparison were NEGE-r and INTR-r, which were two PSY-5 scales that were also consistently found to have significant differences

among the attachment groups. The Secure group was found to have a lower percentage of participants having clinical ranged INTR-r and NEGE-r score compared to the Fearful group. While having an equal percentage of participants having a clinical ranged NEGE-r score, the Secure group was also found to have higher percentage of participants, as compared to the Preoccupied group, with INTR-r scale scores in the clinical range. The Dismissing group was found to have an equal percentage of participants as the Secure group having a clinically ranged INTR-r scores. The insecure group, overall, had a higher percentage of clinically ranged scores than the Secure group in the INTR-r scale, but a lower percentage in the NEGE-r scale.

Interpersonal scales.

SAV, SHY and DSF were the selected MMPI-2-RF scales for comparison. The Secure group, as compared to the Fearful group, was found to have a lower percentage of participants that have SAV and DSF scores in the clinical range. While the Dismissing group did not have participants who have DSF scores in the clinical range, 50% of the participants were in the subclinical range ($60 \leq T < 65$). With the subclinical range taken into account, the Dismissing group had a higher percentage of participants who were in a subclinical and clinical range, than the Secure group. Interestingly, the Secure group was found to have a higher percentage of participants having SHY scores in the clinical range, and was the only group with participants in this range.

Dimensional, self-reported attachment.

With respect to the self-reported attachment dimensions, the clinical sample's ASQ attachment scores were compared with the selected MMPI-2-RF scales that were found to have significant relationships with these scores in the main research. Graphs were plotted to examine the trends of the relationship between the attachment facets and MMPI-2-RF scales scores. Specifically, selected MMPI-2-RF scales scores were plotted

against the ASQ attachment facets scores, and a linear trendline was generated for the scatter plots using Microsoft Excel software (see Figures A1 to A5 for examples).

Focusing on the ASQ five attachment facets, ASQ Confidence scores were found to have a negative trend with RC2 (Figure A1), INTR-r, SAV, SHY and DSF scores. ASQ Confidence scores were also found to have a positive trend with F-r, Fp-r, K-r, RC3 and FML. No obvious trend was observed between ASQ Confidence scores and NEGE-r. ASQ Discomfort with Closeness scores were found to have a positive trend with RC2, RC3, INTR-r (Figure A2), SAV and DSF scores; and a negative trend with Fp-r, K-r and FML. A slight positive trend was observed in ASQ Discomfort with Closeness scores' relationship with F-r and PSYC-r scores. ASQ Relationships as Secondary were found to have a negative trend with F-r, DISC-r and FML. A slight negative trend was observed in the relationship between ASQ Relationships as Secondary and AGGR-r scores. ASQ Relationships as Secondary was observed to have positive trend with RC3, INTR-r, DSF and SAV (Figure A3). A very slight positive trend was observed in its relationship with IPP. No obvious trend was found in ASQ Relationships as Secondary's relationships with Fp-r.

Both ASQ Need for Approval and Preoccupation with Relationships scores were found to have a negative trend with FBS-r and L-r. A negative trend was also observed in ASQ Need for Approval scores' relationships with AGGR-r and RC1 scores. In addition, a positive trend (in varying degrees) was observed in ASQ Need for Approval's relationships with RCd, RC2, RC7 (Figure A4), NEGE-r, FML, IPP and SHY. Similarly, ASQ Preoccupation with Relationships was observed to have a positive trend in its relationships with RC7, NEGE-r and FML. ASQ Preoccupation with Relationships was also observed to have a relatively slight negative trend in its relationship with K-r (Figure A5). No obvious trend was observed in the relationship between ASQ Preoccupation with Relationships and SHY.

With respect to the two primary attachment dimensions, ASQ Attachment Anxiety scores were found to have a positive trend in its relationships with F-r, RCd, RC2, RC7, NEGE-r, INTR-r, FML and SHY. It was also found to have a negative trend with FBS-r, L-r and K-r. ASQ Avoidant Attachment scores were found to have a positive trend with RC2, RC3 and SAV. Negative trends, were observed with F-r, Fp-r, K-r, AGGR-r, DISC-r, PSYC-r and FML. No obvious trend in relationship was observed with SHY.

Using the same method above, trends of relationships between selected ASQ attachment facets and the two broad FOCQ factors found in Study Two were also examined. Selected ASQ attachment facets are those that were found to have significant correlation with these two FOCQ factors. FOCQ Resolve was found to have a positive trend in relationships with ASQ Confidence and Preoccupation with Relationships, and a negative trend with the rest of the three insecure attachment-related ASQ facets. FOCQ Avoid was found to have a positive trend in the relationships with ASQ Relationships as Secondary and Need for Approval.

Clinicians' Views on Measures Used in Study

Given the small number of clinicians ($n = 6$) participating in the study, the assessment of their views on the measures used in the study will be conducted qualitatively. They generally reported finding the assessment results useful. Statements on the usefulness of the results reflected in the reports included “confirming formulation,” “understanding treatment problems with regards to adherence” and providing “alternative explanations to clients’ presenting issues”. While finding the assessment results “useful”, there were different views on which aspects of this information was the most and least useful.

Specifically, there was general consensus among all participating clinicians, varying from slightly to strongly agree, that the attachment measures were worthwhile,

and that information on their participating clients' attachment styles provided a better understanding on these clients' presenting problems and behaviours. The clinicians also agreed that this information was helpful in their formulation and treatment planning. In addition, five of the six clinicians admitted to having thought about the attachment styles of other clients who did not participate in the study and all were willing to consider assessing the attachment styles in their future clinical practice.

In relation to the Focus of Communication Questionnaire (FOCQ) measure, all the clinicians in the study agreed that it is a worthwhile measure and that they would consider assessing the conflict communication styles of their future clients. Five of the six clinicians agreed that the conflict communication styles, as measured by the FOCQ, were useful in their understanding of clients' presenting problems and behaviours, and the development of formulations and treatment plans. These five clinicians had also thought about the conflict communication styles of their other clients who were not involved in the study. One clinician who did not find the FOCQ results useful stated that he was "not sure that the FOCQ results were a lot useful (sic)".

The MMPI-2-RF, on the other hand, had fewer clinicians who agreed on its usefulness as compared to the conflict communication and attachment measures. Only four of the six clinicians agreed that the MMPI-2-RF results were useful in understanding their clients' presenting problems and behaviours, and in the clinicians' formulation and treatment planning for their clients. Despite differences on view of its usefulness, all clinicians agreed that it is worthwhile to use the MMPI-2-RF and are willing to consider using the MMPI-2-RF with their future clients.

When provided with an opportunity to share their views in the open ended questions, none of the clinicians identified the attachment-related information as the most useful and two chose it to be least useful information. This was inconsistent with the earlier rating results where most of the clinicians agreed (to various extents) that

information on their clients' attachment styles were useful in their formulation and treatment planning and that it was worthwhile assessing clients' attachment styles. The FOCQ and MMPI-2-RF each had two clinicians who thought that the most useful information in the assessment among the three types of measures by, and one who differed from this view. In the same open-ended section, almost all clinicians would consider using the MMPI-2-RF, where some shared that it is dependent on the clients' presentations. Three clinicians shared that they would consider the attachment measures used in the study for their future clients, and one would assess the attachment style but has indicated a preference for a different measure. Three clinicians have also shared that they would consider using measures assessing clients' conflict communication styles, with one explaining that it "would be useful to aid client's insight".

Discussion

Assessment Results

In general, the clinical sample of this small N study, as expected, was found to have higher scores than the community sample in MMPI-2-RF scales that assess psychopathology and interpersonal issues. This exploratory study has also found that the distribution of attachment orientations in a clinical sample, as compared to the distribution found in the main research findings and the current attachment literature (e.g., Bartholomew & Horowitz, 1991; Lapsley & Edgerton, 2002), inclined to a higher percentage of insecurely attached individuals. The higher percentage of insecurely attached participants in a sample of volunteers seeking psychological assistance could be explained by the positive association between insecure attachment and psychopathology (e.g., Bucci et al., 2012; Mikulincer & Shaver, 2008; Priel & Shamai, 1995) and a negative association between secure attachment and psychopathology (e.g., Mikulincer, Horesh, Eilati, & Kotler, 1999; Muris, Meesters, van Melick, & Zwambag, 2001).

Dimensional attachment scores of the clinical sample, however, did not appear to differ much from the community sample of Study Two. The majority of the clinical participants' dimensional attachment scores were similar to those of the base sample obtained from Study Two, deeming to be in the average range. In general, the dimensional scores were not consistent with the forced choice responses of most of the clinical participants. The lack of differences on the attachment dimensional scores between the clinical and community sample was not expected, but could be explained by questioning whether the ASQ is suitable for the clinical population or whether a new attachment measure is required to be developed or modified from existing measures. However, it is important to note that the clinical participants' dimensional scores did suggest that they do tend towards an insecure attachment. In addition, the preoccupied group was also found to have dimensional scores that were higher (anxiety-related) or lower (avoidance-related) than those of the base sample.

While unable to use inferential tests for comparisons due to the small sample, the study has examined the differences among the attachment groups in current sample on selected MMPI-2-RF scales. Trends of the relationships between the dimensional attachment facets and selected MMPI-2-RF scale scores were also investigated in this study. Results indicate that there were both similarities and differences between the patterns observed in Studies One and Two and current findings. Consistent with the main findings, the Secure group had fewer MMPI-2-RF scores that were in the subclinical and clinical range than the Fearful and Preoccupied groups. In addition, the results have also shown that the Secure group, as compared to the combined Insecure group, had a generally lower percentage of participants with selected MMPI-2-RF scale scores in the clinical or sub-clinical ranges. These findings were also observed when the Secure group was compared with Fearful and Preoccupied groups separately. Also consistent with the main findings was the minimal differences found between the

Secure and Dismissing groups in most of the selected MMPI-2-RF scales assessing psychopathology. The current study has found a lower percentage of secure participants having DSF scores in the subclinical or clinical range than the Dismissing group, which was consistent with the results of Study One. The negative trends observed in the relationships between ASQ confidence and some of the selected MMPI-2-RF scales scores, and positive and/or negative trends between insecure attachment-related ASQ facets and the selected MMPI-2-RF scores of the current study were found to be consistent with the main findings. These differences between the Secure and Insecure groups in the MMPI-2-RF scale scores, and trends observed between the dimensional attachment and MMPI-2-RF scores tend to be consistent with current literature on attachment and psychopathology (as discussed in the main section).

However, there were also a number of MMPI-2-RF scales where the Secure group had a higher percentage of participants who had scores in the clinical range than the insecure groups, which was inconsistent with the main findings and current literature. One possible reason for the differences was the different presenting problems and degree of psychological difficulties among participants in the attachment groups. Gillath, Gregersen, Canterberry and Schmitt (2014) found that while dispositional attachment security was negatively associated with negative outcomes, behaviours associated with attachment security are positively related with negative outcomes. This provides a suggestion that the clinical participants who identified to a secure attachment in this study may be engaging in highly secure behaviours that result in greater negative psychological and interpersonal outcomes. The positive trend observed in the relationships between ASQ Confidence and the remaining MMPI-2-RF scales (except for K-r) and remaining relational trends observed between the insecure attachment-related and MMPI-2-RF scales scores (e.g., ASQ Relationships as Secondary and AGGR-r) were also found to be inconsistent with the main findings. Interestingly, also

different from the main findings, the attachment avoidance-related scales scores were observed to have a negative trend in relationships with the MMPI-2-RF scales assessing over-reporting tendency. This possible negative trend observed between attachment avoidance and over-reporting tendency appears to be consistent with the current literature on avoidant individuals' tendency to suppress actual levels of distress (e.g., Mikulincer & Shaver, 2007). Overall, the differences in trends observed between the clinical and community samples suggested that the populations are likely to differ in the attachment patterns detected in the MMPI-2-RF.

FOCQ Resolve scores were found to have a positive trend in its relationships with ASQ Confidence and Preoccupation with Relationships and negative trend with the rest of the insecure-related attachment facets scores. FOCQ Avoid was found to have a positive relationships with both ASQ Relationships as Secondary and Need for Approval. While the observations between FOCQ Resolve and the attachment facets (except for ASQ Preoccupation with Relationships) were consistent with the main findings, results related to FOCQ Avoid was only partly consistent. Different from this study, ASQ Relationships as Secondary was found to have significant negative correlation with FOCQ Avoid in Study Two. Conflict communication method patterns of the attachment groups based on the FOCQ results revealed that the Secure group was likely to collaborate and accommodate, and less likely to confuse others during conflict. The Fearful group, on the other hand, was also likely to compromise, accommodate and avoid conflicts, but was least likely to confuse others. The Preoccupied group was found to have the tendency to collaborate, accommodate or compromise; and the Dismissing group to avoid and withdraw from conflict, with a secondary tendency to compromise with others in face of dispute. These patterns for the Secure and Preoccupied group were similar to the results of Study Two. However, there were slight differences found in the Fearful and Dismissing groups. Unlike those of the clinical sample, the dominant

communication strategy of the Fearful group of Study Two included Concession Focused (compromise) but not avoidance and withdrawal. Study Two's dismissing group's dominant conflict communication strategy, on the other hand, was to collaborate with others, and a secondary tendency to compete and accommodate. These differences are likely to provide some insight on the differences in conflict communication methods between the clinical and community populations.

Clinicians' Views on Measures Used in Study

Overall, there was a variety of views on the usefulness of the attachment, conflict communication and psychopathology measures. As pointed out by one of the participating clinicians, all measures are "useful up to a point, but limited to the problems they (clients) may be seeking help with or the extent to which I (clinician) have the knowledge or skills to get the most out of it". Looking at specific measures, all the clinicians agreed to the usefulness of the attachment measures and would consider assessing future clients' attachment styles. Clinicians who identified attachment styles as the least important information may have concerns of their ability to share the information with the clients while managing internal attributions of the problem that can reduce motivation to address the issue. This possible explanation is supported by a participating clinician who mentioned that "it can be hard to apply (the attachment style information while) avoiding perceptions that they (are) simply attached 'this way'." The conflict communication information and measures were also found to be useful by the clinicians with their participating clients, where one clinician had reported that her client had found the conflict communication results interesting and useful, and further shared that the results were useful in providing both the clinicians and clients an insight to the presenting problems.

Fewer clinicians, as compared to the attachment and conflict communication measures, have found the MMPI-2-RF useful with their participating clients. However,

this could be due to the timing of when the assessment took place, which was after the actual clinical assessment phase with the clients. This explanation is supported by one of the clinicians who disagreed with its usefulness reported that the MMPI-2-RF did not provide additional information, sharing that “nothing I didn’t really know came out.” The issue on when the study took place was also raised by another clinician who shared that “it would be useful if these measures were implemented at the beginning of treatment”.

Research and Clinical Implications and Future Directions

The current results suggest that, with respect to the measures employed here, there are limits to the extent to which conclusions based on non-clinical samples can be extended to clinical cases. This suggests a need to conduct replications and extensions of the main studies with larger sample sizes and using different populations and sub-populations to investigate whether the main findings are generalisable or whether there are differing patterns among the different populations. Clinically, it highlights the importance of being aware of the sample used in the research studies when reviewing the literature to obtain evidence supporting formulation and treatment planning.

Given the lack of differences in attachment scores between the clinical and community samples, particularly with respect to the ASQ facets, the results of this study have also suggested a possible need to develop attachment measures that are more suitable for clinical populations. However, as the community samples of the research may consist of participants from both the non-clinical and clinical populations, the lack of differences found could possibly be affected by the similar nature of clinical and community (as contributed by clinical participants) samples of the research. Hence, replication of this comparison study using a more stringent process of sampling, that is, to set more criteria to differentiate those in the clinical from the non-clinical population.

This would allow one to make better comparison between the clinical and non-clinical samples, and to investigate further if results found in this study is valid.

The results of the participating clinicians' responses provided some support for the attempt to encourage clinicians to assess the attachment and conflict communication styles of their clients. However, it is also important that the clinicians have access to relevant resources for better understanding the implications of the attachment and conflict communication results, and for helping clients fight against feelings of helplessness and hopelessness and reduced motivation in treatment resultant from internal attributions of problems based on attachment orientation. This could include providing information on the possibility for attachment orientation to shift or providing skills to cope with unhelpful attachment behaviours to improve clients' interpersonal relationships.

Conclusion

This study has found that there are both similarities and differences in the results of the measures between the clinical sample and the samples of main studies. In addition, participating clinicians generally agreed that it is worthwhile to use the attachment measures, the conflict communication measure and the MMPI-2-RF in their clinical practice. The results of this study has provided suggestions for more in-depth investigation of the differences and similarities between the clinical and normative population, which may be beneficial in examining if the results of the study are generalisable. Finally, clinicians' responses on the measures gave interested parties an idea of clinicians' willingness to assess clients' attachment and conflict communication styles, and use the MMPI-2-RF. These results have provided some ideas on how one can promote the use of these measures, and the types of resources that may be needed to support clinicians who are interested in conducting attachment assessment.

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Tables and Figures of Appendix A

Table A1

Study Two (N = 218) and Clinical (n = 15) Samples' Means and Standard Deviations of ASQ Attachment Facets Scores

Scale	<u>Study Two</u>		<u>Clinical</u>	
	Mean	SD	Mean	SD
ASQ Confidence	4.02	.69	3.84	0.71
ASQ Discomfort with Closeness	3.56	.83	3.57	0.74
ASQ Relationships as Secondary	2.61	.72	2.50	0.71
ASQ Need for Approval	3.71	.78	3.82	0.74
ASQ Preoccupation with Relationships	3.62	.74	3.92	0.75
ASQ Attachment Anxiety	3.49	.75	3.18	0.57
ASQ Avoidant Attachment	3.21	.68	3.78	0.58

Note. ASQ = Attachment Style Questionnaire.

Table A2

ASQ Attachment Facets T-scores and of Clinical Participants Who Identified Themselves to a Secure or Fearful Attachment Style in the RQ

Participant	RQ Attachment group Selection	ASQ Confidence	ASQ Discomfort with Closeness	ASQ Relationships as Secondary	ASQ Need For Approval	ASQ Preoccupation with Relationships	ASQ Avoidant Attachment	ASQ Attachment Anxiety	
1	Secure	50	40	42	54	57	39	55	
2	Secure	60	38	53	30	43	43	33	
3	Secure	50	65	55	39	52	60	46	
4	Secure	57	41	38	41	57	42	46	
Mean_{secure} (SD)		Secure	54(5.06)	46 (12.73)	47 (8.29)	41 (9.90)	52 (6.60)	46 (9.49)	45 (9.06)
5	Fearful	30	58	51	54	60	61	61	
6	Fearful	26	49	63	50	33	55	52	
7	Fearful	44	51	36	52	50	48	55	
8	Fearful	48	53	38	56	55	46	59	
9	Fearful	57	65	65	54	69	63	59	
Mean_{fearful} (SD)		Fearful	41(12.85)	55 (6.42)	51 (13.54)	53 (2.28)	53 (13.39)	54 (7.57)	57 (3.63)

Note. ASQ = Attachment Style Questionnaire. RQ = Relationship Questionnaire. T scores were derived using the mean of a base sample that consist of 218 participants of Study Two and rounded off to the nearest whole number. Mean scores were derived by taking the average of the T scores of participants who belongs in the respective attachment group.

Table A3

ASQ Attachment Facets T-scores of Clinical Participants Who Identified Themselves to a Preoccupied or Dismissing Attachment Style in the RQ

Participant	RQ Attachment group Selection	ASQ Confidence	ASQ Discomfort with Closeness	ASQ Relationships as Secondary	ASQ Need For Approval	ASQ Preoccupation with Relationships	ASQ Avoidant Attachment	ASQ Attachment Anxiety
10	Preoccupied	57	35	36	56	74	32	63
11	Preoccupied	55	48	42	52	60	45	57
Mean_{preoccupied} (SD)	Preoccupied	56 (1.41)	42 (9.19)	39 (4.24)	54 (2.83)	67 (9.90)	39 (9.19)	60 (4.24)
12	Dismissing	53	57	51	72	48	52	61
13	Dismissing	46	52	53	58	50	53	57
14	Dismissing	39	52	47	52	43	51	51
15	Dismissing	39	51	57	54	58	52	55
Mean_{dismissing} (SD)	Dismissing	44 (6.70)	53 (2.71)	52 (4.16)	59 (9.02)	50 (6.24)	52 (.82)	56 (4.26)

Note. ASQ = Attachment Style Questionnaire. RQ = Relationship Questionnaire. T scores were derived using the mean of a base sample that consist of 218 participants of Study Two and rounded off to the nearest whole number. Mean scores were derived by taking the average of the T scores of participants who belongs in the respective attachment group.

Table A4

Percentage (%) of participants having clinical MMPI-2-RF scores and combine percentage (%) number of participants having sub-clinical or clinical MMPI-2-RF scores arranged according to attachment group.

	<u>RCd</u>	<u>RC1</u>	<u>RC2</u>	<u>RC3</u>	<u>RC7</u>	<u>NEGE-r</u>	<u>INTR-r</u>	<u>SAV</u>	<u>SHY</u>	<u>DSF</u>
<i>Clinically Ranged</i>										
Secure	50.0	25.0	25.0	25.0	25.0	50.0	25.0	25.0	50.0	25.0
Fearful	80.0	60.0	60.0	20.0	20.0	60.0	60.0	60.0	0.0	40.0
Preoccupied	50.0	100.0	50.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0
Dismissing	50.0	50.0	25.0	0.0	0.0	0.0	25.0	25.0	0.0	0.0
Total Insecure	63.6	63.6	36.4	9.1	18.2	36.3	36.3	36.3	0.0	18.2
<i>Sub-clinically + Clinically Ranged</i>										
Secure	50.0	50.0	50.0	25.0	50.0	50.0	25.0	25.0	50.0	25.0
Fearful	100.0	60.0	60.0	40.0	40.0	60.0	60.0	60.0	0.0	40.0
Preoccupied	50.0	100.0	50.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0
Dismissing	75.0	75.0	25.0	0.0	0.0	25.0	75.0	25.0	0.0	50.0
Total Insecure	81.8	72.7	36.4	18.2	27.3	45.5	54.5	36.3	0.0	36.4

Note. MMPI-2-RF = Minnesota Multiphasic personality Inventory- 2- Restructured Form. Clinical Range: $T \geq 65$.

Sub-clinical range: $60 \leq T < 65$

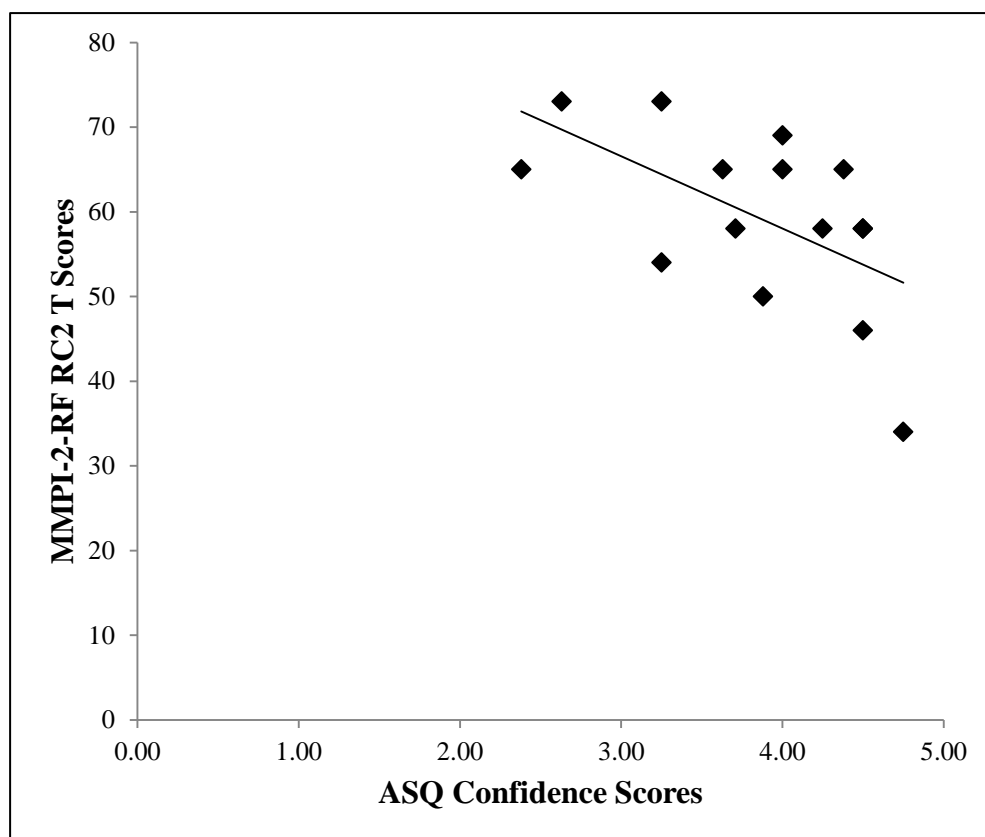


Figure A1. Scatter plot of the Attachment Style Questionnaire (ASQ) Confidence and Minnesota Multiphasic Personality Inventory 2-Restructured Form (MMPI-2-RF) RC2 scores.

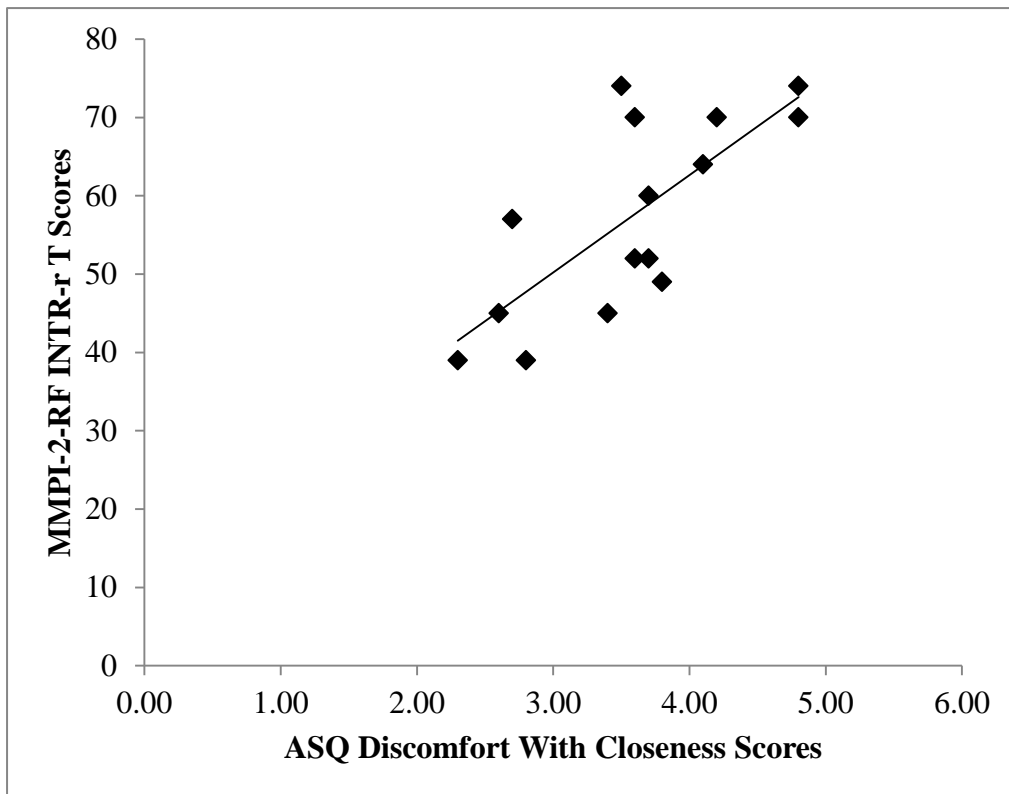


Figure A2. Scatter plot of the Attachment Style Questionnaire (ASQ) Discomfort with Closeness and Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF) INTR-r scores.

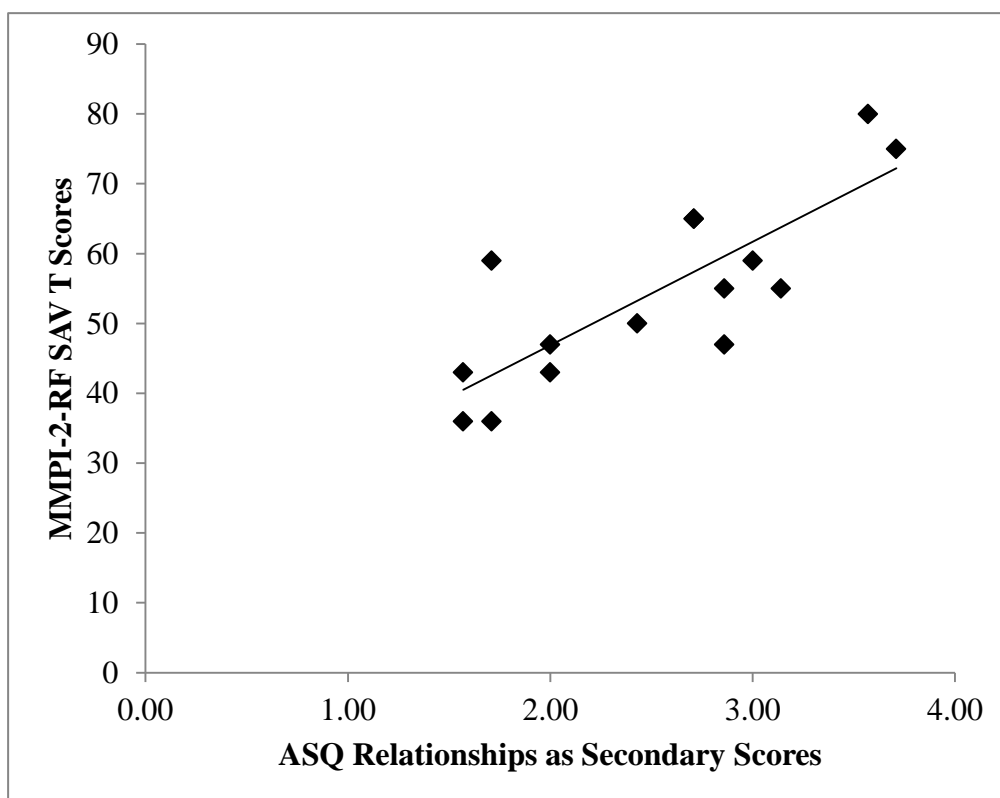


Figure A3. Scatter plot of the Attachment Style Questionnaire (ASQ) Relationships as Secondary and Minnesota Multiphasic Personality Inventory-2 Restructured Form (MMPI-2-RF) SAV scores.

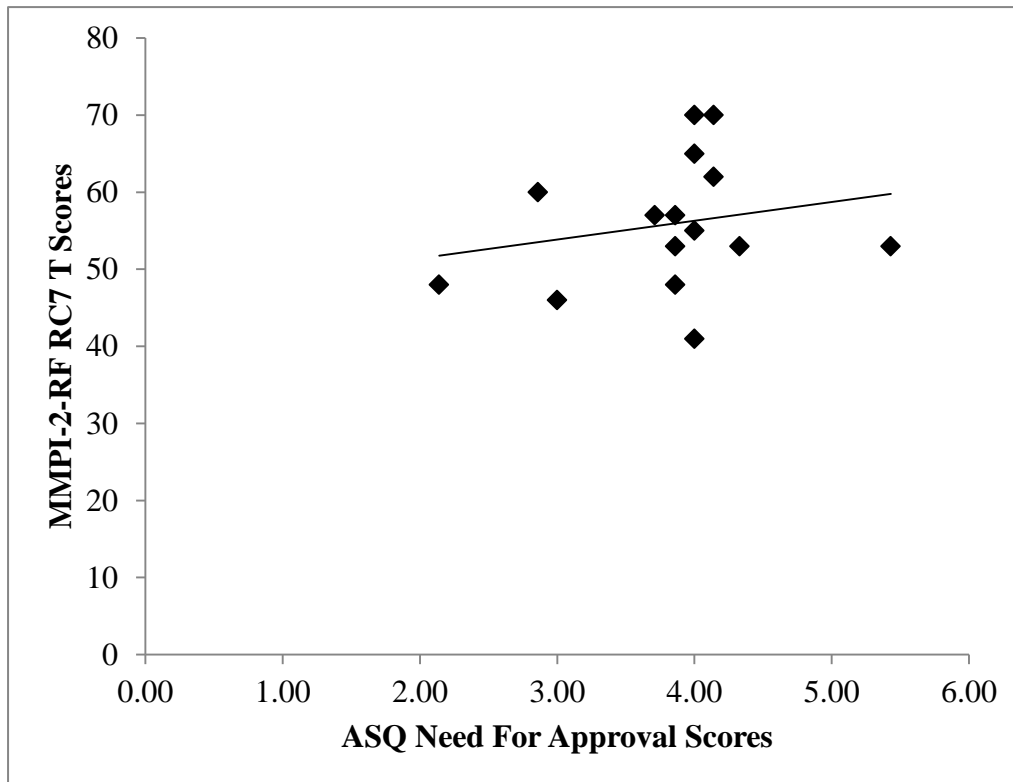


Figure A4. Scatter plot of Attachment Style Questionnaire (ASQ) Need For Approval and Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF) RC7 scores.

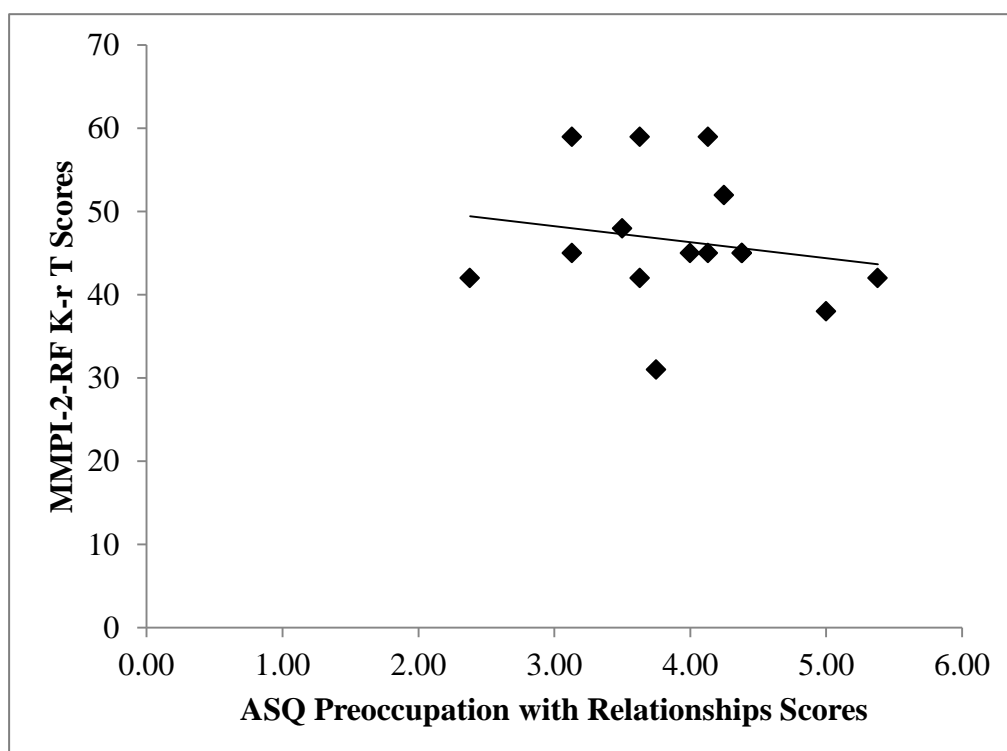


Figure A5. Scatter plot of the Attachment Style Questionnaire (ASQ) Preoccupation with Relationships and Minnesota Multiphasic Personality Inventory-2-Restructured Form (MMPI-2-RF) K-r scores.

Appendix B

Materials Used

This section presents the materials used in this research. It includes the attachment and conflict communication measures, information and debriefing sheets, and consent forms. The items of the MMPI-2-RF are, however, not included due to copyright restrictions.

Materials Used in Study One

Information Page

Thank you for participating in this study. The intent of this study is to examine individuals' interpersonal relationships and their psychological wellbeing. This study is part of a Master psychology project at the Australian National University (ANU) under the supervision of Dr. Ross Wilkinson.

Why are we doing this study?

The study of psychological wellbeing and its influencing factors has been of interest to many psychologists for a long time. Given that we are social beings, interpersonal relationships play an important role in many aspects of our lives. Our psychological wellbeing, too, can be affected by our interpersonal relationships.

The information we obtain from the study will help us understand more about the ways in which interpersonal relationships affect people's psychological wellbeing, which would be valuable in the field of Clinical Psychology.

What does the study involve?

This study involves an online survey that requires you to answer some true-false questions and rate some statements that assess your perception about interpersonal relationships and your psychological wellbeing. This online survey will take approximately **55 minutes**. Participation of the survey is completely voluntary and you may withdraw from the study at any time. There will be no penalty if you decide to withdraw and the information that you have provided will not be used.

The results of this study will be reported in a Master thesis and may also be published in academic journals, books, conference presentation and any other future works and publications. However, your individual name will not be reported in connection with any of the data used for these results.

How do I get my research participation credit?

Upon completion, a code will be generated and displayed on the website. You will need to copy down this code and send an email containing this number code to anu.survey.zh@gmail.com for us to award you 1 hour research participation credit. In the same email, please specify your name, university ID number, email address. Please be assured that the information obtained here are solely for awarding research participation credits and will not be used to identify you from the data you have provided in the study. All personal information provided by you will be kept confidential and the information will be kept in a password protected computer that is only accessible by the researcher.

Consent

Please note that by completing the survey, you have agreed that:

- 1) You have given consent to take part in this online survey. You have read the information above and understand its contents. You have also understood the nature and purpose of the study and your consent is freely given.

- 2) You have understood that even though information provided by you during this study will be published in a Master thesis and may also be published in academic journals, books, conference presentations and any other future works and publications, your name and personal information will not be used in relation to this.

- 3) You have understood that you may withdraw from the study at any stage, without giving reason, and that there will be no penalty involved, and the information provided will not be used.

If you agree to give consent, please continue with the survey.

Some of the questions in the survey are personal in nature. If you find that answering these questions causes you to become upset or distressed, please do not hesitate to contact the ANU Counselling Centre at 6125 2442 or Lifeline Canberra at 131114.

If you have any questions or concerns about the study and/or would like to have a copy of the summary of the research findings at the end of the study, please contact Zhen Hui Chin, ANU Psychology Department, email add: zhenhui.chin@anu.edu.au.

If you have any questions or concerns about the nature in which the research was conducted, you may also contact the ANU Human Research Ethics Committee:

Human Ethics Officer. Human Research Ethics Committee,
Australian National University
Tel: 6126 7945
Email: Human.Ethics.Officer@anu.edu.au

Materials Used in Study One (Continued)

Debriefing Page

A Study of Attachment and MMPI-2 Restructured Clinical Scales

Thank you for participating in this research study! We really appreciate your time and effort.

Information about the Research

The way in which an individual relates to others in the context of any relationship (the individual's attachment style) can affect his/her mental health. A more secure attachment is said to provide a foundation of good mental health while a more insecure attachment can contribute to an individual's risk for psychological disorders.

This study is designed to examine the links between individuals' attachment styles and their scores in the MMPI-2-Restructured Form (MMPI-2-RF) scales. The Minnesota Multiphasic Personality Inventory (MMPI) is a widely used clinical personality measure and measures an individual's level of emotional adjustment and attitude toward test taking. The MMPI-2-RF is the latest revised version of the MMPI test.

In this study we examined whether people who felt secure differed from people who felt insecure in reporting their psychological well-being, i.e whether there is a difference in their MMPI-2 RF scales scores. Research has shown that reported poor mental health is linked with insecure attachment styles and that different insecure attachment styles are related to different intensities of the reported poor mental health. The results of this research may have implications for interventions aimed at enhancing psychological health and well-being.

If you find that answering these questions have caused you to be upset and you would like to talk to someone about it, please do not hesitate to contact the ANU Counselling Centre at 6125 2442 or Lifeline Canberra at 131114.

If you have any questions or concerns about the study and/or would like to have a copy of the summary of the research findings at the end of the study, please contact Zhen Hui Chin at zhenhui.chin@anu.edu.au or Dr Ross Wilkinson at Ross.Wilkinson@anu.edu.au.

If you have any questions or concerns about the nature in which the research was conducted, you may also contact the ANU Human Research Ethics Committee:

Human Ethics Officer. Human Research Ethics Committee,
Australian National University
Tel: 6126 7945
Email: Human.Ethics.Officer@anu.edu.au

Materials Used in Study One (Continued)**Demographics Questions**

<p>Please fill in the follow information:</p> <p>Age : _____</p> <p>Date of Birth (dd/mm/yyyy): _____</p>
<p>Gender</p> <p><input type="radio"/> Male</p> <p><input type="radio"/> Female</p>
<p>Are you currently in a romantic relationship?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
<p>How long is your current romantic relationship? Please specify the duration of your relationship in the number of months. (e.g. 24 months)</p>
<p>Who are you currently living with?</p> <p><input type="radio"/> Alone</p> <p><input type="radio"/> House mate(s)/ Friend (s)</p> <p><input type="radio"/> Romantic partner</p> <p><input type="radio"/> Family</p>
<p>What ethnicity do you identify with? (e.g. <i>European Australian , Asian Australian, Chinese Singaporean etc</i>)</p>
<p>Is English your first language?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
<p>If English is not your first language, what is your first language?</p>

Materials Used in Study One (Continued)

Questionnaires

Section A

Instructions to Participants:

Thinking about all of the people in your life, please indicate the extent to which you agree with each statement.

	Disagree Strongly	Disagree	Neutral /Mixed	Agree	Strongly Agree
1. I prefer not to show others how I feel deep down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I often worry that other people close to me don't really love me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I find it difficult to allow myself to depend on other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I often worry that other people don't care as much about me as I care about them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I am very comfortable being close to other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Sometimes people change their feelings about me for no apparent reason.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. It is usually easy for me to discuss my problems and concerns with other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. My desire to be close sometimes scares people away.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. It helps to turn to others for support in times of need.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 My relationships with people make me doubt myself.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. I am nervous when people get too emotionally close to me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. When I show my feelings to people I care about, I'm afraid that they will not feel the same about me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I find it easy to depend on other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. I am afraid that once somebody gets to know me, he or she won't like who I am.
15. It is easy for me to be affectionate with other people
16. It makes me mad that I don't get the affection and support I need from other people.
17. I feel comfortable sharing private thoughts and feelings with other people.
18. I worry a lot about relationships.
19. I feel comfortable depending on other people.
20. I find that other people don't want to be as close as I would like.

Section B

Instructions to participants:

Thinking about your relationships with other people, read the descriptions below and rate each one for how much like you it is. *Rate each one by selecting a number on the scale below it.*

A. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

- 1 (Not at all like me)
- 2
- 3
- 4 (Neutral/mixed)
- 5
- 6
- 7 (Very much like me)

B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

- 1 (Not at all like me)
- 2
- 3
- 4 (Neutral/mixed)
- 5
- 6
- 7 (Very much like me)

Section B (Continued)

C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

- 1 (Not at all like me)
- 2
- 3
- 4 (Neutral/mixed)
- 5
- 6
- 7 (Very much like me)

D. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

- 1 (Not at all like me)
- 2
- 3
- 4 (Neutral/mixed)
- 5
- 6
- 7 (Very much like me)

If you had to choose only one of the descriptions above, that is either A, B, C, or D, which ONE would you say best describes you.

- A
- B
- C
- D

Materials Used in Study Two

Information Page

Thank you for participating in this study. The intent of this study is to examine individuals' interpersonal relationships and their psychological wellbeing. This study is part of a Doctor of Psychology (Clinical) project at the Australian National University (ANU) under the supervision of Dr. Ross Wilkinson.

Why are we doing this study?

The study of psychological wellbeing and its influences has been of interest to many psychologists for a long time. Given that we are social beings, interpersonal relationships play an important role in many aspects of our lives, including our psychological wellbeing. Conflict is a natural process in any form of relationship and it has an impact on both our interpersonal relationships and psychological wellbeing.

The information we obtained from this study will help us understand more about the ways in which interpersonal relationships affect people's psychological wellbeing, and how conflict plays a part. This information would be valuable in the field of Clinical Psychology.

What does the study involve?

This study involves an online survey that will require you to answer some true-false questions and rate some statements that assess your psychological wellbeing, your perception about interpersonal relationships and your perception about the conflicts you have been involved in. This online survey will take approximately **60 minutes**. Participation of the survey is completely voluntary and you may withdraw from the study at any point in time. There will be no penalty if you have decided to withdraw and the information that you have provided will not be used.

The results of this study will be published in the Doctor of Psychology (Clinical) thesis and may also be published in academic journals, books, conference presentation and any other future works and publications. However, your individual name will not be reported in connection with any of the data used for these results.

How do I get my course credit?

Upon completion, a code will be generated and displayed on the website. You would have to copy down this code and send an email containing this number code and specifying your name, university ID number, email address to anu.survey.zh@gmail.com for us to award you with a 1 hour course credit. Please be assured that the information obtained here is for the sole purpose of the rewarding of credit and it will not be used to identify your responses in the study. All personal information provided by you will be kept confidential and the information will be kept in a password protected computer that is only accessible by the researcher.

Consent

Please note that by completing the survey, you have agreed that

- 1) You have given consent to take part in this online survey. You have read the information above and understand its contents. You have also understood the nature and purpose of the study and your consent is freely given.
- 2) You have understood that even though information provided by you during this study will be published in the Doctor of Psychology (Clinical) thesis and maybe also be published in academic journals, books, conference presentation and any other future works and publication, your name and personal information will not be used in relation to this.
- 3) You have understood that you may withdraw from the study at any stage, without giving reason, and that there will be no penalty involved, and the information provided will not be used.

If you agree to give consent, please continue with the survey.

Some of the questions in the survey are personal in nature. If you find that answering these questions causes you to become upset or distressed, please do not hesitate to contact the ANU Counselling Centre at 6125 2442 or Lifeline Canberra at 131114.

If you have any questions or concerns about the study and/or would like to have a copy of the summary of the research findings at the end of the study, please contact, Zhen Hui Chin, ANU Psychology Department, email add: zhenhui.chin@anu.edu.au.

If you have any questions or concerns about the nature in which the research was conducted, you may also contact the ANU Human Research Ethics Committee:

Human Ethics Officer. Human Research Ethics Committee,
Australian National University
Tel: 6125 3427
Email: Human.Ethics.Officer@anu.edu.au

Materials Used in Study Two (Continued)

Debriefing Page

A Study of Attachment and MMPI-2 Restructured Clinical Scales.

Thank you for participating in this research study! We really appreciate your time and effort.

Information about the Research

The way in which an individual relates to others in the context of any relationship (the individual's attachment style) can affect his/her mental health. A more secure attachment is said to provide a foundation of good mental health while a more insecure attachment can contribute to an individual's risk for psychological disorders. Interpersonal conflicts can result in psychological distress and the way in which an individual handles conflict, which can be influenced by their attachment styles, may mitigate the negative impact of conflicts on psychological functioning.

This study is designed to examine the links between individuals' attachment styles, conflict management/communication styles and their scores in the MMPI-2-Restructured Form (MMPI-2-RF) scales. The Minnesota Multiphasic Personality Inventory (MMPI) is a widely used clinical personality measure and measures an individual's level of emotional adjustment and attitude toward test taking. The MMPI-2-RF is the latest revised version of the MMPI test.

In this study we examined whether people who felt secure differed from people who felt insecure in reporting their psychological well-being, i.e., whether there is a difference in their MMPI-2 RF scales scores. We also examined if there are differences in conflict management/communication styles between these groups of individuals. Research has shown that reported poor mental health is linked with insecure attachment styles and that different insecure attachment styles are related to different intensities of the reported poor mental health. Individuals who are insecurely attached were found to use more maladaptive conflict management strategies as compared to those who are securely attached. The results of this research may have implications for interventions aimed at enhancing psychological health and well-being.

If you find that answering these questions have caused you to be upset and you would like to talk to someone about it, please do not hesitate to contact the ANU Counselling Centre at 6125 2442 or Lifeline Canberra at 131114.

If you have any questions or concerns about the study and/or would like to have a copy of the summary of the research findings at the end of the study, please contact Zhen Hui Chin at zhenhui.chin@anu.edu.au or Dr Ross Wilkinson at Ross.Wilkinson@anu.edu.au.

If you have any questions or concerns about the nature in which the research was conducted, you may also contact the ANU Human Research Ethics Committee:

Human Ethics Officer. Human Research Ethics Committee,
Australian National University
Tel: 6125 3427
Email: Human.Ethics.Officer@anu.edu.au

Materials Used in Study Two (Continued)

Demographics Questions

<p>Please fill in the follow information:</p> <p style="text-align: center;">Age : _____</p> <p>Date of Birth (dd/mm/yyyy): _____</p>
<p>Gender</p> <p><input type="radio"/> Male</p> <p><input type="radio"/> Female</p>
<p>Are you currently in a romantic relationship?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
<p>How long is your current romantic relationship? Please specify the duration of your relationship in the number of months. (e.g. 24 months)</p>
<p>Who are you currently living with?</p> <p><input type="radio"/> Alone</p> <p><input type="radio"/> House mate(s)/ Friend (s)</p> <p><input type="radio"/> Romantic partner</p> <p><input type="radio"/> Family</p>
<p>What ethnicity do you identify with? (e.g. European Australian , Asian Australian, Chinese Singaporean etc)</p>
<p>Is English your first language?</p> <p><input type="radio"/> Yes</p> <p><input type="radio"/> No</p>
<p>If English is not your first language, what is your first language?</p>

- 37 If something is bothering me, others are generally aware and concerned.
- 38 I am confident that other people will like and respect me.
- 39 I get frustrated when others are not available when I need them.
- 40 Other people often disappoint me.

Section B

Instructions to participants:

Please recall conflict involving other people. Are you thinking mainly about conflicts at (*please select one*)

- Home School Work Others (please specify) _____

For each of the statement below, circle the choice that best describes your response to the statement, when thinking about these conflicts.

	Almost Never	Infrequently	Sometimes	Frequently	Almost Always
1. I am satisfied when I win conflicts.	1	2	3	4	5
2. I stay on the issue during arguments.	1	2	3	4	5
3. I'll admit I'm half-wrong rather than explore all of the disputed issues.	1	2	3	4	5
4. I avoid disagreements.	1	2	3	4	5
5. During controversy I attend to other's feelings and emotions.	1	2	3	4	5
6. I pretend not to understand to 'put people off.'	1	2	3	4	5
7. I am an excellent communicator.	1	2	3	4	5

8. During conflicts I stick to the tasks.	1	2	3	4	5
9. I'll give way on some issues during arguments.	1	2	3	4	5
10. I withdraw from disputes.	1	2	3	4	5
11. I accommodate other's wishes and emotions during disagreements.	1	2	3	4	5
12. To put others off, I seem vague on purpose.	1	2	3	4	5
13. I can talk about anything.	1	2	3	4	5
14. I 'come out on top' of controversies I get into.	1	2	3	4	5
15. I'll accept I'm partially wrong during conflicts.	1	2	3	4	5
16. I'd rather postpone arguments indefinitely.	1	2	3	4	5
17. I try to meet other's emotional needs during disputes.	1	2	3	4	5
18. I pretend I am uncertain about what others want of me.	1	2	3	4	5
19. Other people tell me I'm great at listening.	1	2	3	4	5

	Almost Never	Infrequently	Sometimes	Frequently	Almost Always
20. I do better than others in disagreements.	1	2	3	4	5
21. When in controversy I stick to the point.	1	2	3	4	5
22. Instead of having conflicts I retreat.	1	2	3	4	5
23. During arguments I try not to hurt people's feelings.	1	2	3	4	5
24. I confuse other people to avoid doing what they want me to do.	1	2	3	4	5
25. I do not tell the truth to get my own way.	1	2	3	4	5
26. When there is a dispute I do better than others.	1	2	3	4	5
27. I focus on the concerns of the disagreement.	1	2	3	4	5
28. Getting part of what I want is better than having the controversy.	1	2	3	4	5
29. In conflict I try to soothe feelings.	1	2	3	4	5

	Almost Never	Infrequently	Sometimes	Frequently	Almost Always
30. I laugh it off when someone pressures me to commit or agree.	1	2	3	4	5
31. I am focused on meeting the needs of others.	1	2	3	4	5
32. I don't like to lose arguments.	1	2	3	4	5
33. When in dispute I try to focus on the problem.	1	2	3	4	5
34. To stop a disagreement I'll compromise.	1	2	3	4	5
35. 'Putting it off,' is how I deal with controversy.	1	2	3	4	5

Materials Used in Study for Research Practicum

Information and consent form for clients

Interpersonal Relationships and Psychology Well-being Study

Information statement for participants

This research looks into improving ways we work with our clients with different kinds of problems in order to enhance our treatments. Participation in this study will require you to undergo an additional assessment procedure. The intent of this assessment is to provide you and your clinician additional information about your psychological well-being and your perceptions of interpersonal relationships and conflict in order to develop a more efficient treatment plan. The research also aims to examine the clinicians' views on the value of the additional assessment. This research is part of a Doctor of Psychology (Clinical) project at the Australian National University (ANU) conducted by Zhen Hui Chin under the supervision of Dr. Ross Wilkinson.

What will this assessment involve?

This assessment requires you to complete some questionnaires and to rate statements that assess your perceptions of interpersonal relationships and how you deal with conflicts in those relationships. This assessment will take approximately **60 minutes**. The completed questionnaires, administered by your clinician, will be returned to the researchers for processing and you and your clinician will be provided with feedback on the assessment.

Participation in this research project is completely voluntary and you may withdraw from participation at any point in time. **Your decision to participate or not has no impact on your eligibility for treatment in the ANU Psychology Clinic.**

What other information does the study require?

Besides information from the questionnaires, the study will also require some limited information you have provided to your clinician during your assessment interview. Please be assured that all information provided will be kept confidential to the extent that the law allows. When clinical information is required to be used, the researchers will ensure all efforts to de-identify this information and any identifying information will be removed from the research records. Information obtained will be kept on a secure, password protected computer system accessible only by the researchers. The information will be kept for at least 7 years from the date of publication on a secure, password

protected computer system accessible only by the researchers. Data will then be securely destroyed.

The results of this study will be published in the Doctor of Psychology (Clinical) thesis and maybe also be published in academic journals, books, conference presentation and any other future works and publications. However, your **individual name will not be reported** in connection with any of the data used for these results. When clinical information is required to be published, the researchers will ensure effort to de-identify this information.

Some of the questions in the survey are personal in nature. If you find that answering these questions causes you to become upset or distressed, please do not hesitate to discuss this with your clinician at the ANU Psychology Clinic or by calling Lifeline Canberra on 131114.

What if I have any queries or concerns?

If you have any questions or concerns about the study and/or would like to have a copy of the summary of the research findings at the end of the study, please contact Zhen Hui Chin (zhenhui.chin@anu.edu.au) or Dr Ross Wilkinson (Ross.Wilkinson@anu.edu.au), ANU Research School of Psychology.

The ethical aspects of this research have been approved by the ANU Human Research Ethics Committee. If you have any questions or concerns about the nature in which the research was conducted, you may also contact the ANU Human Research Ethics Committee, Tel: 6125 3427 or Email: Human.Ethics.Officer@anu.edu.au

Participant Consent Form

I, (please print your name),

consent to take part in the assessment and research. I have read the information sheet for this project and understand its contents. I have had the nature and purpose of the research project, so far as it affects me, fully explained to my satisfaction. My consent is freely given.

I understand that if I agree to participate in the research project I will be giving permission for my clinician to pass on relevant information to the researchers, including consenting to researchers having access to my file notes for the duration of the research. I also give permission for the researchers to pass on results of the assessment to my clinician.

I understand that information I provided during this study will be published in the Doctor of Psychology (Clinical) thesis and maybe also be published in academic journals, books, conference presentation and any other future works and publication. However, I will not be able to be identified in the published results. When clinical information is required to be published, the researchers will ensure all efforts to de-identify this information.

I understand that I may withdraw from the study at any stage, without giving reason, and that there will be no penalty involved. The information provided will then not be used.

I understand that my personal information will be kept confidential so far as the law allows. Data will be kept on a password protected computer accessible only by the research team.

Signed Date

Materials Used in Research Practicum Study (Continued)

Information and consent form for Clinicians

Interpersonal Relationship and Psychology Well-being Study

Information statement for clinicians

The intent of the study is to examine individuals' interpersonal relationships and their psychological wellbeing. The study also aims to examine the clinicians' views on the value of the use of the chosen measures on psychological wellbeing and on clients' perception of interpersonal relationship and conflict communication. This study is part of a Doctor of Psychology (Clinical) project conducted by Zhen Hui Chin at the Australian National University (ANU) under the supervision of Dr. Ross Wilkinson.

Why are we doing this study?

The study of psychological wellbeing and its influences has been of interest to many psychologists for a long time. Given that we are social beings, interpersonal relationships play an important role in many aspects of our lives, including our psychological wellbeing. Conflict is a natural process in any form of relationship and it has an impact on both our interpersonal relationships and psychological wellbeing.

The information we obtained from this study will help us understand more about the ways in which interpersonal relationships affect people's psychological wellbeing, and how conflict plays a part. Clinicians' views on the usefulness of the various measures used in the assessment are valuable, providing a guide on possible changes in future clinical practice. This information would be valuable in the field of Clinical Psychology.

The results of this study will be published in the Doctor of Psychology (Clinical) thesis and maybe also be published in academic journals, books, conference presentation and any other future works and publications. However, your individual name will not be reported in connection with any of the data used for these results.

What does the study involve?

Besides the normal clinical interview you conduct in practice, you will be asked to administer a set of questionnaires to your client who has consented in participating in the study. Your client will be required to complete the MMPI-2-RF and rate some statements that assess their perception about interpersonal relationships and the conflicts they have been involved, and this will take approximately 60 minutes to complete. You will also be asked questions regarding your views on the assessment and its results, which will take approximately 10 minutes to complete. You will be provided with an interpretive



report that you can use to enhance your understanding and case formulation with regard to the client, and provide feedback to him/her about this assessment results. Given that we are not able to access clients' information without consent, we also would like you to help us in recommending suitable clients to participate in the study and obtain consent from them.

Participation in the study is completely voluntary and you may withdraw from it at any point in time. There will be no penalty if you decide to withdraw and the information that you have provided will not be used.

What other information does the study require?

Besides information from this assessment, the study will also require information you have gathered at the assessment interview, including your formulation of the presenting problem. Please be assured that all information provided will be kept confidential to the extent as the law allows. When clinical information is required to be used, the researchers will make all efforts to de-identify this information. Information obtained will be kept on a secure, password protected computer system accessible only by the researchers. The information will be kept for at least 7 years from the date of publication on a secure, password protected computer system accessible only by the researchers. Data will then be securely destroyed.

There are no anticipated risks for the clinicians associated with participation in this study. However, should any questions make you feel uncomfortable, you may refrain from answering that question without incurring any penalty.

If you have any questions or concerns about the study and/or would like to have a copy of the summary of the research findings at the end of the study, please contact Zhen Hui Chin (zhenhui.chin@anu.edu.au) or Dr Ross Wilkinson (Ross.Wilkinson@anu.edu.au), ANU Research School of Psychology.

If you have any questions or concerns about the nature in which the research was conducted, you may also contact the ANU Human Research Ethics Committee, Tel: 6125 3427 or Email: Human.Ethics.Officer@anu.edu.au

Participant Consent Form

I, (please print your name),

consent to take part in the assessment and research. I have read the information sheet for this project and understand its contents. I have had the nature and purpose of the research project, so far as it affects me, fully explained to my satisfaction. My consent is freely given.

I agree to provide the researchers information of clients who have consented to participate in the study.

I understand that even though information I provide during this study will be published in the Doctor of Psychology (Clinical) thesis and maybe also be published in academic journals, books, conference presentation and any other future works and publication, my clients and I will be not identified in the published results. When clinical information is required to be published, the researchers will make all effort to de-identify this information

I understand that I may withdraw from the study at any stage, without giving reason, and that there will be no penalty involved, and the information provided will not be used.

I understand that my personal information will be kept confidential so far as the law allows. Data will be kept on a password protected computer accessible only by the research team.

Signed Date



Materials Used in Research Practicum Study (Continued)

Debriefing Form for Clients and Clinicians

A Study of Attachment and MMPI-2 Restructured Clinical Scales.

Thank you for participating in this research study! We really appreciate your time and effort.

Information about the Research

The way in which an individual relates to others in the context of any relationship (the individual's attachment style) can affect his/her mental health. A more secure attachment is said to provide a foundation of good mental health while a more insecure attachment can contribute to an individual's risk for psychological disorders. Interpersonal conflicts can result in psychological distress and the way in which an individual handles conflict, which can be influenced by their attachment styles, may mitigate the negative impact of conflicts on psychological functioning.

This study is designed to examine the links between individuals' attachment styles, conflict management/communication styles and their scores in the MMPI-2-Restructured Form (MMPI-2-RF) scales. The Minnesota Multiphasic Personality Inventory (MMPI) is a widely used clinical personality measure and measures an individual's level of emotional adjustment and attitude toward test taking. The MMPI-2-RF is the latest revised version of the MMPI test.

In this study we examined whether people who felt secure differed from people who felt insecure in reporting their psychological well-being, i.e whether there is a difference in their MMPI-2 RF scales scores. We also examined if there are differences in conflict management/communication styles between these groups of individuals. Research has shown that reported poor mental health is linked with insecure attachment styles and that different insecure attachment styles are related to different intensities of the reported poor mental health. Individuals who are insecurely attached were found to use more maladaptive conflict management strategies as compared to those who are securely attached. The results of this research may have implications for interventions aimed at enhancing psychological health and well-being.

The second part of the study aim to examine if clinicians find information on clients' MMPI-2-RF test, attachment styles and conflict management/communication styles useful in informing their clinical practice. This provides initial information on whether we can recommend clinicians to use these measures to better inform them in their practice.

If you find that answering these questions have caused you to be upset and you would like to talk to someone about it, please do not hesitate to discuss this with your clinician at the ANU Psychology Clinic or Lifeline Canberra at 13 11 14.

(omitted for clinicians)

If you have any questions or concerns about the study and/or would like to have a copy of the summary of the research findings at the end of the study, please contact Zhen Hui Chin at zhenhui.chin@anu.edu.au or Dr Ross Wilkinson at Ross.Wilkinson@anu.edu.au.

If you have any questions or concerns about the nature in which the research was conducted, you may also contact the ANU Human Research Ethics Committee:

Human Ethics Officer. Human Research Ethics Committee,
Australian National University

Tel: 6125 3427

Email: Human.Ethics.Officer@anu.edu.au

Materials Used in Research Practicum Study (Continued)**Questionnaire for Clinical Participants****Interpersonal Relationship and Psychology Well-being Questionnaire: Part 2**

Please fill-in the information below as accurately as possible.

Your birth date is ___/___/___.

Your age is _____

Today's date is ___/___/___.

You are male / female (please circle).

Are you married/partnered yes / no Number of years ____.

On the pages that follow are statements that look at your perception of interpersonal relationships and how you deal with conflict in those relationships. Please read each sentence and mark the response that describes you best. There are no right or wrong answers, don't consider your response too long.

You can turn over and begin at any time; there is no time limit.

Section B:

Thinking about your relationships with other people, read the descriptions below and rate each one for how much like you it is. *Rate each one by selecting a number on the scale below it.*

A. It is easy for me to become emotionally close to others. I am comfortable depending on them and having them depend on me. I don't worry about being alone or having others not accept me.

1	2	3	4	5	6	7
(Not at all like me)			(Neutral/ Mixed)			(Very much like me)

B. I am uncomfortable getting close to others. I want emotionally close relationships, but I find it difficult to trust others completely, or to depend on them. I worry that I will be hurt if I allow myself to become too close to others.

1	2	3	4	5	6	7
(Not at all like me)			(Neutral/ Mixed)			(Very much like me)

C. I want to be completely emotionally intimate with others, but I often find that others are reluctant to get as close as I would like. I am uncomfortable being without close relationships, but I sometimes worry that others don't value me as much as I value them.

1	2	3	4	5	6	7
(Not at all like me)			(Neutral/ Mixed)			(Very much like me)

D. I am comfortable without close emotional relationships. It is very important to me to feel independent and self-sufficient, and I prefer not to depend on others or have others depend on me.

1	2	3	4	5	6	7
(Not at all like me)			(Neutral/ Mixed)			(Very much like me)

E. If you had to choose only one of the descriptions above, that is either A, B, C, or D, which ONE would you say best describes you.

- A
- B
- C
- D

Section C:

Please recall conflict involving other people. Are you thinking mainly about conflicts at
(*please select one*)

- Home School Work Others (please specify) _____

For each of the statement below, circle the choice that best describes your response to the statement, when thinking about these conflicts.

		Almost Never	Infrequently	Sometimes	Frequently	Almost Always
1	I am satisfied when I win conflicts.	1	2	3	4	5
2	I stay on the issue during arguments.	1	2	3	4	5
3	I'll admit I'm half-wrong rather than explore all of the disputed issues.	1	2	3	4	5
4	I avoid disagreements.	1	2	3	4	5
5	During controversy I attend to other's feelings and emotions.	1	2	3	4	5
6	I pretend not to understand to 'put people off.'	1	2	3	4	5
7	I am an excellent communicator.	1	2	3	4	5
8	During conflicts I stick to the tasks.	1	2	3	4	5
9	I'll give way on some issues during arguments.	1	2	3	4	5
10	I withdraw from disputes.	1	2	3	4	5
11	I accommodate other's wishes and emotions during disagreements.	1	2	3	4	5
12	To put others off, I seem vague on purpose.	1	2	3	4	5
13	I can talk about anything.	1	2	3	4	5
14	I 'come out on top' of controversies I get into.	1	2	3	4	5
15	I'll accept I'm partially wrong during conflicts.	1	2	3	4	5
16	I'd rather postpone arguments indefinitely.	1	2	3	4	5
17	I try to meet other's emotional needs during disputes.	1	2	3	4	5

		Almost Never	Infrequently	Sometimes	Frequently	Almost Always
18	I pretend I am uncertain about what others want of me.	1	2	3	4	5
19	Other people tell me I'm great at listening.	1	2	3	4	5
20	I do better than others in disagreements.	1	2	3	4	5
21	When in controversy I stick to the point.	1	2	3	4	5
22	Instead of having conflicts I retreat.	1	2	3	4	5
23	During arguments I try not to hurt people's feelings.	1	2	3	4	5
24	I confuse other people to avoid doing what they want me to do.	1	2	3	4	5
25	I do not tell the truth to get my own way.	1	2	3	4	5
26	When there is a dispute I do better than others.	1	2	3	4	5
27	I focus on the concerns of the disagreement.	1	2	3	4	5
28	Getting part of what I want is better than having the controversy.	1	2	3	4	5
29	In conflict I try to soothe feelings.	1	2	3	4	5
30	I laugh it off when someone pressures me to commit or agree.	1	2	3	4	5
31	I am focused on meeting the needs of others.	1	2	3	4	5
32	I don't like to lose arguments.	1	2	3	4	5
33	When in dispute I try to focus on the problem.	1	2	3	4	5
34	To stop a disagreement I'll compromise.	1	2	3	4	5
35	'Putting it off,' is how I deal with controversy.	1	2	3	4	5

	Totally Disagree	Strongly Disagree	Slightly Disagree	Slightly Agree	Strongly Agree	Totally Agree
7 Information on my clients' <u>conflict communication style</u> has helped in my formulation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 Information on my clients' <u>conflict communication style</u> has helped in my treatment planning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Information from my clients' <u>MMPI-2-RF test</u> has helped in my formulation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12 Information from my clients' <u>MMPI-2-RF test</u> has helped in my treatment planning.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13 I have pondered about the <u>attachment styles</u> of clients who were not involved in the research.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14 I have pondered about the <u>conflict communication styles</u> of clients who were not involved in the research.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15 If cost is not an issue, I would consider using the <u>MMPI-2-RF</u> for my future clients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16 I will consider assessing my future clients' <u>attachment styles</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17 I will consider assessing my future clients' <u>conflict communication styles</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18 Overall, I find it worthwhile to use the <u>attachment</u> measure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19 Overall, I find it worthwhile to use the <u>conflict communication</u> measure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20 Overall, I find it worthwhile to use the <u>MMPI-2-RF</u> .	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Instructions: We would like to know more about your opinion on the assessment. Please answer each question below.

- 1) Have the assessment results been useful in providing information about your clients?
How have the assessment results been useful/not useful?

- 2) What was the most useful information?

- 3) What was the least useful information?

- 4) What information is lacking?

- 5) How can we improve on this assessment?

- 6) Which of the measures would you consider using in your practice? Please elaborate on your answers.
