An Examination of Achenbach's Empirical Taxonomy and Covariation Between Syndromes in Different Sex, Age, and Clinic Status Groups

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To my dear wife and children,

Libby, Maxie, and Anneke,

and parents and family

far away

Declaration

I declare that this thesis reflects my own work and includes no material which has been submitted or accepted for the award of another degree or diploma in any other university or institution. To the best of my knowledge this thesis contains no material previously written or published by another person except where due reference is provided.

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"While taxonomy is often thought of as a boring science, it is in fact one of the more lively branches of biology, often controversial and rarely dull."

(P.H. Raven & G.B. Johnson (1995), *Understanding Biology*, 3rd ed., p.480. Dubuque, IA: WCB)

Taxonomy (the science of classification) is often undervalued as a glorified form of filing-with each species in its folder, like a stamp in its prescribed place in an album; but taxonomy is a fundamental and dynamic science, dedicated to exploring the causes of relationships and similarities among organisms. Classifications are theories about the basis of natural order, not dull catalogues compiled only to avoid chaos."

(S.J. Gould (1989), *Wonderful Life, the Burgess Shale and the Nature of History*, p. 98. London: Penguin)

Abstract

Most serious work on the classification of child psychopathology is less than 50 years old. After an initial proliferation of classifications the field witnessed a concentration on two approaches: The DSM and ICD classifications on the one hand and empirical statistical efforts to develop a taxonomy on the other. Recently there have been signs of convergence between the different camps, but the question of the most appropriate categories for child and adolescent psychopathology is far from resolved.

This study examined the empirical taxonomy developed by Thomas Achenbach (1991a) which has had an enormous impact on the field as testified by the 1000s of publications in refereed journals that are based on it. This study traced the development of the taxonomy and questioned its current expression in the cross-informant model. Based on recent research by Hartman et al. (1999) and Heubeck (2000a) the cross-informant model was rejected for parent data. A new model was developed that provided a more adequate representation of parents' perceptions of their children's emotional and behavioural problems. Child Behaviour Checklist ratings describing over 22000 children and adolescents from three countries were analysed using modern methods of factor analysis that overcame some of the statistical limitations inherent in previous studies. Half the parents participated in general population studies in their respective countries which enhanced the representativeness of the study. The other half reported on children referred to child psychology or psychiatry services. This oversampling of clinic cases was adopted to allow for the detection of clinically significant constellations which may be missed in general population samples. Two additional items were analysed to elucidate the

mental health correlates of suicidal thinking and behaviour. Overall, the results highlighted the nonspecific nature of many indicators of child psychopathology as well as a clear need to revise the current cross-informant model. The potential of the revised and replicated CBCL model to contribute to broader taxonomic endeavours was discussed with reference to proposals that would base the next generation of the DSM on dimensional concepts.

The second part of this work turned its attention to the question of comorbidity. The last ten years have seen a dramatic rise of interest in questions related to comorbidity. Hundreds of papers now report (often very high) comorbidity rates in child psychopathology. However, the taxonomies that formed the basis for these studies have seldom been questioned seriously. This relative absence of concern about the basic building blocks of our science is surprising. Taxonomy and comorbidity are intimately linked because true comorbidity can only exist between taxonomic categories that are valid and distinct. The second study built on the insights into the empirical taxonomy gained in the first study. Taking indicator overlap and unique or error factors into account, it calculated the covariation between latent factors of child psychopathology in different samples and countries. The results demonstrated comorbidity correlations ranging from small to large across the three countries. Before this study very little was known about sex or age effects, although some authors postulated that these were clearly fundamental factors in comorbidity. Consequently separate comorbidity correlations were derived for males and females, younger and older children, as well as clinic and nonclinic groups in the USA, Australia, and Israel. Overall, little support was found for sex or age effects, but clinic status was important.

TABLE of CONTENTS

List of Tables

INTRODUCTION

1.1. The Importance of Clinical Constructs

Most modern textbooks of clinical child psychology and child psychiatry (e.g. Mash & Wolfe, 1999; Rutter, Taylor, & Hersov, 1994; Wicks-Nelson & Israel, 2000) are organised around the idea that children and adolescents can suffer from disorders or "syndromes" (e.g. hyperactivity, depression, or conduct disorders). These represent clinical constructs that assist in integrating the enormous amount of information collected by researchers and clinicians. Usually, these constructs come packaged as part of a wider scheme or "taxonomy", i.e. a system that spells out the ground rules for the recognition of syndromes and for distinguishing them from each other.

The fundamental importance of these clinical constructs can not be pointed out more clearly and dramatically than by Feinstein (1967) and repeated by Mezzich and Mezzich (1987, p.34): "The diagnostic taxonomy establishes the patterns according to which clinicians observe, think, remember and act". Two taxonomies have dominated the last decade of the 20th century: The DSM system based on clinical observation and reasoning (cf. American Psychiatric Association, 1994, DSM-IV hereafter) and empirical, dimensional approaches as represented by the factors or syndromes derived from the Child Behavior Checklist (CBCL) and its offshoots (Achenbach, 1991a,b,c). Both taxonomies are in widespread use and exert a very pervasive influence not only in the USA where they were created, but around the world.

The following examples illustrate this enormous influence on various groups: A mother sees a program on TV explaining to viewers the symptoms of hyperactivity and that an "ADHD epidemic" is sweeping the country. She recognises that the description fits her child, buys a self-help book that lists the symptoms, and becomes highly vigilant regarding the behaviours that confirm her suspicion. She finally takes the child to a GP who supports the diagnosis and suggests medication.While relieved to have an explanation for her child's misbehaviour, the mother does not agree with medication for her young child as the TV program also mentioned side-effects like growth problems. Instead she embarks on several "more natural" therapies, mainly involving dietary restrictions. Another parent receives a report from a school counsellor indicating that her child has a learning disability and is also severely emotionally disturbed, suffering from a mixture of anxiety and depression. The parent is relieved to hear that her child is eligible for special eduction placement because she has felt for a while that he has special needs which she cannot meet. At the same time she is worried about the potential negative effects of this assessment on his self-concept and the danger of him being labeled by other children if placed in a special class.

The next group strongly affected by the current diagnostic and assessement paradigms include the professionals charged with applying them. Mainly trained in the use of these dominant taxonomic systems, they base their claim for professional status to a considerable extent on their ability to apply these classifications to the typically complex problems presenting in clinical practice. Accurate assessment should precede and accompany intervention. The more the concepts used in this process reflect meaningful entities, the more useful they should prove in understanding clinical presentations, targeting treatment and measuring outcomes. However, in actual clinical practice these concepts can take on additional functions which also are important to note. One example can be seen in an inexperienced psychologist who feels overwhelmed by the caseload imposed on her in her new position in a generalist counselling service. The service agrees to buy a computer program which provides her with printed profiles of child behaviour problems based on ratings provided by parents on a screen while she interviews the child or adolescent. Unfortunately, the actual time talking to the parents has decreased in the name of efficiency, and the effectiveness of this widely used diagnostic procedure is not questioned. However, the provision of monthly statistics to her service manager has become easier and the manager is very pleased to be able to include these "diagnostic" statistics in her yearly reports. Another clinician gains a lot of private work through the children's and the family courts. For this practitioner providing a diagnosis has become almost synonymous with appearing as an expert witness. In a recent case in the children's court he argued for a revision of a diagnosis of unsocialised conduct disorder put forward for an older adolescent in a previous report. On the basis of his interviews and CBCL profiles obtained from the forster parents he argued that a diagnosis of mixed disorder of conduct and emotions (ICD-10, WHO, 1992) be applied to this seventeen year old charged with breaking and entering and grievous bodily harm. He hoped the new diagnosis would influence the court towards a more lenient verdict which would take this boy's suffering into account and focus on the need for treatment of his emotional problems.

Only a small percentage of children with mental health problems receive professional attention and/or treatment. In Australia, only about 29% of children diagnosed with depression, conduct disorder, or attention deficit/hyperactivity disorder had used some form of mental health service in the past six months (Sawyer et al., 2000). For the USA, Weisz and Weiss (1993) estimated that about 2.5 million children and adolescents received psychotherapy or some related form of mental health care at a cost of US$1.5 billion each year. However, recent estimates are considerably higher. Sturm et al. (2000) estimated that between 5% to 7% of all US children received any mental health service during 1996 to 1998. The total costs amounted to about US$11.75 billion in 1998. It is not known to what extent insufficient or inaccurate identification contributes to the overall low service use. However, when children use mental health services the high costs are often justified in terms of their psychiatric diagnoses or mental health classifications.

At the broadest level, modern policy analysts and politicians are asking for data demonstrating the epidemiology of mental health problems in the community - usually in order to assist decision making about service delivery and funding. However, as Lahey et al. (1990) observed, vastly different prevalence estimates result when moving from one set of criteria to the next, for example from DSM-III to DSM-IIIR (American Psychiatric Association, 1980, 1987) in the assessment of conduct disorders. The recent national mental health survey of young people in Australia (Sawyer et al., 2000) employed both of the dominant systems mentioned before. Clinical diagnoses were obtained based on DSM-IV criteria and clinical severity was estimated using the eight cross-informant syndrome scales provided by the Child Behaviour Checklist (Achenbach, 1991a) and the Youth Self Report Form (Achenbach, 1991b). Based on the CBCL data the authors concluded that about half a million or 14% of all children and adolescents in Australia have serious mental health problems. Using Achenbach's (1991a) clinical cutoff scores, 7.3% of children were rated as having clinically significant psychosomatic complaints, 7.1% exhibited delinquent behaviour, 6.1% attention problems, 5.2% aggressive behaviour, 4.6% had social problems, 4.3% were withdrawn, 3.5% were anxious/depressed, and 3.1% had thought problems. A total of 11.2% of children were diagnosed with Attention Deficit/Hyperactivity Disorder (ADHD), 3.7% with depression, and 3.0% with conduct disorder according to DSM-IV criteria. Thus different definitions of mental health problems lead to very different estimates. If, for example, services are planned for conduct disorders, a close examination of the respective definitions will be required to decide whether to provide funding for 3.0% (according to DSM-IV) or for 7.1% (according to the CBCL) of the child and adolescent population, a large difference of about 150000 children.

A final group to consider are the researchers who use these taxonomies. Thousands of refereed research articles have been published based on one or the other classification system. Apart from serving the serious investigation of the nature of disorders, these constructs have additional effects as shown in the following example. A researcher wishes to study children and asks a colleague about optimising her chances for obtaining funding. The advice she receives stresses, among other things, that childhood depression is "currently in" and that it would be best to frame her application in a way that coincides with the current "pet topic" of the funding agency she considers applying to. In relation to the measures she might use, she is influenced by the knowledge that the CBCL plays a dominant role in the literature. As she is eager to have her own research funded and published, she chooses to adopt the checklist as one of her main measures of mental health. Many of her research questions are now reformulated within the framework provided by the CBCL syndrome structure.

In conclusion, these are only some, admittedly selective examples demonstrating the range of contexts in which our clinical constructs play a significant role. Constructs like depression, hyperactivity, etc., are not just scientific inventions useful in scientific discourse. They play a major role in organising our thinking, have a major influence on countless decisions and affect countless people. Therefore any suggestion that they might not be valid must be treated with major concern! Many users of these clinical concepts would be shocked if they learned that these categories are only *hypothetical* constructs and that even the broad principles underlying their construction are still vigorously debated. Users would be even more shocked if they learned that there is hardly a clinical category that has not been questioned.

1.2. The Controversial Nature of Disorders and Their Classification

Looking at the debate about the underlying issues first, a central question has been - "What should constitute the core elements of a classification of child psychopathology?" There is some agreement that "mental disorders" could serve this function, but there is wide disagreement as to how they should be defined. Some seem to think of mental disorders as medical diseases (cf. Campbell, Scadding, & Roberts, 1979), while others assert that the diagnosis of mental disorders is almost entirely based on social value judgements (cf. Szasz, 1974). Recent contributions have discussed the nature of a mental disorder as a harmful dysfunction which implies a "failure of a mental mechanism to perform a natural function for which it was designed by evolution" *and* which is judged harmful based on social norms (Wakefield, 1992, p. 373, but see also Widiger and Clark, 2000, p. 951 for a critique of evolutionary theory as the basis of definitions in this area). This debate is so involved that some researchers seem to prefer to bypass this issue to get on with their work: "...no assumptions are made about whether the covarying features represent a disease" (Achenbach, 1993, p. 16), hoping that findings from empirical research can later "suggest theoretical constructs concerning the nature of childhood disorders" (Achenbach, 1993, p. 12).

Probably the main reason why it is so difficult to provide an upfront definition of the essential elements in a classification of child psychopathology is their complexity. A comprehensive theory of any "disorder" has to consider its genetic basis, morphological and physiological factors, psychological functions like perception, cognition, and emotions, as well as overt behaviours, all in interaction with numerous and varying environmental factors over time. In addition it is important to understand that in seeming contrast to more basic sciences like chemistry or biology (cf. the table of elements or the classfication of plants and animals) where a stronger ordering can be observed, another characteristic of human behaviour is the relative looseness of the relationships between the multitude of factors involved (Millon, 1991). These complex, extensive, and loosely organised causal chains mean that it is not possible to point at any individual characteristic or principle that can provide a coherent basis for a classification system. Although the medical classification of diseases is often seen as a more coherent approach which should be emulated, it too employs a variety of principles for classification. Foremost among these are causal factors in the sense that they are necessary and/or specific (e.g. bacteria). However, many diseases are multifactorially determined and a choice is required as to which cause should be given precedence for classification. For many diseases the cause is not known and other principles like responsiveness to treatment may be employed. The situation in clinical child psychology and psychiatry resembles more the last two scenarios then the first. In fact very few necessary and/or specific factors have been identified. After reviewing the evidence from genetic, psychosocial, neuro- psychological, and biological studies, as well as specific drug responses, Cantwell and Rutter (1994) concluded that overall the results were disappointing in this respect. They also made the interesting observation that even when specific factors are known, they are not necessarily judged to provide the most useful basis for classification. For example, mental retardation is often seen as a more useful classification than one solely based on a known underlying genetic defect (cf. Cantwell & Rutter, 1994).

This last example points in the same direction as another approach that avoids theoretical and causal arguments altogether and bases classification on phenotype. As Cantwell and Rutter (1994, p. 3) explained: "...following the pioneering work by the Washington University group of psychiatrists (Feighner et al., 1972), it came to be accepted that psychiatric classifications needed to be based on patterns of symptomatology, rather than on theories that lacked empirical substantiation", like for example, Anna Freud's (1965) psychoanalytic classification scheme. As a result, DSM-III, III-R, and IV (American Psychiatric Association, 1980, 1987, 1994) have all eschewed theoretical considerations and focussed on observable phenomena. A similarly atheoretical orientation and preference for observable symptoms characterises the empirical approaches to child psychopathology (cf. Achenbach & Edelbrock, 1978, Quay, 1972).

There are interesting parallels in chemistry and biology and these suggest that child psychology/psychiatry is at a point these sciences crossed about a hundred years ago.

The description of regularities in a table of elements (e.g. Mendeleev, 1869) had served chemistry extremely well until electron-shell theory and quantum theory elucidated the underlying principles. Following Linnaeus (1753) systematic comparisons of observable characteristics of plants and animals served biology very well until Darwin's ideas (1859) offered a major competing classification principle. Nowadays biologists rely on both, phenetic (based on similarity) as well as cladistic classification principles (based on descent) to bring order to over a million species described so far. Many psychopathologists are aware of the fact that while classification based on observation is very useful, the main advances in other fields have come from theories that explained the regularities observed. However, none of the factors (Cantwell & Rutter, 1994) or broad principles (cf. Kazdin & Kagan, 1994) underlying variation in child psychopathology are established well enough to serve as a basis for a coherent theory and classification at this point in time.

Another area of debate surrounds the categorical versus dimensional expression of mental disorders or syndromes (Cantwell & Rutter, 1994, Maxwell, 1972, Widiger & Clark, 2000). This debate is held on different planes. Firstly, the nature of the characteristic that is classified can be examined. A single factor like a missing gene or a blow to the head, may suggest a categorical scheme. However, the range of effects associated with these factors may suggest a dimensional formulation. Cantwell and Rutter (1994, p. 5) present the reverse situation, in which a continuously distributed liability, like blood pressure, may function as a category "because the clinical implications change above a certain threshold" leading to malignant hypertension and a dramatic increase in mortality. While at this level the debate centers on the nature of disorder, at another level utalitarian arguments take the stage. According to Klein and

Riso (1994, p. 23) the main advantages of categorical classification include simplicity, similarity to everyday thinking, facilitating clinical decision making and the discovery of rarer disorders. Cantwell and Rutter (1994, p. 5) declared that "For all these practical reasons, it is likely that psychiatric classification will continue to be based on categories rather than dimensions." Klein and Riso (1994, p. 25) however, were much more cautious because: "...none of the currently accepted psychiatric disorders has been conclusively demonstrated to be a discrete entity". Furthermore they pointed out that categorical classifications loose their practical advantages in situations where there is a high degree of comorbidity (see later) between disorders and this is clearly the case with the disorders described in DSM-III-R and DSM-IV (American Psychiatric Association, 1987, 1994).

Dimensional approaches, on the other hand, avoid the creation of artificial boundaries, preserve more information and achieve better reliability (Klein & Riso, 1994). Using latent class analysis in large clinic and nonclinic samples Hudziak, Wadsworth, Heath, and Achenbach (1999) and Wadsworth, Hudziak, Heath, and Achenbach (2001) failed to support the notion that attention problems or anxiety/depression as measured by the CBCL are categorically discrete. Instead they found that they are continuously distributed ranging from no problems to mild and moderate problems in the general population samples and from mild through moderate to severe classes in the clinic samples. Other research has shown that disruptive behaviour problems have dimensional properties and that dimensionally scored variables were considerably better predictors of one year outcomes than measures based on DSM-III-R diagnostic criteria (Fergusson & Horwood, 1995). These studies can be criticised on the grounds that latent class analysis can not *prove* the existence of categorical or dimensional entities and that range restriction contributed to the poorer results for categorical measures in the Fergusson and Horwood study. It is however, undeniable that categorical concepts did not show up in the first two studies and that categorical measures exhibited poorer predictive validity in the last.

Dimensional concepts of traits or clinical attributes do not impose artificial boundaries between normal and abnormal functioning. Another boundary problem that has created an even greater debate concerns the borders between disorders. Within the realm of categorical classification this problem has been discussed under the heading of "comorbidity", the concurrent existence of two distinct disorders in the same person (Caron & Rutter, 1991, Feinstein, 1970, Klein & Riso, 1994). There can be no doubt that this issue more than any other has driven the reevaluation of diagnostic criteria and classes over the last decade. When a client presents with a mixed picture of symptoms, clinicians can either regard this as an atypical expression of a particular disorder or ascribe it to two (or more) conditions which affect the person at the same time. DSM-III-R and DSM-IV encouraged the second alternative and this has led to findings of very high comorbidity rates between their categories. This situation is so striking that many studies have reported that participants with a single diagnosis are the exception rather than the rule (cf. Angold, Costello, & Erkanli, 1999; Hammen & Compas, 1994). This in turn has raised serious questions about the distinctiveness of the categories employed in these studies.

There are numerous theories trying to explain high comorbidity rates. Fundamental is the distinction between apparent and true comorbidity. Caron and Rutter (1991) presented situations from which apparent comorbidity may arise. Interestingly these included the use of categories where dimensions might be more appropriate, overlapping diagnostic criteria, artificial subdivision of syndromes, and situations where one disorder is part of another. Klein and Riso (1994) listed eleven possible explanations for observed comorbidity, two of which also focussed on artifacts created by the diagnostic criteria: Comorbidity due to overlapping criteria and comorbidity due to the fact that one disorder encompasses the other.

There are also theories of true comorbidity, but their examination is of secondary interest here, because the current argument focusses on the fundamental challenge that high comorbidity rates pose for the current classification systems as such. Despite a legitimate interest in shared and overlapping risk factors, or how one disorder can increase the risk for another, Lilienfeld, Waldman, and Israel's (1994) warning is still pertinent, namely that the application of the term comorbidity to psychopathological syndromes can lead to a premature reification of diagnostic entities. Their analysis emphasised the distinction between syndromes, disorders and diseases (cf. Kazdin, 1983) and that most conditions in psychopathology need to be viewed as syndromes, i.e. as largely defined by the description of correlated symptoms. This in turn means that "the extent of comorbidity becomes a largely arbitrary consequence of the signs and symptoms selected as diagnostic criteria..." (Lilienfeld, et al., 1994, p. 75). They suggested to avoid the term comorbidity altogether because it was too evocative of medical diseases for which, in constrast to psychopathology, pathology and aetiology are largely known. Others, however, disagreed and argued for the continued use of the term (cf. Spitzer, 1994).

Probably the most important recommendation made by Lilienfeld et al. (1994) drew attention to the distinction between latent constructs and manifest indicators and the need to follow a construct validation approach that demonstrates internal validity before relationships with external variables and other categories are studied (cf. Skinner, 1981; Young, 1983). Cantwell and Rutter (1994) by comparison, clearly placed more emphasis on external validation and played down the role of factor analysis as "only" offering evidence of internal validity. However, they did not discuss the contribution that factor analysis in particular can make to the clarification of misplaced and overlapping criteria.

In conclusion, the basic uncertainties and major disagreements outlined so far explain to some extent why so many of the actual products (syndromes, categories) resulting from various taxonomic efforts in the area of child (and adult) psychopathology have been relatively short lived. Successive updates of the official diagnostic nomenclature of the American Psychiatric Association, for example, have seen major changes each time a new edition was published (American Psychiatric Association, 1952, 1968, 1980, 1987, 1994). For many who would have prefered to properly investigate each set of criteria these changes were simply too frequent and "capricious" (cf. Carson, 1991, p. 305). Several authors suggested that a preoccupation with reliability and the neglect of construct validity as a central issue in psychopathology led to these unsatisfactory results (e.g. Carson, 1991, Millon, 1991). Further, at the time of the publication of DSM-IV two of the best known authorities on child psychiatry wrote that "...there are huge differences between diagnoses in the extent to which there is empirical substantiation of their validity. In no case is their validity fully established and in some instances there are very few, if any, validating data" (Cantwell & Rutter, 1994, p. 4).

While recognising that there is "an increasing body of evidence supporting the validity of some of the broad diagnostic distinctions" like schizophrenia, depressive disorder, conduct disorder, and mental retardation, they argued that this "does not mean that all diagnostic issues regarding these disorders have been resolved. *That is far from the case*" (Cantwell & Rutter, 1994, p.11, my emphasis). Six years after the publication of DSM-IV it is interesting to ask whether the following bleak view of the endeavour has materialised: "The clear and present danger is that the DSM-IV will result in merely more tinkering on a superficial level with operational diagnostic criteria that tend over time to approach the status of revealed truths, notwithstanding their often patently arbitrary nature and the unproductiveness of their outcomes" (Carson, 1991, p. 304). Few may be more qualified to judge the results more comprehensively than the DSM-IV research coordinator, Thomas Widiger. The following comment says it all: "There might not in fact be one sentence within DSM-IV for which well-meaning clinicians, theorists, and researchers could not find some basis for fault" (Widiger & Clark, 2000, p. 946). Based on the recognition that yet another major revision of the DSM is needed, these authors offer a number of recommendations which would, if taken up, change the fundamental logic and face of DSM forever. Among these are a move towards a more dimensional model of classification which acknowledges the continuum of functioning across existing categories and into the normal domain. The focus would be on core pathological processes ranging from normal sensibilities to highly maladaptive responses. Methodologically the full population range would be used to study these processes, "which may further the understanding of psycho-pathological phenomena more rapidly than if investigations were limited to clinical samples" (Widiger & Clark, 2000, p. 953). The fundamental structure of the next DSM may not be composed of individual diagnoses as it is now. Rather, "it may consist of an ordered matrix of symptom-cluster dimensions, a diagnostic table of the elements that are used in combination to describe the rich variety of human psychopathology" (Widiger & Clark, 2000, p. 954). Assessment of these dimensions would be based on standardised psychological instruments.

The above recommendations would represent a major move in a direction which has been taken by the empirical dimensional approach to child psychopathology for many years (cf. Achenbach & Edelbrock, 1978, Quay, 1972). The dimensional model based on the CBCL has developed in the last twenty years to a point where it has achieved a status as prominent as the DSM. While future revisions of the DSM may look more like current dimensional systems, the problems inherent in these empirical approaches also need to be examined, before they can be recommended for adoption without major reservation. DSM-IV acknowledged some limitations of the categorical approach, but was hesitant to embrace the dimensional alternatives: "...they also have serious limitations" (American Psychiatric Association, 1994, p. xxii). The CBCL model has also undergone changes, although not as many as the DSM system (compare for example Achenbach & Edelbrock, 1983, with Achenbach, 1991a). More importantly, it is not just the changing nature of the CBCL model (or other dimensional models like it) that suggests caution, but criticism has been voiced which goes much deeper. Cantwell and Rutter (1994) for example, criticised the main methods used by these approaches, i.e. factor and cluster analysis, arguing that they only contribute to the clarification of the internal validity of syndromes without reference to external validating criteria. This criticism would not be so bad if the implication that these approaches had clarified the internal validity of their syndromes was true, because many writers actually view internal validity as a prerequiste to external validation (e.g. Skinner, 1981, Waldman, Lilienfeld, & Lahey, 1995). However, a recent critique of the internal validity of the current CBCL cross-informant model by Hartman et al. (1999) was based on confirmatory factor analyses and dealt a devastating blow to this assumption: "It was found that the fit indices as they were found for the cross-informant model were well outside the range of values indicating adequate fit. Hence, the cross-informant model was unequivocally rejected". DSM-IV noted that there was no agreement on the choice of the optimal dimensions to be used for classification purposes (American Psychiatric Association, 1994, p. xxii) and this situation seems to continue today.

In conclusion, the current versions of both of the dominant models of classification in child psychopathology need to be regarded as far from perfect. There can be no doubt that they will be changed again in a process which is nowhere near completion. There are, however, broad themes, as outlined before, which run through the debate about the best way forward, which favour an empirical, dimensional approach and make the further evaluation and development of this area highly desirable. So far this introduction has broadly considered applied and theoretical aspects of classification and painted the wider landscape into which Achenbach's (1991a) CBCL model belongs. As a highly visible candidate for the next generation of classification models it demands further evaluation and possibly respecification. The next section will offer a brief overview of the historical background to Achenbach's CBCL model. This will be followed by an exposé of the 1991 cross-informant model and the criticism it attracted, not just from Hartman et al. (1999), but others as well. Based on the enormous interest in the contribution dimensional approaches may be able to make to the next generation of classification efforts, the model will then be reevaluated based on several large datasets originating in different countries. The basic approach will follow the idea that clinical disorders are hypothetical constructs (MacCorquodale & Meehl, 1948) and as such should undergo rigorous testing (Waldman et al., 1995).

1.3. Historical Background

While attempts to understand psychiatric problems in adults can be traced back as far as Hippocrates (Veith, 1957), no serious effort was made to develop a system of child psychopathology classifications until the second decade of the 20th century. Dreger (1981a) provided a good review of the early phase from 1925 to 1952, the year DSM-I (American Psychiatric Association, 1952) was published.

Especially noteworthy among the early attempts at classification was the work of Ackerson (1931, 1942). Almost 480 descriptors of emotional and behavioural problems in children were developed from 5000 case reports on children aged 6 to 17 years seen for assessment of their behaviour problems at the Institute for Juvenile Research in Chicago during 1923 to 1927. Most of the information had been obtained in an interview with a parent, usually the mother, but other data found on the files was used as well (e.g. written reports). Some of the items were broad and required a large amount of inference (e.g. “question of hypophrenia”), but many were quite specific and resembled descriptors used in behavioural inventories today (e.g. crying easily, nail biting, fighting, throwing things, expressing a desire to die, poor work in school, etc.). Initially the description of patterns in the data was based on logical analysis, resulting in broad categories called personality problems and conduct problems. The average number of personality problems per child was five and the average number of conduct problems about seven per child. Ackerman also developed a set of more specific categories which Dreger (1981a) called a.) irritable restlessness, b.) defiant disobedience, c.) temper tantrums, d.) apathy, e.) verbal/physical aggressiveness, f.) worrrisome sensitivity, g.) egocentricity, h.) school/work disinterest, i.) profanity/ obscenity, and j.) depression. In his second book Ackerman (1942) took a step towards a more statistical analysis of patterns in this data by correlating a subset of 96 items and reporting multiple *R* for certain groups of items and external criteria, like police arrest. Although factor analysis was known at the time, Ackerman never employed this technique. As computers were not available, even a factor analysis with a small number of items was extremely time consuming, and with over 3000 cases virtually impossible.

Jenkins and Glickman (1946) offered some further examination of Ackerman's sample of 2113 white boys and 1118 white girls. The authors claimed to have systematically examined all clusters of positively correlated items. They selected items for each matrix and excluded those which showed a negative correlation with any other item. A mean correlation of at least 0.20 was the minimum criterion for inclusion of an item in a matrix. The resulting five types of deviant behaviour or syndromes were called a.) overinhibited, prone to neurotic illness, b.) unsocialised aggressive, c.) socialised delinquent, d.) encephalitic or brain-damaged, and e.) schizoid. The first three of these corresponded to categories described by Jenkins and Hewitt (1944) which were based on an analysis of 500 cases examined at the Michigan Child Guidance Institute.

The research by Ackerman and Jenkins was not the only work before 1952 that addressed issues in the classification of child psychopathology (cf. Dreger, 1981a). It was selected as noteworthy here because they took an an open-minded empirical approach and largely recognised the value of specific behavioural type descriptions of disturbance. In addition, their sample sizes were large and they employed (then available) statistical analyses to discern patterns of regularity. Their work has had a lasting effect on clinical and empirical work in the following period which is defined here as roughly lasting from 1952 to 1982.

Dreger (1981a) chose the year 1952 as a landmark in the history of child psychopathology because it was the year DSM-I was published. Unfortunately, DSM-I was fairly useless for children. It only provided two categories specific to children and adolescents, namely adjustment reaction and childhood schizophrenia. Dreger's choice can only be justified retrospectively by arguing a.) that it was the first published nomenclature by the American Psychiatric Association that was officially recognised by the US Institute of Mental Health and b.) that over the next 42 years it led to sequential improvements resulting in the publication of DSM-II, DSM-III, DSM-IIIR, and DSM-IV (American Psychiatric Association, 1968, 1980, 1987, 1994). Jenkins' work played a considerable role in the early revisions which increased the number of categories for children and adolescents substantially. Despite the empirical background work by Jenkins and others, early versions of DSM were heavily critisised for numerous reasons. These included among others, the process by which new categories were added, their lack of reliability, the lack of evidence for the validity of many categories, and the developmental insensitivity of the adult criteria when applied to children (cf. Achenbach, 1980; Schacht, 1985; Werry, 1985; Rutter & Shaffer, 1980).

The detailed history of this clinically oriented system is of less interest to this thesis than the effects it may have had on the development of empirical/dimensional alternatives to understand child psychopathology. These effects will only be considered at two points in time: after the initial publication of DSM-I, and after the publication of DSM-III, III-R, and IV as the system gradually became more objective and empirically based and could be taken more seriously. The compatibility of DSM-III and later DSM categories with Achenbach's (1991a) cross-informant model will be touched on later. At this point in the historical discussion, the question is how empirically oriented child psychologists and psychiatrists reacted to the neglectful treatment of children and adolescents in DSM-I. The answer appears to be that the disappointment with DSM-I actually acted as a stimulus to intensify research and development in this area. The period from 1952 onwards saw an explosion of empirically oriented research into the emotional and behavioural problems of children and a proliferation of dimensional propositions. Dreger (1982) attributed this productivity to a number of additional factors, among them the adoption of a framework known as numerical taxonomy in zoology (Sokal & Sneath, 1963), the dissemination and broader acceptance of factor analysis, and on the practical side, the availablity of computers to actually conduct more complex multivariate analyses.

A prime example of this burst of activity was the first influential work published by Achenbach (1966). Following the lead of Ackerson (1931, 1942) and Hewitt and Jenkins (1946), the focus was on case records, in this study the records of 300 males and 300 females seen at the University of Minnesota Hospital Child Psychiatry Unit between 1951 and 1964. Initially a symptom checklist was constructed which was based on previous studies and further reading of 40 case histories. A total of 74 symptoms on the final 91 item checklist were reported at least five times in the 300 records for males and 73 of the symptoms in the records for females. Symptoms were coded as 1 = reported in the file, or 0 = not reported, and then punched on IBM cards. A program called UMSTAT 55 computed phi-coefficients and obtained principal component solutions for the correlation matrices. Orthogonal as well as oblique rotations were employed. Six rotated factors were given the same name for boys and girls, although some items differed: Somatic Complaints; Delinquent Behaviour; Obsessions, Compulsions, and Phobias; Schizoid Thinking and Behaviour; Aggressive Behaviour; and Hyperactive Behaviour. Two other factors were found for males: Sexual Problems and a mixed unnamed factor. For females the paper presented an additional five factors: Depressive Symptoms; Neurotic and Delinquent Behaviour; Obesity; Anxiety Symptoms; and Enuresis and Other Immaturities. Only factors which appeared in different rotations were considered reliable.

Unfortunately, the reporting of factor loadings was highly inconsistent in this paper. Different extractions and different rotations provided the loadings for different factors, e.g. loadings for the female Somatic Complaints factor were derived from the five factor solution after oblimin rotation, while the female Delinquent Behavior factor loadings were reported after quartimax rotation of six factors. On the one hand this approach may have reflected the enthusiasm at the time for exploring the newly available computational capabilities of the computer. On the other hand it may have reflected an attempt to look into every possible combination of the symptoms in the early exploration of the complex data sets. The outcome however, was that no coherent model was presented in the end, but only a collection of factors picked from 1 to 22 factor solutions after any one of three types of rotation, and sometimes only the negative end of a factor was used. An interesting finding in this study was that the first unrotated principal component appeared to reflect a bipolar internalising versus externalising factor and that this factor was also found after second-order principal component analysis of the four and eight-factor oblimin solutions. In years to come, the internalising versus externalising dichotomy would prove to be one of the most useful distinctions in the area of child psychopathology, although not necessarily in the form of a bipolar factor.

The productivity of the period following the release of DSM-I can be assessed further by the fact that by 1982 four major reviews of empirical/dimensional work had appeared in the literature, all attempting to draw together the large amount of information available in this area for the first time in history. The first major attempt at bringing these studies together was undertaken by Quay (1972) and followed by an expanded update seven years later (Quay, 1979). Criticising the many clinical classification systems, this very influential researcher emerged as a major advocate for the empirical statistical approach considered in this thesis: "Clearly multivariate statistical approaches, although not without some associated difficulties, are currently the methods of choice for classification-system construction" (Quay, 1979, p. 13). Partly based on earlier work by Peterson (1961), which supported a major distinction between conduct problems and personality problems, as well as work by Jenkins and Glickman (1946) on socialised delinquency, Quay (1972, 1979) proposed four major dimensions of child psychopathology: Conduct Disorder, Anxiety-Withdrawl (similar to Peterson's personality problems), Immaturity, and Socialised-Aggressive Disorder (cf. Jenkins & Glickman, 1946). A total of 37 multivariate studies were listed in the later review as supporting some or all of these four factors. In addition, Quay (1979) discussed as premature the postulation of a psychosis factor and expressed "serious doubt as to the existence of hyperactivity as a disorder independent of other patterns, especially conduct disorder" (p. 22). It is interesting to note in passing that a similar reservation regarding the separability of hyperactivity would still be expressed by Cantwell and Rutter (1994) fifteen years later.

The third major review to appear at the time (Achenbach & Edelbrock, 1978) arrived at different conclusions to Quay (1979), partly related to the differences in the data bases which they considered. Their review excluded studies in nonclinic samples as well as studies restricted to particular diagnostic subgroups, e.g. psychotic samples. Only 15 out of the 37 studies used by Quay (1979) contributed to their evaluation of syndromes which had appeared in similar form across different studies. On the other hand only 17 of the 27 studies used by Achenbach and Edelbrock (1978) were included in Quay's (1979) examination of factor similarity. Achenbach and Edelbrock (1978) proposed a distinction between broad band and narrow band factors which has had a major impact on the field. This distinction included the suggestion that there is a hierarchical relationship between many narrow band factors and two major broad band factors called Overcontrolled and Undercontrolled, or Internalising and Externalising. The anxiety-withdrawl pattern and the conduct disorder pattern described by Quay (1979) were seen as similar to this distinction and as located at this higher order level (cf. also Peterson, 1961, for this distinction in regular school children). In addition, the review found "persuasive evidence" for the generality of four narrow band factors which were recognised in 10 to 14 studies each: an Aggressive, a Delinquent, a Hyperactive, and a Schizoid factor. "Good evidence" for another four syndromes was defined as their appearance in six studies each. These included an Anxious, a

Depressed, a Social Withdrawl, and a Somatic Complaints syndrome. Four studies each reported a Sexual Problems factor and an Academic Disability syndrome, and three studies were found for each of the following syndromes: Immature, Obsessive-compulsive, Uncommunicative, and Sleep Problems.

In summary, Quay (1979) concluded that the multivariate studies clearly did "not support the multitude of subdivisions of child and adolescent psychopathology found in most of the clinically derived classification systems", but instead offered support for "a parsimonious fourfold approach to classification" (p. 36). Achenbach and Edelbrock (1978) on the other hand, suggested that this parsimony is only found higher in a hierarchy of factors, and that up to fourteen narrow band factors were worth further investigation. Both reviews also discussed additional issues like stability, interrater reliability, and aspects of validity which will not be repeated here.

The fourth review to be mentioned here was presented by one of the principal authors of a major project called the Children's Behavioral Classification Project (cf. Dreger et al., 1964). This project worked on several premises: a.) symptoms of psychopathology should be specific, observable, and not require abstraction, b.) comprehensive coverage requires a relatively large number of factors, and c.) factors form hierarchical relationships at several levels of complexity. In relation to the first premise, descriptors like "argues a lot", "teases other children", "steals at home", "attempts or threatens suicide", were chosen as sufficiently precise to provide the basic data obtained from different raters. The second assumption led to the extraction of a much larger number of factors than Achenbach and Edelbrock (1978) had suggested, namely 30 factors altogether, with the proviso that even this number of factors needed supplementation for more specific categories of problems. The hierarchical relationships between the 30 factors and higher order factors obtained after second and third-order factor analyses were presented in Dreger (1981b). Important for the current thesis, Dreger (1981b) concluded that all 14 narrow-band factors in Achenbach and Edelbrock's (1978) review had a match among the 30 first-order factors in the Children's Classification Project. Peterson's (1961) and Quay's (1978) Overcontrolled and Undercontrolled syndromes and Achenbach and Edelbrock's (1978) Internalising and Externalising broad band factors were assessed as residing at a third-order factor level.

The extensive review of classification work after 1952 presented by Dreger (1982) included critical, evaluative comments on clinically oriented systems like DSM-II and DSM-III as well as evaluations of many factor analytically derived propositions, for example Goyette, Conners, and Ulrich (1978), Sines, Pauker, Sines, and Owens (1969), Spivack and Levine (1964), as well as Wirt, Lachar, Klinedinst, and Seat (1977). However, it was Dreger's evaluation of Achenbach's work at that time that was of most interest to this thesis. Acknowledging Achenbach's influence on the field as probably already exceeding that of the Quay-Peterson system, Dreger (1982) spoke of his attempts at creating a classification system for children as "a highly respectable approach to children's problems" (p. 364) and applauded "the truly monumental work of the Achenbach-Edelbrock team" (p.368). However, he also had a few critical remarks. These centered on the level of abstraction required in the assessment of some of the indicators of child psychopathology used by Achenbach (e.g. "too dependent", "obsessions", or 'hyperactive"). Given what he regarded as a mixture of summary, inferential, and behavioral items, Dreger (1982, p. 367) thought it was "reasonable to suppose that the number of dimensions derived from them would fall somewhere between the Quay-Peterson system of basically four factors and the many dimensional systems like Wirt's, Spivack's, or Dreger's". Overall, however, he considered the number of factors extracted to be too small to provide a comprehensive coverage of child psychopathology.

This almost completes this introduction to the historical roots of Achenbach's empirical taxonomy. In the year following Dreger's review Achenbach and Edelbrock (1983) published the first manual for the Child Behaviour Checklist (CBCL) which consolidated their work during this period and made the results available to what was going to become a huge worldwide user base. The success of the CBCL and related materials was such that it would eventually lead to the current situation in which the name Achenbach is among the most cited names in child psychopathology. A quick check on the American Psychological Association's PsychLit database confirmed this. A search brought up 431 citations for the CBCL and 269 for the name Achenbach. The most influential child psychiatrist in the second half of the 20th century was probably Michael Rutter, who played a prominent role in the development of the World Health Organisation's International Classification Of Child Mental Disorders, especially in ICD 9 (e.g. Rutter, Shaffer, & Shephard, 1975). The name Rutter was found 234 times on the PsychLit database. This can also be compared to 48 references including the name Quay and 13 including the name Dreger. No claim can be made that this search was comprehensive and provided definite results. It clearly has to be seen within any limitations of the PsychLit database and the search conducted. However, it illustrates the point that arising out of the early phase of research described before, Achenbach's ideas have achieved a dominant status in the field of child psychopathology.

Achenbach (1995) offered his own reading of the historical development of empirical classification. Just as Quay (1979) had organised his review of the literature around his own work and Dreger (1982) assessed the literature through the criteria he had helped to establish for the Children's Classification Project, Achenbach (1995) focussed his history of empirical taxonomy around his own work. Distinguishing three phases, he characterised the early work mentioned so far as "first-generation efforts", basically as an exploratory phase. Starting with "a potpourri of items" these studies essentially tried to discover what syndromes may exist. When major reviews concluded that there were substantial similarities between many factors and that hierarchical organisation of factors could overcome some contradictions, "second generation efforts" were launched to test and replicate a set of "core syndromes". These were assessed through parent ratings. However, correlations with other raters were often found to be moderate at best, and this inspired "third generation efforts" to formulate descriptions of syndromes which could be identified by different raters. This process led to the formulation of the cross-informant syndromes (Achenbach, 1991a) which are the focus of this thesis. The three stages of the development of the Achenbach factors, from the publication of the 1983 manual to the 1991 cross-informant factors, will be described in some detail in the following section. Subsequently, the current formulation of the cross-informant model will be subjected to a rigorous critique.

1.4. Achenbach's Child Behaviour Checklist Factors

The first major presentations of the Child Behaviour Checklist (CBCL) appeared in Achenbach (1978) and Achenbach and Edelbrock (1979). The CBCL was offered as a checklist which included 118 indicators of child psychopathology which were substantially based on many of the symptoms found in the Achenbach (1966) project which extracted information from case histories. Consultations with clinicians led to the addition of further items and several revisions occurred during pilot testing. While parents had a major but indirect input into the case history project, the focus had now shifted to obtaining their direct and standardised ratings. The present versus absent alternative was replaced by a three point rating scale which asked parents to circle a 2 if the item was very true or often true now or within the past 12 months, to circle a 1 if it was somewhat true or sometimes true, and to circle 0 if it was not true.

A major contribution during this phase of research was the examination of all individual items (and scale scores) in relation to basic demographic variables like sex, age, socioeconomic status, and most importantly, clinic status (Achenbach & Edelbrock, 1981). The effects of sex, age, and socio-economic status on the 118 symptoms were shown be mostly nonsignificant or small (explaining less than 1% of variance). The demonstration that any indicator chosen to assess psychopathology in children actually discriminates children referred to psychological or psychiatric services from children not using these services, was thought to represent an essential requirement for incorporation of a symptom into a broader set of criteria. However, it is historically interesting that by 1981 very few studies had investigated this issue, and none had done so with such a large number of children and indicators. Analyses of covariance which controlled for differences in race and socioeconomic status showed that referred children received significantly higher scores on 116 of the 118 problems listed on the CBCL (Achenbach & Edelbrock, 1981). The smallest effects were found for item 5 (behaves like the opposite sex), item 92 (talks or walks in sleep), item 98 (sucks thumb), item 99 (too concerned with neatness), and item 110 (wishes to be of opposite sex), while items 2 and 4 (asthma and allergies) did not discriminate at all. The best discrimination was found for item 8 (can't concentrate), item 22 (disobedient at home), item 45 (nervous), item 61 (poor school work), and item 103 (unhappy, sad, depressed), which explained from 25% to 29% of variance in clinic status, which is impressive for single items (cf. Cohen, 1977). The total summary score explained 44% of variance in clinic status, indicating the extent to which clinic status may be an imperfect criterion to judge the validity of indicators of child psychopathology. Many other factors play a role in referral decisions as well (see e.g. Garralda & Bailey, 1988). Nevertheless, this study provided empirical evidence for the usefulness of the chosen indicators that clearly went beyond speculation or the analysis of case records.

In the next step product-moment correlations were computed between all symptom checklist ratings and these were submitted to principal component analyses in order to identify patterns of concurrence in the clinic data. Varying numbers of factors were extracted and rotated by orthogonal as well as oblique methods. Achenbach (1978) and Achenbach and Edelbrock (1979) provided initial details on these analyses in different sex/age groups, while the manual brought the results together and offered additional evidence for younger children (Achenbach & Edelbrock 1983). Taken together, a total of 2300 parents were asked to describe the children they had presented to one of 42 mental health services in the USA. The results were complex and are summarised in

Table 1. Different models were chosen for different sex/age groups, ranging from 8 to 13 factors. However, not all of these factors were necessarily used and interpreted, small factors were discarded. In all cases the varimax rotation was prefered to the oblique direct quartimin rotation. However, second order principal component analyses demonstrated that the scores derived for children on each factor were not independent. The relationships between the first order components and the second order internalising and externalising factors are also indicated in Table 1. Some first order syndromes had high loadings on both second order factors and are shown as "mixed" syndromes.

Scrutiny of the pattern of findings in Table 1 shows that not all factors were found in each sex/age group. The interpretation was complicated by two factors. Firstly, some factors were listed as separate but had overlapping components. This is easily seen when considering the obsessive-compulsive-anxious-schizoid range of factors. Secondly, even when factors were given the same name, the exact contributions of different items could vary. For example, 25 items were listed with loadings of 0.30 or above on the Depressed factor in the youngest group of boys, but only 17 items in the next age group. Given these provisos a number of observations can be made about the proposed syndromes. Two factors were identified consistently in each sex/age group (Somatic Complaints and Aggressive Behaviour). Four factors were identified in at least four subgroups (Social Withdrawl, Depressed, Hyperactive, and Delinquent). Finally, a factor with a schizoid component was found in each sex/age group when the three relevant factors were considered together. A higher order internalising pattern appeared to be distinguishable from a higher order externalising pattern. High loadings

Table 1. *Principal Component Factors in Different Sex and Age Groups*

		Boys			Girls	
	4-5	6-11	12-16	4-5	6-11	12-16
Uncommunicative	-	In	In	-	-	-
Social Withdrawl	In	Mi	-	In	In	-
Hostile Withdrawl	-	-	Mi	-	-	-
Depressed Withdrawl	-	-	-	-	-	In
Depressed	In	In	-	In	In	-
Somatic Complaints	In	In	In	In	In	In
Obsessive-compulsive	-	In	In	-	-	-
Anxious-obsessive	-	-	-	-	-	In
Schizoid-obsessive	-	-	-	-	In	-
Schizoid or anxious	-	In	-	In	-	-
Schizoid	Ex	-	In	-	-	In
Immature	In	-	In	-	-	-
Immature Hyperactive	-	-	-	-	-	Mi
Hyperactive	-	Ex	Ex	Ex	Ex	-
Aggressive	Ex	Ex	Ex	Ex	Ex	Ex
Delinquent	Ex	Ex	Ex	-	Ex	Ex
Cruel	-	-	-	-	Ex	Ex
Sex Problems	Mi	-	-	Ex	Ex	-
Obese	-	-	-	Mi	-	-
No. of factors extracted	10	12	13	8	12	11

Note. In = high loading on Internalising factor, Ex = on Externalising factor, Mi = mixed, ie. loading on both higher order factors.

were listed in the manual for these higher order factors, but the crossloadings were not reported (Achenbach & Edelbrock, 1983, p. 16).

In conclusion, careful attention to the raw data entering into the assessment of child psychopathology was a strong quality of the work presented by Achenbach and Edelbrock at the beginning of the 1980s. The examination of basic demographic differences on individual items in sex, age, and clinic status would continue through the later work. In line with fundamental premises of developmental psychopathology (cf. Achenbach, 1982) the derivation of syndromes was similarly guided by sensitivity to possible sex and age differences. At the same time the proposed 19 factors offered a considerable challenge to the idea of a cohesive model of child psychopathology. While substantial similarity emerged for some factors across sex/age groups (e.g. Aggressive Behaviour), the sex/age pattern of other factors was difficult to explain. Why for example, should the Obese factor only apply to 4-5 year old girls and not any other sex/age group? Achenbach (1995) characterised this early work as exploratory "first generation" work which focussed on the delineation of the major factors. Given the array of syndromes or factors found in the literature at the time, it seemed only logical that the next phase should concentrate on integration and replication.

The main "second generation" effort resulting from this early work brought together three major researchers and their instruments: Achenbach and the CBCL, Conners and his parent questionnaire (cf. Conners, 1978), and Quay and the Revised Behaviour Problem Checklist (cf. Quay & Peterson, 1982). Based on an extensive review of the literature these authors proposed 12 syndromes and constructed the 215 item ACQ checklist to measure them (Achenbach, Conners, & Quay, 1983). The majority of

CBCL items were included on the ACQ (115 altogether). The first version of the CBCL had asked parents to rate their child during the last 12 months (Achenbach, 1978) and the manual presented a form that asked for ratings covering the last 6 months (Achenbach & Edelbrock, 1983). However, the timeframe used on the ACQ was a mere 2 months. The rating scale was also different. Instead of three options, four choices were presented: 0 = never or not at all true, 1 = once in a while or just a little, 2 = quite often or quite a lot, and 3 = very often or very much.

Achenbach, Conners, Quay, Verhulst, and Howell (1989) then reported a major attempt to identify syndromes which replicated across different samples of 6 to 16 year olds and across two countries. Principal component analyses were carried out on ACQ ratings for 4481 children referred to 18 mental health services in the USA. The results were compared with similar analyses conducted for 1800 clinic children on the CBCL (cf. Achenbach & Edelbrock, 1983) and 1913 clinic children assessed in Holland on the Dutch version of the CBCL (cf. Achenbach, Verhulst, Baron, & Althaus, 1987; Verhulst, Achenbach, Althaus, & Akkerhuis, 1988). The ACQ sample was examined twice, once including all items and another time using only the CBCL items included on the ACQ. This explains why Achenbach et al. (1989) spoke of four "separate" analyses rather than three. A wide range of models was examined covering from 8 to 18 factors. However, rotations employed the varimax criterion only. Factors which included at least 6 items with loadings of 0.30 or higher were retained for comparisons with factors in the other analyses. However, as in Achenbach and Edelbrock (1983) a higher criterion was set for items on the Aggressive factor (0.40), and in the ACQ sample the acceptance of items on the Aggressive factor actually required a loading of 0.50 or higher. All analyses were conducted separately for four sex/age groups: boys and girls aged 6-11 years and 12-16 years. Factors recognised as similar in at least three of four analyses in the same sex/age group were designated as "core syndromes" and items which appeared with loadings above the threshold on at least three factors in the same sex/age group were used to form the "central core syndromes". These latter syndromes offered the most valuable outcome from this prodigious project. Six factors replicated well across all four sex/age groups. They included the Aggressive, Anxious/Depressed, Attention Problems, Delinquent, Somatic Complaints, and Withdrawn factor. A factor called Schizoid replicated less well within each sex/age group. A factor called Socially Inept was found for boys only, while only girls showed a Mean syndrome. Another factor called Sex Problems replicated in 75% of the analyses conducted for girls aged 6-11 years, but not for older girls or for boys at any age. No evidence was found for the originally hypothesised distinction between Attention problems with and without Hyperactivity, and finally, the hypothesised Obsessive-Compulsive-Perfectionistic factor did not show up in the data at all. Additional analyses showed that each central core syndrome discriminated well between clinic referred and nonreferred children, explaining from 8% (Somatic Complaints) to 28% of variance (Attention Problems) in referral status, thus further supporting their validity.

In summary, this project was an important milestone in the development of a taxonomy based on empirical/dimensional syndromes. However, probably due to the size and complexity of the project, many of the most basic findings and decisions have not been reported in the literature. Factors judged to have been replicated were likely to have originated from solutions of very different complexity given that 8 to 18 components were extracted. The use of varimax rotation assumed that the underlying factors were orthogonal, but the loading patterns have never been published. Overall however, the resulting factors were clearly meaningful and related to syndromes found in other studies. Most importantly they were found to replicate across sex/age groups and this provided one of the main incentives to move forward to the next phase which Achenbach (1995) characterised as the "third generation" effort.

This next phase addressed a major problem completely ignored by successive versions of the DSM: the problem that reports of child behaviour often show very modest correlations between different raters. An extensive review of this area by Achenbach, McConaughy, and Howell (1987) concluded that across studies the average correlation between parent reports was 0.59, but only 0.27 between a parent and a teacher, and only 0.24 between a parent and a mental health worker when rating the same child. Moreover, the most disappointing result was obtained for the concurrence of children's self-reports with other raters. On average children's reports correlated as little as 0.25 with parent reports, 0.20 with teacher ratings, and 0.27 with mental health professionals. Accepting the enormous challenge these findings provide to any system of psychopathology, Achenbach (1991a) asked whether it was possible to delineate syndromes which could be identified by two or more observers. Three groups of raters contributed to the study: parents rating the CBCL (Achenbach, 1991a), teachers using the Teacher Report Form (TRF, Achenbach, 1991b), and 11-18 year olds answering the Youth Self Report (YSR, Achenbach, 1991c). The three forms share 89 items which were analysed for a total of 8542 forms (4455 of these were CBCLs). The analyses followed a similar logic to the Achenbach et al. (1989) study. Principal component analyses with varimax rotations were carried out, this time in six sex/age groups: boys and girls aged 4-5, 6-11, and 12-18 years old. Items with loadings of 0.30

or higher on similar factors in at least four of the six groups on each instrument were chosen as indicators of "core syndromes". The core syndromes were then compared to the core syndromes on the other instruments to identify corresponding factors and items which helped to establish Achenbach's "cross-informant syndromes". Items needed to be present in the core syndromes of at least two raters to be included in a cross-informant syndrome. The final names given to these syndromes were Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behaviour, and Aggressive Behaviour. Other factors were found in some groups only, e.g. a Sex Problem factor for younger boys and girls on the CBCL, a Destructive factor for girls on the CBCL, and a Self-destructive factor in boys' self-reports on the YSR. However, they did not show up in the reports of other raters and were not considered further.

Achenbach (1991a) also conducted second-order factor analyses based on the correlations among the scale scores. Mean loadings across different groups provided the basis for judging the allocation of scales to the higher order Externalising and Internalising factors. Unfortunately, the manual offered only very incomplete information about these findings. Only the sizes of some convergent loadings were reported. The Withdrawn, Somatic Complaints, and the Anxious/Depressed scales loaded above 0.64 on the Internalising factor, while the Aggressive and Delinquent scale loaded above 0.77 on the Externalising factor. Interestingly, the Attention Problems scale was not included because its mean loading on the Externalising factor was lower than the other scales, i.e. 0.62. This decision appeared somewhat arbitrary given the strength of the correlation. In addition, information on the cross-loadings would have been helpful to judge the quality of the overall solution.

The cross-informant syndromes have had an enormous impact on the field given their extensive research base and the appeal of the cross-informant idea. Achenbach (1991a,b,c) and others presented evidence for the reliability of the scales derived from these factors. However, the core issue for any system of psychopathology is its validity and this difficult issue is addressed in the following section.

1.5. Validity of the 1991 Cross-Informant Syndromes

Much of the evidence for the validity of the cross-informant syndromes can be grouped into the following broad categories: 1.) referral status as a validating criterion, 2.) aetiological factors and other "external" criteria, i.e. evidence not related to the creation or definition of the syndromes themselves, 3.) comparison with clinical diagnoses, e.g. DSM diagnoses, and 4.) correlation with other well established scales. Turning to the first type of evidence presented in the literature, Achenbach and Edelbrock (1981) discussed the fact that there is no litmus test for child psychopathology and concluded that "actual referral for mental health services is an appropriate morbidity criterion against which to validate discrimination procedures", because it "typically reflects persisting problems" (p. 57). All criteria were seen as fallible and referral status was assessed as often better than direct psychiatric assessements and mental health workers' ratings of parent reports. Achenbach (1991a) offered evidence that the CBCL scale scores derived from the eight cross-informant factors could explain from 16% to 31% of variance in children's referral status, except for the Somatic Complaints scale which only explained 7%. While these are mostly impressive effect sizes, they also indicate to what extent referral status is an imperfect criterion and likely to be dependent on additional factors apart from child psychopathology.

Few studies have examined other external criteria and even fewer have studied aetiological factors. A frequently cited study by Edelbrock, Rende, Plomin, and Thompson (1995) examined genetic influences on twin behaviour rated on the 1991 CBCL. Altogether 99 monozygotic twin pairs were compared with 82 dizygotic twin pairs from the Western Reserve Twin Project (Thompson, Detterman, & Plomin, 1991). Significant genetic effects were found on all cross-informant syndromes except the Anxious/Depressed and the Delinquent Behaviour Syndrome. The size of the significant genetic effects was substantial and ranged from 50% for the Withdrawn syndrome to 73 % of variance in Somatic Complaints. An estimated 37% of variance on the Delinquent Behaviour scale and an estimated 30% of variance on the Anxious/ Depressed syndome were calculated as due to shared environmental effects. While there is evidence for the heritability of severe forms of affective disorders (cf. Rutter et al. 1990), findings for the Anxious/Depressed scale were interpreted as reflecting milder expressions of distress in a general community sample as well as demonstrating the reactivity of children to environmental stressors. The distinction between the CBCL Aggressive and the Delinquent Behaviour syndromes was strengthened by the finding that one showed strong genetic effects (60%), while the other was responsive to environmental influences (37%). There was a good range of scores in this community sample, but the results should not be extrapolated without question to clinic groups. However, the main problem with this study was that no independent assessment of behaviour was obtained. It can be assumed that parents in almost all cases were aware of the twin status of the children they were rating and that this knowledge may have contaminated the results. A very thoughtful study of other external criteria was presented by Jensen et al. (1996) who examined four composite factors which they called school dysfunction, need for mental health services, developmental risk factors, and family distress. Comparing CBCL scores and DSM-III-R diagnoses derived from the Diagnostic Interview Schedule for Children (DISC 2.1) against these "external validators" they concluded that the two approaches for assessing child psychopathology "are reasonably comparable" (p. 166). However, the value of this study to the assessment of the cross-informant syndromes was limited by the fact that the 1983 rather than the 1991 scales were used to score the CBCL.

A similar problem arose when considering the next category of validity evidence. Much of the research presented by Achenbach (1993) which attempted to validate his empirical dimensions against DSM categories, predated the cross-informant syndromes and used earlier diagnostic criteria than offered in DSM-IV. An example was the much cited study by Edelbrock and Costello (1988) which showed relationships between the pre-1991 CBCL scores on the Depressed, Hyperactive, and Delinquent scales and DSM-III diagnoses of Depression/Dysthymia, Attention Deficit Disorder, and Conduct Disorder. A general community study in Puerto Rico reported point-biserial correlations between combined 1991 CBCL and YSR scales and DSM-III diagnoses (Gould, Bird, & Jaramillo, 1993). All scales were significantly correlated with DSM-III diagnoses. The highest corelation (0.52) was reported between the Aggressive scale and a diagnosis of Oppositional Disorder. Lower correlations were found, for example, between the Withdrawn scale and Dysthymia (0.31) and Separation Anxiety (0.30). Some findings were surprising. For example, Somatic Complaints were only related to Oppositional Disorder (0.29), and Thought

Problems showed a complex pattern of relationships with Oppositional Disorder (0.36), Simple Phobia (0.32), Overanxious Disorder (0.32), and Dysthymia (0.29). While the Anxious/Depressed scale correlated as expected with Overanxious Disorder (0.37) and Separation Anxiety (0.33), a higher correlation with Oppositional Disorder was found (0.40). Cross-cultural differences need to be taken into account with this study. In addition, the use of outdated DSM-III diagnoses limits the value of the study in any assessment of the 1991 syndromes. Kasius, Ferdinand, van den Berg, and Verhulst (1997) offered a more modern comparison, this time with DSM-III-R diagnoses. The sample consisted of 231 consecutive referrals to outpatient clinics in Holland. Only 146 of these received a DSM-III-R diagnosis, 34% an anxiety disorder, 18% a mood disorder, and 37% a disruptive behaviour disorder diagnosis. The largest group in the clinical range on the CBCL, a range determined by Achenbach (1991a) based on discriminant analyses of referred and nonreferred cases, were children with Attention Problems (22%) followed by children with Aggressive Behaviour problems (21%). Logistic regression analyses investigated the ability of the CBCL classifications (clinic versus nonclinic range on each cross-informant syndrome) to predict DSM-III-R diagnoses. The CBCL Withdrawn classification predicted a diagnosis of Generalised Anxiety Disorder (odds ratio = 18.2), Major Depression (13.1), and Dysthymia (11.4). Somatic Complaints predicted a diagnosis of Overanxious Disorder (11.1), Major Depression (8.0), and Dysthymia (7.8). The CBCL Anxious/Depressed classification predicted a diagnosis of Generalised Anxiety (odds ratio = 58.3), Overanxious Disorder (35.5), Major Depression (15.7), and Dysthymia (18.9). CBCL Attention Problems predicted Oppositional Defiant Disorder or ODD for short (15.4), as well as Attention Deficit Hyperactivity Disorder, or ADHD for short (14.8). CBCL Aggressive Behaviour predicted ODD (37.9), ADHD

(28.2), and Conduct Disorder (24.4). The CBCL Delinquent classification strongly predicted a diagnosis of Conduct Disorder (71.9), but also ODD (26.3) and Dysthymia (8.7). While many expected relations were found, these results also illustrated that classifications derived from the CBCL were associated with a fairly broad range of DSM-III-R diagnoses. Another example of a diagnostic validity study related the 1991 CBCL scales to DSM-IV criteria (American Psychiatric Association, 1994), but did so in a rating scale format which allowed for the dimensional assessment of several broad diagnostic DSM-IV concepts. Eiraldi, Power, Karustis, and Goldstein (2000) examined 228 children referred for assessment and treatment of ADHD. They employed the Devereux Scales of Mental Disorders (DSMD) which are based on DSM-IV criteria and can be rated by parents and teachers (Naglieri, LeBuffe, & Pfeiffer, 1994). The DSMD Attention scale correlated 0.56 with CBCL Attention Problems, but was also significantly correlated with all other scales, most notably with the CBCL Anxious/ Depressed scale (0.41). The DSMD Conduct scale was strongly correlated with CBCL Aggressive and Delinquent Behaviour scores (0.75 and 0.61). Again, all other scales showed significant correlations, especially the CBCL Anxious/Depressed scale (0.49) and the Attention Problems scale (0.47). As expected the DSMD Anxiety scale was correlated with the CBCL Anxious/Depressed, Somatic Complaints, and the Withdrawn scale (0.64, 0.45, and 0.50). However, correlations around 0.45 were also found with the Attention Problems and the Aggressive Behaviour scales. Finally, the DSMD Depression scale correlated strongly with the CBCL Withdrawn and the Anxious/Depressed scale (0.65 and 0.50). However, the CBCL Attention Problems and Aggressive Behaviour scales were also strongly related to DSMD Depression (0.53 and 0.55). The relevance of this study to judging the validity of the cross-informant syndromes was somewhat limited by the fact that it was based on a selected clinical sample referred for assessment of ADHD. However, like in other studies a pattern of nonspecific relations emerged which questioned either the distinctiveness of the cross-informant factors or the criteria against which they were compared.

The problem of a lack of criteria which provide unquestionable standards against which to judge the cross-informant factors also arose in studies which correlated the CBCL scales with other, similar rating scales. Achenbach (1991a) for example, reported strong correlations with corresponding scales on Conners' Parent Questionnaire as well as the Quay-Peterson Revised Behaviour Problem Checklist. Reynolds and Kamphaus (1992) reported correlations between BASC Parent Rating Scales and the 1991 CBCL scales. Overall, relatively high correlations were found between similar scales (e.g. 0.82 and 0.58 between the respective Aggression scales in childhood and adolescence). These correlations can only be regarded as weak evidence for the validity of the cross-informant syndromes because these other questionnaires struggle with the same problems to establish their validity as the Achenbach factors. Unfortunately, Achenbach (1991a) did not list the correlations with other scales, but only the ones of interest to the argument he presented at the time. However, the discriminant validity of the cross-informant factors needs to be established as well as their concurrent validity with similar constructs. The BASC data showed up numerous problems in this respect. For example, BASC Aggression correlated 0.44 and 0.47 with CBCL Anxious/Depression in childhood and adolescence. BASC Hyperactivity correlated 0.48 and 0.67 with CBCL Anxious/ Depression in childhood and adolescence, respectively. Careful study of the tables presented by Reynolds and Kamphaus (1992) revealed many more examples of this kind. Again, the lack of specificity may originate from the CBCL or the BASC syndromes, or it may be related to the high level of comorbidity in child psychopathology (see later).

In conclusion, in the last twenty years Achenbach's CBCL research has attempted to address major issues in child psychopathology, including the replicability of the main factors of child psychopathology, similarity and differences between different sex/age groups, and the role of different raters in recognising emotional and behavioural problems in children and adolescents. Most of this research employed large samples and multivariate statistical techniques. Should such monumental work be criticised?

When the evidence for the validity of the CBCL cross-informant syndromes was reviewed, doubts started to arise about the distinctiveness of the syndromes and the relative lack of convincing evidence for their validity. While demonstrations of external validity depend on the correct description of syndromes in the first place, many studies proceeded as if the internal validity of the cross-informant syndromes had been fully established already. However it is always possible, to give just one example, to find some other scales that correlate with the scales one wants to "validate". If however, both scales are off the mark, only an appearance of validity has been established. Has Achenbach (1991a) really distilled the core factors of child psychopathology? Dreger (1982) pointed out that others started with a different set of items, also subjected them to careful empirical scrutiny and arrived at other factors, which may be just as valid as the CBCL factors (consider for example, the BASC factors mentioned before). The accurate identification and measurement of syndromes must be regarded as the most fundamental problem to be solved before any classification of child psychopathology can be established. The following section will therefore concentrate on this fundmental issue pertaining to the internal validity of the CBCL factors. In the final analysis it will be seen how Hartman et al.'s (1999) devastating critique of the cross-informant factors provided the main motivation, rationale and focus for this thesis.

1.6. Confirmatory Factor Analyses and Critique of the 1991 Cross-Informant Syndromes

Waldman, Lilienfield and Lahey (1995) discussed unresolved issues in the construct validity of the disruptive behaviour disorders, but the rationale of their discussion can be extended to other syndromes as well. Observing that most studies in the child psychopathology literature have concentrated on external validity, they cautioned that these studies only make sense if the constructs employed have already established a high degree of internal validity. Acknowledging that internal validity studies have been reported as well, they nevertheless criticised them for mostly building their case on studies employing exploratory factor analysis as their method of choice. The results from these analyses "are often arbitrary and *post hoc* in the sense that the prespecified models cannot be explicitly tested, alternative models cannot be formally compared, and no statistical criterion exists for ascertaining the adequacy of the fit of a given model to the data or for concluding that one model fits better than another" (Waldman et al., 1995, p. 343). As an alternative they recommended the use of confirmatory factor analysis and illustrated the application of these newer techniques to some disruptive behaviour disorders.

Achenbach favoured principal component analysis in all his studies, which actually meant that his method was two steps removed from the approach recommended by Waldman et al. (1995). Three types of internal validity factor analyses can be distinguished: Principal component analysis (PCA), exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). While one could argue that PCA constitutes the most simplistic form of factor analysis, many authors have pointed out that the theoretical model underlying PCA actually differs substantially from the EFA and CFA model. For example, Loehlin (1998, p.32) explained that "Factor analysis is usually defined as a latent variable method - the factors are unobserved hypothetical variables that underlie and explain the observed correlations", but "Principal components are linear composites of observed variables". While PCA analyses all variance, EFA analyses only common variance. Syndromes defined through PCA can be understood as entities created through the display of emotional or behavioural problems. A labeling perspective of deviant behaviour may fit this model. By contrast, syndromes defined through EFA can be understood as not directly observable underlying factors which are held responsible for the expression of psychopathology in the different emotional and behavioural problems shown by children.

Achenbach (1993) did not seem to make a distinction between PCA and EFA as can be seen in the following quotes: "...factor analysis and its close cousin, principal component analysis" (p. 13), and "...principal component analysis (PCA) uses the same general procedure as factor analysis" (p.15). His attitude to any underlying theory appeared to be strictly neutral: "...factor analysis and cluster analysis function as *descriptive statistics* that do not require major theoretical assumptions" (p.13), and "A set of features having high loadings on a particular factor can be viewed as a *syndrome*, in the sense of features that tend to occur together. In this sense of syndrome, no assumptions are made about whether the covarying features represent a disease" (p.16, italics in original text). Sitting on the fence does not help to clarify the nature of syndromes of child psychopathology. However, while cautious not to call syndromes "diseases", Achenbach's (1993) attempts to elucidate the "correlates of taxa" tend to view the syndromes as underlying hypothetical contructs. This is clearly apparent in his attempts to demonstrate their validity by reference to genetic studies, DSM diagnoses, and well known constructs like negative affectivity (in relation to the Anxious/Depressed syndrome, cf. Watson & Clark, 1984), or traits like shyness and withdrawl (in relation to the Withdrawn syndrome, cf. Kagan, Gibbons, Johnson, Reznick, & Snidman, 1990). Another telling example was provided by Achenbach (1993, p. 128) where he linked the Aggressive syndrome to serotonergic activity (cf. Brown & van Praag, 1991) and the functioning of the Behavioural Inhibition and Reward Systems (cf. Gray 1987). Given this understanding of syndromes, a true factor analysis would have been more appropriate to the analysis of the correlations between symptoms reported by parents (and others).

Floyd and Widaman (1995) would have taken this recommendation one step further. They saw exploratory factor analysis only as an appropriate tool in the first phase of instrument development. Once a model was established, they recommended the application of confirmatory factor analysis, preferably in a new sample. Thus their advice coincided with Waldman et al's (1995) counsel on testing the internal validity of models of psychopathology. Some authors have taken up the challenge to test the cross-informant model using CFA, in one case at least resulting in a devastating critique.

Before presenting these studies it is useful to briefly review certain aspects of the process by which the cross-informant syndromes were generated. The raw data consisted of ratings on only three levels. These ratings were correlated using the product-moment correlation formula. However, Olsson (1979a) had shown that the treatment of short ordinal scales as interval scales leads to serious distortions in the estimation of the correlation between two variables. Following Olsson (1979a) the maximum likelihood estimation of the polychoric correlation is now regarded by many (e.g. Jöreskog, 1990) as the better choice of statistic. Further, the use of varimax rotation in the generation of the model was simply based on practical reasons rather than any theoretical rationale that justified the assumption of independence between underlying syndromes. Real world factors are generally more likely to be correlated than uncorrelated and the overwhelming evidence for comorbidity in psychopathology (see later) also clearly suggests the use of oblique rotation methods. Further problems may have arisen from the need to find common loadings, first in the definition of core syndromes, then in the definition of the cross-informant syndromes. While similar loadings provided the fabric for the current model, the other side of the coin may hide the fact that 2 in 6 loadings could be different after the first step and 1 in 3 after the last selection. The cumulative effect of these decisions was impossible to judge from the publications presenting the cross-informant model. Further contributing to this problem was the vagueness created about the details of the results because the full loading patterns have never been published. All that was known was that items with loadings of 0.30 or higher could be selected, and that higher loadings were necessary on the Aggressive factor. However, the cross-loadings were never published or discussed anywhere. The only exception was the explanation that items with loadings of 0.30 or higher were counted only on other factors, even if they loaded on the Aggressive factor. This effectively meant that some mispecification was built into the model, compromising its discriminant validity from the start. However, the subsequent studies employing confimatory factor analysis were in an excellent position to uncover any misfit of the data to the cross-informant model, because the CFA approach requires the specification of the full pattern of hypothesised loadings.

Four studies have now been published using CFA. DeGroot, Koot, and Verhulst (1994) examined a substantial sample of 4674 clinic children whose parent(s) had rated them on the Dutch version of the CBCL. Splitting the sample in half, they first developed a Dutch model for the CBCL using polychoric correlations and exploratory factor analyses with promax rotation on the 85 CBCL items which constitute the cross-informant syndromes. This new Dutch model as well as Achenbach's (1991a) model were then subjected to confirmatory factor analyses in the cross-validation sample ($N = 2335$). The CFA was also based on polychoric correlations and employed unweighted least squares estimation (ULS). The overall fit was the same for both models: The goodness of fit index (GFI) was 0.885, the adjusted goodness of fit index (AGFI) was 0.878, and the root mean square residual index (RMSR) was 0.096 (cf. Jöreskog & Sörbom, 1989). The GFI and AGFI did not reach the conventional level of 0.90 for an acceptable model. In addition, it should be mentioned that Hu and Bentler (1999) found that these indices "performed poorly" (p.5) and recommended that they not be used for evaluating model fit based on maximum likelihood estimates. Unfortunately very little is known about their performance under ULS estimation. DeGroot et al. (1994) interpreted the RMSR as "small" and declared that the study had provided "strong support" (p.225) for the cross-cultural generalisability of the CBCL cross-informant syndromes. This optimistic reading of the results neglected the finding that another model (the Dutch model) fitted the data as well, raising the question as to which model was more appropriate or valid. While the two models shared 74 hypothesised loadings, 37(!) loadings were specified differently. Another issue not discussed was the fact that Achenbach's orthogonal factor model had been quietly dropped for an oblique factor model.

Given cultural differences between the USA and Holland, the fit of the US model may have been depressed in DeGroot et al.'s (1994) study. However, Dedrick, Greenbaum, Friedman, Wetherington, and Knoff (1997) studied a sample of seriously emotionally disturbed US children who were comparable to Achenbach's (1991a) clinic sample in a broad cultural sense. Given the large number of parameters to be estimated for the cross-informant model (91 factor loadings, 85 unique or error components, and 28 correlations between factors), the sample size of 631 children can be regarded as moderate. The analyses were based on polychoric correlations and ULS estimation and the GFI, AGFI and RMSR were similar (0.91, 0.90, and 0.86) to those reported by DeGroot et al. (1994). The model fit was assessed as "acceptable" based on the Tucker-Lewis Index (TLI = 0.91, cf. Tucker & Lewis, 1973,) and the Root Mean Square Error of Approximation (RMSEA = 0.079, cf. Steiger & Lind, 1980). However, this assessment applied only to the correlated, not the uncorrelated eight factor model which was deduced from the use of varimax rotation by Achenbach (1991a). Correlations between factors actually ranged from a relatively low correlation of 0.19 to a very strong correlation of 0.82. No wonder the uncorrelated model did not fit the data at all (TLI = 0.33, RMSEA = 0.22). Even in the correlated version of the model, there were eight items which did not reach a minimum loading of 0.30 on their hypothesised factors. Four of these were items Achenbach had assigned to more than one factor.

The third study compared the fit of the cross-informant model as well as DeGroot et al.'s (1994) Dutch model across three countries (Heubeck, 2000a). This study formed an important part of the work leading towards this thesis and consequently the full paper is included here in Appendix A. As no details were available on factor loadings (and cross-loadings) in the 1991 US samples, I reanalysed Achenbach's (1991) matched clinic sample (*N* = 2210) using polychoric correlations and ULS estimation. This analytic strategy was chosen to make possible a direct comparison with the loadings published by DeGroot et al. (1994) for the Dutch sample. In addition, I had gathered a large new database on children and adolescents who had used mental health services in Sydney, Australia (*N* = 2237). The main results can be summarised as follows: There was very little difference in the overall fit between the correlated US eight factor model and the correlated Dutch eight factor model. Differences between countries were very small as well. The overall fit for the correlated cross-informant model was assessed as only "moderate" given that fit indices like the TLI = 0.90 and 0.88 and the RMSEA = 0.085 and 0.092 for Achenbach's US data and for the Sydney data, respectively. DeGroot et al. (1994) had only reported a RMSR of 0.096, but not the RMSEA. Inspection of loadings for convergent validity across countries found 89% to 93% of items with a loading of 0.30 or higher on the factors the cross-informant model had specified. The Attention and especially the Social Support factor found least support. None of the cross-loadings specified in the model were supported. Instead numerous unmodelled cross-loadings were found in the US as well as the Sydney data. DeGroot et al. (1994), obviously concentrating on convergent validity, did not provide any information concerning the discriminant validity of the CBCL items. I concluded that there was a core of items on the CBCL that worked well across countries, but that discriminant validity was a problem which meant that the CBCL profile should not be interpreted until the model had been revised. Futher, it would be desirable if a revision included new items to strengthen the measurement of the Attention Problems factor. Correlations between the factors were not reported in this study, but the uncorrelated eight factor model was shown to lack fit in all three countries (for further details see Appendix A).

The fourth study to assess the cross-informant model through confirmatory factor analysis was published shortly after the Heubeck (2000a) paper was submitted. Hartman et al. (1999) brought together an enormous amount of data covering seven countries and a total of 13226 parent ratings (as well as 8893 teacher ratings). These countries included Greece, Portugal, Turkey, Norway, Holland, Israel, and the USA. The authors rightly stated that "the diversity and volume of the samples reported here are unequalled" (p.1099). However, only two of the eight CBCL data sets included clinic children. All sets were analysed separately. Several approaches were compared: Polychoric correlations with ULS estimation, product-moment correlations coupled with maximum likelihood estimation, and simulation. First considering the ULS results which could be compared to previous studies, the RMSR and the RMSEA were found to indicate "inadequate" fit overall (ranging from 0.75 to 0.14 across countries), while the GFI and CFI (Bentler, 1990) were assessed as "almost acceptable" (range 0.86 to 0.94 across countries). The maximum likelihood estimates reversed this pattern with the residual indices showing "acceptable or nearly acceptable fit", while the GFI and CFI were "below the range of values considered acceptable" (p. 1102). All fit indices fell well outside the simulated range of fit indices. As a result "the cross-informant model was unequivocally rejected" (Hartman et al., 1999, p.1111). The authors emphasised that the results "consistently showed inadequate empirical support for the cross-informant model" (p. 1114) across methods, countries, informants, and clinic and nonclinic samples. Comparison with other models showed that the uncorrelated eight factor model fitted very badly. The one factor model showed a large improvement in fit over the independence model, a finding also reported by Dedrick et al. (1997) and Heubeck (2000a). Some further improvement in fit was found for a two factor internalising/externalising model, while further improvement was "minor" when the correlated eight factor model was compared to this model. The focus of the final critique was the lack of differentiation between the cross-informant syndromes and the "relatively arbitrary composition of the items in the scales" (Hartman et al., 1999, p. 1112). The validity study mentioned earlier by Kasius et al. (1997) was interpreted in such a way that "the low specificity of the CBCL scales with regard to widely varying DSM diagnoses ...suggests insufficient construct differentiation in the CBCL" (Hartman et al., 1999, p. 1113). Finally, these authors also mustered support from other writers who have critiqued the CBCL (Lachar, 1998; Kamphaus & Frick, 1996; Macman et al., 1992). Lachar (1998), for example, pointed out that most validity evidence for the CBCL refered to the discrimination between clinic and nonclinic samples, but that comparatively little evidence has been put forward showing how the scales distinguish between specific diagnostic groups. Kamphaus and Frick (1996) critizised the heterogeneous item content of the scales and lamented the lack of differentiation between anxiety and depression as well as between impulsiveness and inattention. Macman et al. (1992) suggested that the CBCL does not even discriminate reliably at the higher level of the internalising and externalising scales. Further critical evaluations not mentioned by Hartman et al. (1999) were published by Macman, Barnett, and Lopez (1993) and by Drotar, Stein, and Perrin (1995).

In summary, the main criticism leveled at the CBCL cross-informant model was the lack of evidence for its internal construct validity. While the tenor of the critique was such that it seemed to deliver a final verdict on the cross-informant model, a more circumspect reading of the findings would suggest that Hartman et al. (1999) were "throwing the baby out with the bathwater". Despite finding that the eight factor unrestricted model showed "considerable improvement in fit compared with the cross-informant model", Hartman et al. (1999, p. 1109) did not make any attempt to discover which parts of the model fitted and which parts did not. Instead of using this finding to go forward, they simply used it to reiterate that there is misspecification in the model. My statistical results were very similar, where they could be compared, but my conclusions were different, namely that "there is a strong core of items on the CBCL which generalise well across models and countries. Any revision should preserve this core and improve model structure by taking convergent as well as discriminant validity equally into account" (Heubeck, 2000a, p. 447).

Despite the massive amount of statistical work performed by Hartman et al. (1999) and the large number of samples and subjects, their study was not beyond criticism. One concern was the use of general population samples to detect clinical syndromes (six out of eight CBCL samples). Hartman et al. (1999) did not report the proportion of children in these samples who could actually have been expected to show enough symptoms to form a syndrome. Some general population studies exclude clinic children altogether. A second concern relates to the neglect of positive results on the one hand, and the erection of unrealistic standards on the other. Some fit indices actually showed an adequate fit, e.g. all RMSEAs in the maximum likelihood estimations were smaller than 0.052. Hartman et al. (1999, p.1100) initially suggested that a RMSEA of 0.070 indicates a good fit, but after simulation they adjusted this standard drastically downwards to 0.010 to 0.032. Browne and Cudeck (1993) suggested that a value of 0.080 indicates a reasonable approximation, while Hu and Bentler (1999), after considerable investigation, recommended a RMSEA of 0.060 or less as indicating a "good fit" between a hypothesised model and the observed data. A third concern was the inappropriate use of the Macman et al. (1992) paper because it did not deal with the 1991 cross-informant syndromes and the internalising/ externalising factors related to them, but with the earlier 1983 syndromes. Another concern related to the interpretation of the Kasius et al. (1997) study. The assumption behind Hartman et al.'s (1999) critique, that DSM-III-R diagnoses can actually function as a yardstick to judge the distinctiveness of the cross-informant syndromes, has to be tempered by our knowledge of very high comorbidity rates between DSM diagnoses (see later) and the regular changes in diagnostic criteria from one edition of the manual to the next. This also puts Lachar's (1998) critique into perspective as these issues limit the ability of any researcher to demonstrate specific distinctions between different clinical groups.

There is research which demonstrates the extent to which the CBCL syndromes relate to specific clinical problems like ADHD (e.g. Eiraldi, et al. 2000) or Major Depressive Disorder (cf. Gerhardt, Compas, Connor, & Achenbach, 1999), to name just two studies. In relation to Kamphaus and Frick's (1996) concern about the lack of a differentiation between anxiety and depression, it is interesting to note that a number of researchers have attempted to form a depression scale from CBCL items (e.g. Nurcombe et al. 1989, Hepperlin, Stewart, & Rey, 1990, Clarke, Lewinsohn, Hops, & Seeley, 1992) and included some items which are not currently subsumed under the cross-informant model. These included the only two items on the CBCL referring to suicidal intentions. Given their clinical importance and research findings of a strong relationship with depression (e.g. Shaffer et al., 1996) it would seem highly desirable to include them in the cross-informant item set. It is conceivable that inclusion of these items in the model could affect the factor structure in the direction desired by Kamphaus and Frick. They also expressed a preference for a distinction between the inattention and hyperactive construct on the CBCL. Heubeck (2000a) reported that the current Attention Problem scale included a number of items which did not load or generalise across countries and recommended that items which had already been shown to lead to the desired distinction on the Teacher Report Form should be included in future revisions of the CBCL. Unfortunately there were no appropriate items on the 1991 form of the CBCL that could be considered in this respect and tested in the current study.

Having discussed the contribution of four major studies using confirmatory factor analyses in the evaluation of the cross-informant syndromes, one other aspect of this work needs to be pointed out, namely the contribution of three of these studies (DeGroot et al., 1994, Hartman et al., 1999, Heubeck, 2000a) to a cross-cultural perspective on child psychopathology. Drotar et al. (1995) raised a number of problems with the Child Behaviour Checklist, amongst them an unreflected use in different cultures. While they pointed to research demonstrating the possibility that there are different thresholds for distress about particular problems in different cultures (cf. Weisz, Sigman, Weiss, & Mosk, 1993), the issue may be deeper and not only concern mean differences, but also include differences in the very symptom constellations that are rated and by inference in the underlying syndromes. If however, it could be demonstrated that the CBCL measures similar problems or syndromes across "...countries that differ in language, culture, and referral practices..." (DeGroot et al., 1994, p. 225), our ability to compare and use findings from studies in different countries would be enormously enhanced. DeGroot et al. (1994) concluded that they had found “strong” supportive evidence for the cross-cultural generality of the CBCL cross-informant syndromes in their study of clinically referred children in Holland. I concluded that there is only “a core of items” that generalised well across Australia, Holland and the USA (Heubeck, 2000a, p. 447) and I cautioned that these were all so-called "western" countries, and that further work was needed before the results could be generalised to Eastern, African, Latin, or Islamic nations. Hartman et al.’s (1999) study included a relatively wide range of cultures, ranging from North America and Northern Europe (USA, Norway, Holland) to Southern Europe (Greece and Portugal) and the Middle East (Turkey, Israel). However, given that the study focussed entirely on overall model fit, the only conclusion appeared to be that the cross-informant model fitted equally badly in every culture they studied. Notwithstanding this broad rejection, just as it would have been informative to find out in general which parts of the cross-informant model worked and which ones failed to fit the predicted pattern, it would have been enlightening to clarify if the model’s misfit was based on the same symptoms in every country, or if there were differences between countries.

1.7. Main Aims of the Current Project

Although Hartman et al. (1999) may have gone further than necessary in their attack on the cross-informant syndromes and failed to provide a positive direction to their future development, there can be no doubt that the current explication of the model is less than ideal (cf. the fit indices reported by DeGroot et al., 1994, Dedrick et al., 1997, and Heubeck, 2000a). The current study therefore set out to further investigate the details of the model, rather than simply its overall fit, and ascertain the relationship of each individual symptom to the main factors representing the domain of child psychopathology covered by the CBCL. The main credo was that there was value in persisting with the development of a CBCL model, given its enormous research background and worldwide use. The main intention was to contribute to a revision of the model and to further elucidate the structure of the factors underlying child psychopathology. Rather than "unequivocally rejecting" (cf. Hartman et al., 1999, p.1111) the cross-informant model, the evidence for the convergent validity of about 90% of items (cf. Heubeck, 2000a) was judged sufficient to continue to use the model as a guiding beacon on a path which should lead to a revised model which is more in tune with the data. From a scientific point of view the benefit of continuing to use the model was that it provided specific hypotheses for each of the 85 symptoms which were to be tested against several large data sets across different countries. While mainly hypothesis testing, the approach was also going to be hypothesis-generating in relation to misspecified and unmodelled loadings, and any newly found relationships were going to be examined for cross-validation in the other samples.

Methodologically a new approach was going to be used which promised to overcome some of the limitations of ULS estimation and/or maximum likelihood estimation. ULS estimation is not scale free and maximum likelihood estimation is based on the assumption of multivariate normality in the data, which clearly does not apply to CBCL data. However, the approach previously recommmended by statistical authorities like Jöreskog (1990) for ordinal data like the CBCL ratings, namely the use of polychoric correlations and fully weighted least squares estimation, was difficult if not impossible to implement in practice given the size of the cross-informant model. Dedrick et al. (1997) estimated that more than 10000 cases were required to obtain a stable weight matrix for the CBCL model. An alternative method, which is often pointed out in reviews dealing with problems in structural equation modeling with nonnormal data (e.g. West, Finch, & Curran, 1995), was developed by Muthén (1984) and called categorical variable methodology or CVM. Perfected in the late 1990s (cf. Muthén & Satorra, 1995, Muthén, du Toit, & Spisic, 1997), and implemented in Mplus (Muthén & Muthén, 1998), this approach was going to be employed as a modern alternative to the compromise solutions used by previous researchers.

Sampling was going to make sure that the full spectrum of emotional and behavioural problems would be represented in each data base. The underlying concept was of a dimensional model which specifies each syndrome as continuous, including a lack of discontinuity between clinic and nonclinic children as put forward by Hartman et al. (1999) and Widiger and Clark (2000), among others. Greater severity was conceptualised a.) by the increasing frequency with which each problem is expressed and b.) the involvement of more and more behaviour problems. An exclusive focus on general population samples may miss a large part of the clinic spectrum, a problem apparent in Hartman et al's (1999) observation that much their data was severely skewed. On the other hand, an exclusive focus on clinic samples, as preferred by Achenbach (1991a), curtails distributions at the lower end and does not represent what may loosely be the thought of as "budding" or "prodromal" syndromes. In summary, full representation of clinic and nonclinic children was going to be sought for the examination of the full spectrum of expressions of child psychopathology.

In addition, samples from different cultures were sought. American children were going to be compared to Australian children. Israeli children were studied as well in order to widen the cultural boundaries of the project. In contrast to previous projects that simply focussed on the overall fit or misfit of the cross-informant model, this research was going to examine differences in fit or misfit at the individual factor and individual symptom level to provide a more useful and detailed picture of the relationships between symptoms in different cultures.

Finally, the project intended to pay particular attention to the definition and possible revision of the depression construct on the CBCL. Given that clinical diagnostic systems usually separate depression from anxiety problems and other dimensional scales purport to measure one or the other (e.g. Children's Depression Inventory, Kovacs, 1992, Revised Children's Manifest Anxiety Scale, Reynolds & Richmond, 1978), the repeated finding that the CBCL does not distinguish betweeen these problems required further research (cf. Kamphaus & Frick, 1996). The inclusion of the two suicidality items offered the chance to reexamine the Anxious/Depressed factor in several large samples and assess their ability to strengthen the depressive component enough to bring it into sharper relief among the other factors. After all, Nurcombe et al. (1989) had reported that item 91 on the CBCL (threatens suicide) had received the highest loading on the Depression component they computed for their inpatient sample. However, an additional hypothesis was entertained as well, because none of the three studies which had proposed a CBCL depression scale had actually fully examined the discriminant validity of their items (i.e. Nurcombe et al. 1989, Hepperlin, et al., 1990, Clarke, et al., 1992), and neither had Gerhardt et al. (1999) in relation to their major depressive disorder analogue scale. Fergusson and Lynskey (1995) had shown that suicide attempts were not only committed by depressed New Zealand adolescents, but that a high proportion fulfilled diagnostic criteria for conduct/oppositional disorders and substance use disorders as well. Lewinsohn, Rohde, and Seeley (1995) also reported a highly elevated risk for major depression in a large US sample: 19% of adolescents with major depressive disorder were reported to have attempted suicide compared to a baseline of 1.5% without any diagnosis. However, substance use (9.3%) and disruptive behaviour disorders (4.7%) were also shown to increase risk for one or more suicide attempts. Little was known about the effect of these other factors in Australia or Israel compared to the studies conducted in the USA and New Zealand. The relationship of talking about suicide and/or actually trying to harm onself on the one hand, with aggression and substance use on the other, was therefore of as much interest to this research as the relation of these behaviours to an underlying depression factor. In conclusion, the current study also hoped to contribute to a deeper understanding of the underlying features of this pressing social problem through the investigation of several very large samples in different countries.

So far the introduction has focussed on symptoms of child psychopathology and examined their relationships with hypothetical factors underlying their concurrence.

Statistically speaking the main focus was on individual factors and factor loadings. Occasionally the relationships between these factors were considered as well, e.g. when the independence proposed by the use of varimax rotation was compared to the results of oblique models. At other times the term comorbidity was used without much explanation and sometimes very loosely. The next section returns to this issue to present very briefly some of the main findings in the area covered by categorical systems and the associated conceptual issues. It will then ask what meaning the concept may have when used in the context of a dimensional classification system like the CBCL cross-informant model, and review the major findings in this area. The section concludes with additional research questions for this thesis which arise out of the revision of the CBCL model and the question of sex and age differences in "comorbidity" which has hardly been addressed at all by any approach so far.

1.8. Additional Considerations: Comorbidity and Covariation

Since its introduction from medical epidemiology (Feinstein, 1970) into the psychological/ psychiatric literature in 1984 (cf. Lilienfeld et al., 1994), the study of comorbidity has developed into such a major issue that Sabshin (1991, p. 345) declared comorbidity "a central concern of psychiatry in the 1990s" and Kendall and Clarkin (1992, p. 833) saw it as "the premier challenge facing mental health professionals in the 1990s". Given the serious implications of the high rates of comorbidity reported, this concern is no surprise. After all comorbidity questions the validity of most of the research done before studies began in the mid 1990s to more or less routinely report second or third diagnoses in their patients. Given comorbidity rates as high as 50% or more in some studies, any previous findings could have been due to comorbid conditions as much as to the specific condition under study. In addition, true comorbidity has major implications for assessment and treatment (cf. Kendall & Clarkin, 1992). The central issue however, was and remains the question to what extent comorbidity reflects nothing more than an inadequate taxonomy with fuzzy concepts that overlap and boundaries that are misplaced. Nottelmann and Jensen (1995) warned that only by avoidance of reification of taxonomic concepts and crossfertilisation between different approaches could we avoid a situation where comorbidity would still be "the premier challenge facing mental health professionals in the year 2000" (p. 151). When reconsidering the field now it becomes clear that not much has changed. Hundreds of studies have been conducted within the categorical disorder framework to demonstrate the rates of comorbidity between different disorders and a large number of hypotheses have been generated to explain their coocurrence. A large number of these studies unfortunately proceeded as if the basic units of study were known and only their rate of coocurrence needed to be ascertained or related to some third factor. Despite this some progress has been made.

Angold, Costello, and Erkanli (1999) offered a most comprehensive and insightful review of studies based on DSM-III, DSM-III-R, and DSM-IV diagnoses concentrating on the most frequent child and adolescent psychiatric disorders. Their meta-analysis of 21 general population studies arrived at the following comorbidity estimates (which are median odds ratios with 95% confidence intervals shown in brackets):

- ADHD with Conduct/Oppositional Defiant Disorder (CD/ODD): 10.7 (7.7 - 14.8);
- ADHD with Depression: 5.5 (3.5 - 8.4);
- ADHD with Anxiety: 3.0 (2.1 - 4.3);
- CD with Depression: 6.6 (4.4 - 11.0);
- CD with Anxiety: 3.1 (2.2 - 4.6);
- Depression with Anxiety: 8.2 (5.8 - 12.0).

Importantly this review concluded that these rates were not produced by methodological artifacts like Berkson's bias (Berkson, 1946) or referral biases and not the result of halo effects or information collection strategies. Angold et al. (1999) also discussed whether comorbidity could arise from the multiple coding of single behaviours, as when inability to sit still leads to refusal to comply with adult requests and both are coded as separate signs of psychopathology feeding into diagnoses of ADHD and ODD (Oppositional Defiant Disorder). Their insightful discussion of this issue led them to conclude that this possibility cannot provide a *general* explanation for comorbidity. However, it does leave the possibility open that our lack of understanding of which behaviours are independent, dependent, constitute core symptoms, complications, or impairments, contributes to comorbidity estimates at least in parts of the taxonomy.

Asking directly if comorbidity can be understood as an artifact of the current diagnostic system, they considered if the use of nonspecific symptoms can be held responsible for comorbidity between mood disorders and conduct disorders. This was again a most informative discussion which examined the explicit criteria for depression, anxiety, ODD, and Conduct Disorder for overlap. In addition the authors provided a much deeper insight into this issue than just offering a surface comparison of explicit criteria. Using the example of irritability as a symptom of depression in childhood they pointed out that a number of symptoms of ODD can result from irritability although irritability is not explicitly stated as a symtom of ODD (although DSM-IV criterion 6 "touchy or easily annoyed" comes very close). Angold et al. (1999, p. 68) expanded this discussion and developed an example that showed how a child can attract three DSM-IV diagnoses with only five symptoms. They rightfully pointed out that the removal of such symptoms would not improve the diagnostic system, but leave it with a collection of atypical symptom constellations. "The issue is not the inclusion of similar symptoms in different diagnoses, but the paucity of research on the differential characteristics of those symptoms in different disorders" Angold et al. (1999, p. 68).

This last point has also been made in relation to the CBCL: "Macmann et al. (1992) argued that items which need to be scored on several scales lack discriminant validity by definition and that the practice is undesirable. This line of reasoning assumes that there are clear diagnostic signs in child psychopathology which are uniquely related to distinct conditions. While an interesting ideal, the reality of child psychopathology may be different. Just as fever needs not to be dropped as a sign of many medical conditions, an item like confusion needs not to be dropped as a sign of attention as well as thought problems. What is important though, is that the discriminant validity of the item is known and taken into account" (Heubeck, 2000a, p. 446).

The next explanation for comorbidity was considered “most radical” by Angold et al. (1999, p. 69) because it implied “that the official diagnostic system is fundamentally flawed at the conceptual level”. Here they referred to the view that categorical diagnostic approaches simply impose arbitrary cutpoints on what are essentially dimensional phenomena. Discussing the boundary between normal and abnormal, or mild symptomatology and serious clinical problems, the authors concluded that comorbidity is a feature across the entire range of severity. In relation to boundaries between disorders they questioned if, in the rush towards more specific diagnoses, DSM-III may not have engaged in too much splitting of what may be more unitary phenomena. The splitting of anxiety and depressive symptoms into numerous diagnoses may be a case in point.

Angold et al.’s (1999) review was limited to diagnostic studies and did not report any detailed results from studies using a dimensional approach. However, they did discuss in general terms the contribution of empirically derived syndromes to the study of comorbidity. Informing the reader that the empirical approach has produced highly replicable syndromes, they referred to the earlier replication study (Achenbach et al., 1989) rather than the cross-informant syndromes (Achenbach, 1991a). It was not made clear if this “oversight” indicated any criticism of the 1991 syndromes. An interesting perspective was brought to bear on the question of comorbidity. Viewing empirical syndromes through the eyes of the DSM system they saw a different mix of symptom constellations and concluded: “Thus, within syndromes we see that the statistical structure of symptomatology implies what, from a diagnostic perspective, is called comorbidity” (Angold et al., 1999, p. 62). In addition, these authors pointed out that high correlations between the underlying factors represent as much a problem for this approach as high rates of comorbidity for the diagnostic approach. “Even if we reject categorical diagnosis, we still have to explain why there are correlations among different dimensions of psychopathology derived from factor analysis, while a single factor does not suffice to explain covariation among symptoms “ (Angold et al., 1999, p. 78).

The application of the term comorbidity to symptom patterns which from another perspective appear mixed up, can be questioned. In fact, the question must be asked if the term can or should be used in relation to dimensional concepts. Lilienfeld et al. (1994) went even further, suggesting that the term should not be used at all, not even in the context of a categorical taxonomy. They maintained that comorbidity is a medical term that only makes sense in a medical taxonomy which is built on discrete diseases for which the aetiology and pathology are known. As this is patently not the case for syndromes of psychopathology the terminology was better abandoned. Instead, they wanted the word comorbidity replaced by two other terms reflecting its divergent meanings: co-occurrence and covariation. They equated co-occurrence with dual diagnosis and defined covariation as the tendency of certain diagnoses to cooccur more often than expected by chance. Importantly, they pointed out that these two situations “possess very different, and in some cases opposite, implications” (Lilienfeld et al., 1994, p. 78). For example, increased diagnostic concurrence can be produced by Berkson’s bias (Berkson, 1946) and by selection factors, but increased diagnostic covariation can not. In the context of dimensional systems the notion of co-occurence makes little sense unless the concepts employed are truncated, redefined and reified into categories. However, the notion of covariation can be extended to the concept of correlation between the latent constructs in a dimensional taxonomy, while the misspecification of diagnostic indicators, indicative of "comorbidity" according to Angold et al. (1999), is best considered as an issue of convergent and discriminant validity. Dimensional formulations are usually based on the psychometric tradition and particularly cognisant of convergent and discriminant validity as important aspects of construct validation (cf. Blashfield & Livesley, 1991; Skinner, 1981; Waldman et al., 1995).

Focussing on the narrower field of dimensional assessment, a wide variety of methodological and statistical approaches to studying "comorbidity" can be discerned. Heubeck (2000b) showed that this variety introduces method variance that can lead to conflicting results with the same data. At one end are approaches that appear to try to emulate the categorical systems by applying clinical cutoff scores and classifying children into cases or noncases. For example, McConaughy and Achenbach (1994) employed the 95%ile on the 1991 CBCL syndrome scales in the normal population to classify children as cases in their general population sample as well as in their clinic sample. Crosstabulations showed that between 10.5% and 30.2% of children in the general population received two "diagnoses" in any of the 28 possible combinations of CBCL syndromes. In the clinical sample these percentages ranged from 21.1% to 51.9%. This study had given up the advantages for which a dimensional system had been designed in the first place. The selection of the top 5% according to population norms was obviously arbitrary and contravened the finding that "comorbidity is a feature of behavioral and emotional problems across the entire range of severity" Angold et al. (1999, p. 69). Other studies used dimensional rating scales and computed the correlation between the whole range of scale scores. A study by Verhulst and van der Ende (1993) in Holland found 1991 CBCL scale correlations ranging from 0.14 to

0.55 in a general population sample. Achenbach (1991a) had reported product-moment correlations between CBCL scale scores in the general population in different sex/age groups ranging from a low of 0.17 to a high of 0.65. The range of scale correlations he reported in clinic samples ranged from 0.16 to 0.73. Only these two studies are mentioned here because of their sample sizes and because they employed the 1991 CBCL scales. Numerous other studies using the CBCL and other instruments are available that reported correlations between scales and interpreted them as indicating comorbidity. However, Waldman et al. (1995) pointed out that traditional methods of assessing comorbidity, such as correlating symptom scales or tabulating diagnostic overlap, confound spurious contributors to comorbidity estimates, like general severity or impairment and rater biases, with the true relationships among latent diagnostic entities. "It is only by separately assessing these latent factors that researchers can begin to disentangle the true degree of overlap and covariation among latent entities from extraneous confounding influences" Waldman et al. (1995, p. 352).

There are now a number of studies that have employed confirmatory factor analysis to obtain purer estimates of the correlation between the latent factors underlying child psychopathology. They can be divided into two groups: Those studies that employed scale scores as observed measures of latent variables and those that focussed on the item level indicators, i.e. they used descriptors of individual observable behaviours as indicators. Garber, Quiggle, Panak, and Dodge's (1991) study of 312 children in grades 3 to 6 was one of the first to employ the first approach to assess the comorbidity between aggression and depression. Parent, teacher, peer, and self-reports provided the observed scale score indicators for the two latent constructs. The correlation between the depression and the aggression construct was estimated as 0.42

after taking scale unreliability and rater bias into account. Messer and Gross (1994) in a similar study arrived at an estimate of 0.56 for the correlation between latent depression and aggression. Fergusson and Horwood (1993) obtained a lower estimate of about 0.30 for the correlation between their conduct/oppositional behaviour construct and the latent anxiety/withdrawl variable. However, the correlation between conduct/oppositional behaviour and attention deficit was high (~0.80), supporting the view that they both belong to a higher order externalising factor. A study of the relationship between two internalising syndromes (Cole, Truglio, & Peeke, 1997) found high correlations between anxiety and depression (0.93 in 3rd grade, and 0.85 in 6th grade). In fact, in 3rd grade the correlation could not be distinguished from unity (SE = 0.08) and the separation of the two constructs could not be upheld. Finally, Hinden, Compas, Howell, and Achenbach (1997) estimated the correlation of the anxious/depressed construct with the other cross-informant constructs (measured through parent, teacher and youth self-reports). The lowest correlation was found with the delinquent behaviour construct (0.47), while all others exceeded 0.60 to a maximum of 0.68. Unfortunately not all combinations of cross-informant syndromes were estimated (e.g. Somatic Complaints with Attention Problems). An interesting observation in this study concerned the fact that parent reports showed the highest validity coefficients/loadings for every syndrome, thus supporting the focus on parent reports chosen for the current thesis.

Next, a search was undertaken for studies that employed item level confirmatory factor analysis to estimate the correlations between latent variables representing child psychopathology. Only one such study was found in relation to the CBCL. Dedrick et al. (1997) reported a wide range of correlations, disattenuated for error, between the eight latent CBCL syndromes. The lowest correlation of 0.19 was calculated between the Somatic Complaints and the Delinquent Construct. The highest correlation of 0.82 was obtained between Thought and Attention Problems. It was this study that was of most interest to the current research because it was the only one that investigated the covariation between factors while maintaining the focus on the most basic level of data analysis, i.e. it conducted an item level analysis rather than employing already formed scales. Thus assessment of model fit included all the aims of the current research, assessment of convergent and discriminant validity and estimation of factor correlations in the one model (cf. Waldman et al., 1995). Unfortunately, none of the other three studies that employed CFA to the 1991 CBCL model (DeGroot et al., 1994; Hartman et al., 1999; Heubeck, 2000a) reported the correlations between the latent factors.

There were two further issues to consider in this context. Firstly, the CBCL model required further investigation and respecification as demonstrated earlier in this introduction. As a revised model could deviate considerably from the 1991 model, Dedrick et al.'s disattenuated estimates of the covariation between the underlying factors of child psychopathology could only serve as general background knowledge and not as specific hypotheses for the size of the correlations to be expected. New estimates would have to be derived and these would be comparable to other samples only to the extent that similar models would hold in the other samples.

The second issue that was considerd at this point concerned the nature of the samples. Dedrick et al. (1997) studied a clinic sample while most commentators emphasised the need to use general population samples in comorbidity studies. This view is linked to the concept of disorder and to the purpose of estimating comorbidity in the general population.The problems created by Berkson's bias as well as referral biases in clinic studies have been discussed and documented in relation to medical diseases and categorically defined disorders (Berkson, 1946; Angold et al., 1999). Many of these arguments are based on the idea that there are clearly distinguishable diseases or psychiatric categories. Definitions of behavioural and emotional problems that are based on a dimensional view like the 1991 cross-informant syndromes, however, conceptualise comorbidity as covariation between latent dimensions which all apply simultaneously to all children. On some dimensions they may obtain high scores which reach into a clinical range, while on others their scores may be within the normal range compared to the general population norms. Despite sitting on two sides even of an empirically chosen clinical cutoff point, scores may still covary to a considerable extent. This was the meaning of comorbidity to be pursued in the current study. In addition, the purpose of the study had to be considered. If the aim was to generalise results to the general population, clinical samples would have provided distorted estimates. However, if the "the target groups to which one wishes to generalize one's results are other clinical samples, then clinical research may provide more useful information than will general population studies" (Angold et al., 1999, p.61). In the current study, both populations were of interest and therefore general population samples as well as clinic samples were sought for examination of the correlations between revised CBCL factors.

Finally, the issue of comorbidity in subgroups was going to be explored. Despite providing one of the most sophisticated studies of covariation to date, Hinden et al. (1997, p. 13) pointed out that "...most of the exciting questions about the patterns of covariation and the implications for risk and resilience processes are yet to be explored. Moreover, differences in rates, patterns, and processes across developmental periods, gender, ethnicity, and SES are also yet to be investigated". Two years later Angold et al.'s (1999, p. 78) major review came to a similar conclusion: "Very little attention has been paid to age or gender effects on comorbidity". One exception was Rey (1994) who converted CBCL scores into diagnostic categories by selecting cut-off points "for comparability with other studies in the area of comorbidity, in spite of possible loss of information" (p. 108). Based on an Australian clinic cohort of 2092 adolescents he concluded that "Comorbidity patterns among boys and girls were ...similar in spite of substantial differences in prevalence of disorders" (p.112). Loeber and Keenan (1994) considered age and gender effects in conduct disorder and its comorbid conditions. Their review suggested, among other things, higher rates of comobidity between ADHD and CD during the preadolescent years and a decline in adolescence. They also suggested that the comorbidity of depressive and anxiety disorders with conduct disorders decreases in adolescence overall. Simply based on prevalence rates and the multiplication of rare events, lower comorbidity would be expected for conditions which are less frequent in one sex than the other. However, a sex-specific "paradoxical" hypothesis of risk enhancement was also examined by these authors and given some support. The risk of comorbidity for some disorders appeared higher for girls with conduct disorders than for boys. For example, in the Ontario Child Health Study (Offord, Alder, & Boyle, 1986) 18.6% of younger boys and 31.3% of younger girls with conduct disorder also had an emotional disorder (overanxious, affective, or obsessive-compulsive). A similar number of adolescent boys (12 to 16 years) with conduct disorder were diagnosed with emotional disorder, but 48.1% of conduct disordered girls. However, for somatisation disorder, for which prevalence rates are higher in females than in males, the Ontario Child Health Survey demonstrated a higher comorbid pattern with CD for boys than for girls (cf. Loeber & Keenan, 1994, p. 515). Zoccolillo (1992) also concluded that there is an interaction between sex and age in the comorbidity between CD and depression such that comorbidity is more likely in boys before adolescence and most likely in girls during adolescence.

Nottelmann and Jensen (1995) provided one of the most pertinent reasons why there are so few investigations of these more complex patterns, namely the large number of initial subjects needed. Also referring to the Ontario Child Health Study they showed that some of the final conclusions about comorbidity patterns were based on numbers as low as 18 participants in a sex/age group (with age groups as large as 4 to 11 and 12 to 16 years), although the study started with a sample of 2687 children and adolescents. This is largely a result of the categorical diagnostic concepts employed. A study based on dimensional measures of psychopathology has the advantage of being able to use the full range of scores and all subjects in each sex/age group in the calculation of covariation estimates. This was the intention for the current study. Given the paucity of research on sex/age effects within the categorical framework and the difference between the concept of comorbidity employed in that literature and the concept of covariation to be used in the current study, no specific hypotheses were derived from the literature mentioned before. This aspect of the current study was simply treated as exploratory. The main aim was to arrive at a comprehensive description of covariation patterns between revised CBCL factors in different sex/age and clinic status groups in three countries which could serve as a basis for further investigations.

METHOD

2.1. Sampling

2.1.1. General Considerations

Experts in the area of exploratory factor analysis have long discouraged the use of homogeneous samples (e.g. Comrey & Lee, 1992). A recent major review of practices in factor analytic research also warned that overly homogenous samples and samples whose selection is related to measured variables in the analysis should be avoided (Fabrigar, Wegener, MacCallum, & Stahan, 1999). Instead, they suggested that samples representative of the population of interest should be collected whenever possible. In the same context Fabrigar et al. (1999, p. 274) spelt out clearly that apart from representativeness, the other main principle to follow is maximising variance for the analysis: “Alternatively, a researcher might wish to select a sample to maximize variance on measured variables relevant to the constructs of interest and minimize variance on measured variables irrelevant to the constructs of interest (see Cattell, 1978)”. Finally, Reise, Waller, and Comrey (2000, p. 290) also stressed recently that “In terms of identifying replicable factors, researchers should assemble samples with sufficient examinee representation at all levels of the trait dimensions”.

Achenbach (1991a) conducted his principal component analyses with clinic samples, while 10 out of 14 data sets analysed by Hartman et al. (1999) originated from general population studies. Three studies had a clinic base and the final data set was described as a mixed clinic/nonclinic sample. Reynolds and Kamphaus (1992) developed empirical syndromes for their Behavior Assessment System for Children using mainly general population cases, but also included clinic cases in the factor analyses. Their rationale was spelt out in the manual: “The inclusion of many clinical cases helped ensure that the analyses would be sensitive to how the BASC items and scales function at clinical score levels” (Reynolds & Kamphaus,1992, p.72). The syndromes developed within the empirical psychometric tradition have always been conceptualised as spanning the full normal to clinic range. There is no clear distinction between general population and clinic data. A large overlap in scale scores is the norm, supporting the view that continuity is a more appropriate model than categorical difference between samples (cf. Achenbach, 1991a; Widiger & Clark, 2000). General population data include mostly milder forms of behavioural and/or emotional problems and few severe cases, while clinic data extend the problems reported into the multiple problem and severe range. General population samples offer the benefit of increased representativeness, but may not include enough fully developed syndrome cases to show up in multivariate analyses. For the current project general population data as well as clinic data were sought in order to avoid the biases associated with using either kind of sample alone. Statistically speaking a sufficient representation of cases was sought for every sector of the multivariate space to be examined (although this was an anticipation only and could not be guaranteed upfront).

Consequently general population data were going to be pooled with clinic data. In addition, it was deemed highly desirable to guarantee a sufficient representation of fully developed clinical problems in the data to provide a clear opportunity for meaningful clinical syndromes to emerge from the analyses. While estimates of clinically significant problems in the general population vary from roughly 15% to 25%, depending on the study consulted, a higher level of representation in the data was sought. The pooled samples which were formed for this study included around

50% (see later for exact details) of general population cases and 50% of cases who had been referred for psychological or psychiatric assistance, effectively oversampling clinically significant problems by a factor of two to three.

There has been a lot of debate in the literature about the sample size required for the reliable estimation of correlations and factors. Comrey and Lee (1992) suggested that sample sizes of 100 cases lead to a poor, 200 to a fair, and 300 to a good analysis, that samples of 500 are very good, while 1000 cases are excellent. Tabachnick and Fidell (1989, p. 603) stated that "it is comforting to have at least five cases for each observed variable". The analyses reported later started with 90 variables and would have required 450 cases according to this rule of thumb. This sample size could be called "good" in line with Comrey and Lee (1992). However, such an assessment would ignore that skewed distributions of coarsely measured variables (as typical of the CBCL) lead to degraded solutions compared to variables which show a normal distribution. In fact, the above recommendations are confined to variables which are distributed fairly normal. Reise et al. (2000) warned that even a sample size of 500 may not be adequate when communalities are low and the number of indicators per factor is small.

Much higher demands for sample sizes have been enunciated for the analysis of short, polytomous variables which deviate significantly from normality (e.g. Jöreskog, 1990; Jöreskog & Sörbom, 1989, 1993). According to these last authors, polychoric correlations should be computed for these sort of variables and the factor analysis based on weighted least squares estimation. Their formula for minimum sample sizes, presented in their Prelis/Lisrel manual, led to the conclusion that samples of well over

10000 cases would have been necessary to reliably estimate a model with 90 variables. Fortunately there was a middle way, and an estimation method based on Muthén (1984) and described later, promised to lead to good estimates with fewer cases. Potthast (1993) used Muthén's (1984) so-called categorical variable methodology (or CVM) to carry out a simulation study of confirmatory factor analysis of ordered categorical variables. Her simulation included what she called a large model, i.e. an oblique four factor model with four indicators per factor. After examining the effects of different forms of skewness and kurtosis she recommended a sample size of over 1000 cases. Muthén (1999) suggested on his website (statmodel.com) that the quality of estimates may be affected if fewer than p(p+1)/2 cases are used, where p represents the number of variables in a model. However, his answer to a question also indicated that no clear guidelines exist: "Simulation studies are needed"(Muthén, 1999). Given that the largest number of variables to be analysed for the current project at any one time would equal 90, the aim in creating the databases was to bring together large samples of 4095 cases, if possible.

Even a large and diverse sample can not provide a guarantee that the results will replicate to other samples. Replication in one country would provide strong evidence for the factor structure of child psychopathology syndromes. Replication in other countries can never be assumed and would provide even stronger evidence for the validity of syndrome structures. Four datasets were created to allow for multiple replication checks. Two datasets came from the USA, one from Australia, and one from Israel, varying in size from *N* = 3783 to *N* = 7304. Overall this not only means that this study brought together a very large database representing *N* = 22205 children and adolescents in different countries, but also that each one of them was rated by a parent or parent surrogate on a large number of standardised indicators of psychopathology (i.e. the CBCL).

Two American samples were reexamined for this project: Achenbach, Howell, Quay, and Conners' (1991) samples which were collected for their National Survey of Problems and Competencies among four to sixteen year olds and Achenbach's (1991a) matched samples which he described in the CBCL manual. Both studies included a large general population sample and a large clinic sample.

The Australian sample for this study included the clinic data reported by Heubeck (2000a), some additional Sydney cases collected since this study was completed, over 1000 Melbourne clinic cases (Nolan et al., 1996) made available to the author recently, as well as clinic cases picked up in general population studies. The Australian general population data originated from the recent National Child Mental Health Survey (Sawyer, et al., 2000).

The third country involved in this study was Israel. Clinic as well as general population data were available, some of which had been the subject of previous reports (e.g. Auerbach & Lerner, 1991; Zilber, Auerbach, & Lerner, 1994). Some additional general population data was included from a recent as yet unpublished study which followed up the children assessed in Auerbach, Lerner, Barash, Tepper, & Palti (1995).

Previous analyses of the CBCL (e.g. Achenbach, 1991a) had divided the age range covered by the instrument into one or two child ranges (from 4 to 11 years or from 4 to

5 and 6 to 11 years) and the adolescent range (from 12 to 16 years, with some analyses including 17 and 18 year olds as well). For most children in countries like the USA, Australia, and Israel, the transition from primary to high school occurs between 11 and 12 years of age. Developmental changes in thinking and the onset of puberty also make this a practical age range delimiter. However, at the lower end of the age range some changes are taking place. Newer instruments developed by Achenbach (2000) to assess preschool children cover an age range from 2 years to 5 years suggesting that he now regards 4 and 5 year olds more like younger preschool children than resembling school children. In the three countries included in this research, the majority of 5 year olds have entered school, which cannot be said of the 4 year olds. Additional considerations regarding the lower age limit for the current research came from clinical observations as documented for example in DSM-IV (American Psychiatric Association, 1994, p. 81) in relation to Attention Deficit/Hyperactivity Disorder: "It is especially difficult to establish the diagnosis in children younger than age 4 or 5 years, because their characteristic behavior is much more variable than that of older children .... Furthermore, symptoms of inattention in toddlers or preschool children are often not readily observed because young children typically experience few demands for sustained attention". Entry into school changes these demands. Not only do teachers now confront the child with their expectations for proper classroom behaviour and attention to learning, but parents also come to see the child as a person who needs to acquire these skills. Consequently their expectations change too. Given these considerations a lower age limit of 5 years was chosen for cases to be included in the current analyses. While it was clear that the exclusion of the 4 year olds would reduce the comparability of the results to previous studies somewhat, the hope that the results

would be less confounded by immature forms of behaviour and unclear parental expectations seemed to justify raising the minimum age to 5 years.

Sampling aimed to cover every age from 5 to 18 years. However, no strict equality of cell sizes was expected. Overall it was considered important to create a balanced database which sampled equally from the eight groups defined by the crossing of the following variables: clinic status (clinic sample and general population sample), sex (boys and girls), and age (5-11 years and 12-18 years). The following section describes the datasets and their backgrounds.

2.1.2. The Samples

The ACQ-National Survey Samples:

The National Survey of Problems and Competencies reported by Achenbach et al. (1991) aimed to obtain a representative sample of 4 to 16 year olds living in the USA taking into account ethnicity, socioeconomic status, rural-urban differences, and geographic distribution (Alaska and Hawaii were not included). Following a multistage sampling design interviews were conducted for 2600 children and adolescents, one nonreferred child per family. Most data was collected during the year 1986 with parents or primary caretakers interviewed in their homes. Children with mental retardation or serious illness were excluded, as were children without an English-speaking parent or parent surrogate. The overall completion rate was 92.1% for interviews sought with parents of identified eligible children. The aim of obtaining data on 100 children per sex and age group was achieved with the few exceptions reported in the monograph (cf. Achenbach et al. 1991, p. 13).

Information on children referred to clinics was collected from 18 services distributed across the USA. Different types of clinics participated (e.g. hospital, university, and community clinics) in a range of geographic areas covering rural as well as urban settings. Parents were asked to fill out the checklist anonymously at intake. Children with mental retardation, serious illnesses, or presented for other reasons than their own behavioural or emotional problems were excluded. The data was gathered over several years from 1983 to 1987. The final sample included $N = 5364$ children and adolescents presented to psychology/psychiatry clinics in the USA.

In both samples parents completed the ACQ checklist which included information on all CBCL items as described in the measurement section later. For the current study the relevant CBCL items were extracted for both samples and screened for missing data. Cases with more than eight items missing were dropped (cf. Achenbach, 1991a), as were four year old boys and girls. The final composition of the pooled database that was created this way for the current study is shown in Table 2. A total of $N = 7304$ cases were available for analysis. There was a good representation of boys and girls in the norm as well as in the clinic data covering the ages from 5 to 16 years. The lowest number was 77 for 16 year old clinic girls. However, only a handful of cases was available for 17 year olds and 2 clinic boys were 18 years old. Almost 2400 cases came from the general population sample. The 4905 clinic cases represent a substantial proportion, namely 67%, of the final pooled sample. The smallest of the eight subgroups (clinic status by sex by age group) included 499 cases, the largest 2004. With such discrepances in numbers weighting of subgroups was considered necessary to equalise their contribution to the overall results (see later).

Table 2. *Final ACQ Sample by Clinic Status, Sex, and Age*

	Norm Sample		Clinic Sample		
Age	Boys	Girls	Boys	Girls	Total
5	99	99	286	130	614
6	100	102	259	188	649
7	101	100	304	189	694
8	101	99	355	185	740
9	99	100	276	180	655
10	100	100	265	155	620
11	100	101	259	165	625
12	102	98	291	135	626
13	97	100	257	163	617
14	100	105	210	185	600
15	103	99	149	108	459
16	96	96	112	77	381
17	1	1	12	8	22
18			2		2
Total	1,199	1,200	3,037	1,868	7,304

The US Samples Reported in the 1991 CBCL Manual:

Achenbach (1991a) performed his principal component analyses in clinic samples of boys and girls at three age levels, 4 to 5, 6 to 11, and 12 to 18 years with *N*s ranging from 292 to 1339 per sex/age group. These children and adolescents were seen in 52 different settings in eastern, southern, and midwestern USA. The services included a wide range of private and public psychology and psychiatry services. In order to compare clinic and nonclinic cases, Achenbach (1991a) formed samples of $N = 2110$ each, who were matched by sex and age, and as far as possible also by respondent, ethnicity, and socioeconomic status. It was this matched clinic/nonclinic data that was analyzed for the current study. The clinic sample included 1032 boys and 1078 girls, with at least 48 subjects at every sex/age level, except for 17 year old girls ($N = 28$) and 18 year old boys and girls (total $N = 24$). Just over 74% of CBCLs were obtained from mothers, another 10% from fathers, 7.8% from others, and for the remainder this information was missing. About 3 out of 4 children were Caucasian, but for 6.4% this information was missing. Information about socioeconomic status was available for 92% of the sample, showing a broad distribution across the SES spectrum with a mean of 5.1 (sd = 2.4) on Hollingshead's scale.

The general population data for 7 to 18 year olds was gathered during the three year follow-up in 1989 of the ACQ national survey sample. A 90% completion rate was achieved for parents who had taken part in the 1986 survey. This time, however, parents were asked to complete the CBCL rather than the much longer ACQ. In addition, completed CBCLs were obtained for 398 children in the 4 to 6 year range who had not taken part in the original ACQ survey. "A normative sample was constructed by drawing from the pool of 4-18 year olds all those who had not received mental health services or special remedial school classes within the preceding 12 months" (Achenbach, 1991a, p. 20). Further details on the representativeness of the sample (combined $N = 2368$) in terms of socioeconomic status, ethnicity, and region of the USA can be found in the manual (Achenbach, 1991a). For 82% of cases the mother had been the respondent, 15% of CBCLs were answered by fathers, and 3% by others. As mentioned above, the clinic and nonclinic samples were compared to create samples matched by sex, age, and and as far as possible also by respondent, ethnicity, and socioeconomic status ($N = 2110$ each).

Table 3. *Final US CBCL Sample by Clinic Status, Sex, and Age*

	Norm Sample		Clinic Sample		
Age	Boys	Girls	Boys	Girls	Total
5	75	70	75	70	290
6	56	68	56	68	248
7	78	89	78	89	334
8	87	95	87	95	364
9	80	85	80	85	330
10	71	74	71	74	290
11	87	79	87	79	332
12	78	93	78	93	342
13	79	92	79	92	342
14	69	89	69	89	316
15	79	67	79	67	292
16	69	81	69	81	300
17	61	28	61	28	178
18	15	9	15	9	48
Total	984	1,019	984	1,019	4,006

For the current study, cases with more than 8 items missing and children under 5 years of age were excluded. This left a total of 4006 records. The clinic status, sex, and age distribution of these children and adolescents is shown in Table 3, which demonstrates a good coverage of all cells for 5 to 16 year olds (56 or more cases per cell), fewer 17 year old girls and low numbers for 18 year olds. Table 3 also shows that the proportion of clinic cases in the final pooled sample was exactly 50%.

Overall, it was concluded that this sample provided very good coverage of the eight major groups to be sampled (clinic status by sex by younger/older children). There were some differences in the size of the subgroups. The smallest group included 450 cases while the largest group had 534. Consequently cases would be weighted to ensure an equal contribution to the overall analysis.

Australian Samples:

Australian general population data on CBCL symptoms was drawn from the child and adolescent component of the National Survey of Mental Health and Wellbeing (Sawyer et al., 2000). Although normative data had been available for some time for Sydney parents (Hensley, 1988), they were not included in the current study due to suggestions that they were somewhat biased (Bond, Nolan, Adler, & Robertson, 1994). A comparison between different surveys conducted for the current project demonstrated that Hensley's Sydney scale score means were significantly higher than the means reported for Australia or for Sydney in the National Survey, while the National Survey means were closer to West Australian data (Zubrick et al., 1995) and the US means (Achenbach, 1991a). These findings supported the choice of the National Survey data to represent the Australian general population in the current study.

The survey used a multistage probability sampling protocol to obtain information about a representative sample of 4500 children aged 4 to 17 years in all Australian states and territories. Collectors districts were assigned in proportion to the size of the target population taking rural-urban differences into account. However, for the relatively small population of the Northern Territory only metropolitan data was collected. Interviewers approached randomly selected households in their collection districts and achieved a participation rate of 86%. They interviewed parents or caregivers at their homes and also asked them to complete a self-report booklet which included the CBCL. Comparison of the demographic characteristics of the sample with information from the Australian Bureau of Statistics suggested that the National Survey sample was representative of children and adolescents aged 4 to 17 years in Australia. After deletion of four year olds and cases with more than eight items missing, a total of 3400 nonreferred cases from the National Survey were included in the current study as shown later in Table 4. The survey also encountered 276 children and adolescents who had attended mental health services in the previous six months. They were also included and counted under the clinic sample shown in Table 4.

The majority of the clinic cases were assessed in Sydney, while the remaining clients were seen in clinics in Melbourne. This does not mean that all clients were city children or city adolescents because clients from country regions were also serviced by several of the agencies contributing data to the study. Altogether, well over 3000

CBCL records were collected during the intake process in Sydney during several periods between 1983 and 2000. Mothers provided ratings for 90% of CBCLs, fathers for 5%, others for 3%, and for 2 % this information was not recorded. Many forms did not include the occupational data required to estimate the socioeconomic status of the clients' families. All that could be said from the information available was that families from a wide range of socioeconomic backgrounds used these services. While the majority of participants were of Caucasian background, the information on ethnic background was too scatchy to provide exact figures. No claim of representativeness of the overall sample for clinic services in Sydney or New South Wales can be made. However, the large number and diversity of participants hopefully mitigated against some of the possible selection biases.

After excluding second raters of the same child, records with too much missing data, and children under 5 years of age, 2344 CBCLs were included (1577 boys and 767 girls). Of these, 696 came from an agency called Arndell, 484 from Rivendell, 626 from Redbank, 467 from a Mental Health Service at Liverpool, and 71 from Hensley's (1988) study. These Sydney cases included all of the records analysed in Heubeck (2000a) plus 107 extra cases collected more recently. *The Arndell Child and Family Unit* is a department of the Royal North Shore Hospital, offering tertiary level psychiatric outpatient, daypatient, and inpatient services. Most clients live in the Northern Sydney Health Region (up to 60% of referrals), while others travel from other metropolitan areas of Sydney (~20%) as well as country areas (about 20% of referrals). *The Department of Child, Adolescent, and Family Psychiatry at Redbank House* is part of Westmead Hospital in the Western Sydney Health Region. It is a tertiary level service, providing outpatient, daypatient, and inpatient programs mainly to the Western Sydney Health Region, and to a lesser extent to the Wentworth area, other regions of Sydney, and country regions of NSW. *The Rivendell Adolescent and Family Psychiatric Service* at Concord offers tertiary level assessment and treatment services for adolescents on an outpatient, daypatient, and inpatient basis. While a substantial section of the clientele is drawn from the local central Sydney area, Rivendell offers its services to all metropolitan areas and over half of its clientele usually comes from other areas of Sydney. In addition, services are provided to selected country regions of NSW and around 15% of clients in any one year may come from outside of Sydney. *The Pediatric Mental Health Service* at Liverpool is a specialised tertiary level unit offering outpatient assessment and treatment for infants, children, adolescents, and their families. The unit also provides consultation to other service providers, but does not offer an inpatient option. All clients resided within the South Western Sydney Area Health region which mainly covers suburbs ranked low or very low in socioeconomic prestige. *Hensley* (1988) provided normative data for the CBCL based on interviews with 1300 Sydney parents. Her norms explicitly excluded 78 children who were assessed and/or treated by school counselors, psychologists, or psychiatrists. These 47 boys and 24 girls who fitted the criteria for the current study were included in the larger clinic group.

The Melbourne data (cf. Nolan et al. 1996) was collected in 1991 and 1992 before intake at six major public child psychiatry services, including Austin Hospital, Monash Medical Centre, the Royal Children's Hospital, Western Hospital-Sunshine, South Eastern Child and Family Centre, and Travancore Child and Family Centre.

Some private clinics were recruited as well, but their contribution was minimal. The average response rate across centres was estimated at 60%. Children and adolescents with mental retardation were excluded, as were parents who needed an interpreter. For a third of the cases the database did not include a coding for the respondent. For the majority of the remaining cases respondents were mothers or stepmothers (85%), a small percentage fathers or stepfathers (9%) and the remaining forms were filled in by other caretakers. After deleting cases with more than 8 items missing and children under 5 years of age, a total of 1092 cases (675 boys and 417 girls) remained to be pooled with the other Australian clinic data.

Table 4 shows that good coverage was achieved for ages from 5 to 16 years (with a minimum number of 57 cases per cell and mostly many more). The number of young clinic girls was clearly lower than numbers in the other groups. Few 17 year old clinic cases were available and one 18 year old clinic girl was the only subject at this age level. Overall, the results were judged to provide good coverage of the main eight groups to be sampled (clinic status by sex by younger/older age). However, differences in the number of cases contributing to the eight subgroups (ranging from 546 to 1446) suggested that weighting of subgroups may be beneficial to equalise their contribution in the overall analysis.

Table 4. *Final Australian CBCL Sample by Clinic Status, Sex, and Age*

	Norm Sample		Clinic Sample		
Age	Boys	Girls	Boys	Girls	Total
5	226	183	139	80	628
6	122	128	184	57	491
7	124	141	190	60	515
8	120	130	219	90	559
9	124	103	235	99	561
10	134	132	257	90	613
11	132	120	222	75	549
12	127	142	251	151	671
13	122	119	254	140	635
14	141	144	209	168	662
15	124	123	150	156	553
16	133	150	98	105	486
17	73	83	14	18	188
18				1	1
Total	1,702	1,698	2,422	1,290	7,112

Israeli CBCL Samples

A random sample of Jewish parents was interviewed in 1989 and 1990 (Zilber, Auerbach, & Lerner, 1994). All parents lived in Jerusalem. However, most of the areas inhabited by ultra-orthodox Jews were excluded from the sampling scheme. Mothers provided the information for 98% of CBCLs, fathers and others answered in the remaining cases. Their children were aged from 4 to 16 years, but those who had major neurological or physical handicaps or had received psychological help during the previous year were excluded. After excluding 4 year olds and cases with more than eight items missing, at total of 1281 cases remained for analysis. In addition, follow-up data from the Jerusalem Kindergarten Project (Auerbach, Lerner, Barash, Tepper, & Palti, 1995) was included in the general population data. The sample was initially assessed at the age of 5 and followed up 10 years later. CBCL records for 349 adolescents were screened in, covering the ages from 13 to 17 years and including 171 boys and 177 girls (this code was missing for one case).

The Israeli clinic data was collected from five public mental health clinics during a period that began in 1986 and ended in 1991. Located in Jerusalem, Tel Aviv and Haifa, "these clinics serve a large proportion of the Israeli urban population" (Zilber et al., 1994, p. 7). The clientele came from diverse backgrounds in terms of socioeconomic status, ethnicity, and religiosity. The CBCLs were completed during the intake procedure at these clinics. About 75% of the respondents were mothers and 15% fathers, while the remaining forms were filled in by other caregivers. After excluding records with more than 8 items missing and children under 5 years of age, a total of 2153 clinic cases was available for analysis (1319 boys, 824 girls, and for 10 children the sex was not recorded).

Table 5. *Final Israeli CBCL Sample by Clinic Status, Sex, and Age*

	Norm Sample		Clinic Sample		
Age	Boys	Girls	Boys	Girls	Total
5	51	46	77	49	223
6	52	52	111	72	287
7	60	51	166	69	346
8	48	51	146	91	336
9	52	51	166	86	355
10	53	51	163	82	349
11	45	54	147	69	315
12	52	49	116	69	286
13	65	61	99	77	302
14	96	101	65	67	329
15	140	150	33	52	375
16	79	62	22	31	194
17	24	33	8	10	75
Total	817	812	1,319	824	3,772

Table 5 shows the age distributions in the different subsamples. The total sample size shown is 3772 because information on sex was missing for 11 cases. A good representation of cases was achieved in the 5 to 14 year range (minimum cell size = 45). Only 33 clinic boys were included in the 15 year old group, and fewer adolescents were rated in all groups 17 years of age. Overall however, a satisfactory number of cases was included for the eight major subgroups (clinic status by sex by age group) for whom representation was sought. However, the total sample size of 3772 fell somewhat short of the desired number of 4095 cases.

In summary, considerations pertaining to the nature of the samples, the required size of the samples, replication, and the most appropriate ages to be included, were all taken into account in the selection of the samples. Four large samples were obtained which overall provided good coverage of the 5 to 16 year old range and also included a smaller number of 17 and 18 year olds. The main eight groups covered by the sampling design were represented to varying degrees as shown in the following Table.

Table 6. *Final Sample Proportions by Clinic Status, Sex, and Age*

	US-ACQ	US-CBCL	AUSTRALIA	ISRAEL
NB 5-11 yrs	9.6%	13.3%	13.8%	9.6%
NB 12-18 yrs	6.8%	12.2%	10.1%	12.1%
NG 5-11 yrs	9.6%	14.0%	13.2%	9.4%
NG 12-18 yrs	6.8%	11.5%	10.7%	12.1%
CB 5-11 yrs	27.4%	13.3%	20.3%	25.9%
CB 12-18 yrs	14.1%	11.2%	13.7%	9.1%
CG 5-11 yrs	16.3%	14.0%	7.7%	13.7%
CG 12-18 yrs	9.3%	11.5%	10.4%	8.1%
N	7,304	4,006	7,112	3,772

Note. NB = "normal" boys, NG = "normal girls", CB = clinic boys, CG = clinic girls.

The table shows clearly that young clinic boys were overrepresentated in three samples (over 20% compared to the 12.5% average), while older "normal" boys were underrepresented in the US-ACQ sample (6.8%), as were young clinic girls in Australia (7.7%). Other groups also deviated from the 12.5% average, but to a lesser extent. Kaplan and Ferguson (1999) warned of the dangers of overlooking sampling issues in latent variable modeling. Their study showed that bias in latent variable model parameters can be mitigated by the incorporation of sample weights.

The current study considered an unequal distribution of cases in the eight different categories as undesirable because it would have meant that cases like the young clinic boys could exert an undue influence on the final factor solutions. Initially an overall factor solution was to be developed in which no group was awarded greater weight than any other. This "fair" or "unbiased" overall solution was sought before proceeding to the second part of the study, which would involve the investigation of factor score correlations in the subgroups. Kaplan and Ferguson (1999) advocated the use of normalised sample weights that sum to the actual total sample size. This was also the approach taken in this study. The proportions given in Table 6 formed the basis of the weighting scheme and for each of the four samples the eight subgroups were weighted equally.

2.2. Measures

Achenbach's (1991a) Child Behaviour Checklist (CBCL) consists of three parts: The first section requires a parent to report basic information like the child's name, sex, and age. The second part inquires about basic activities and competencies in areas like sport, peer relations, and school. The third part lists 118 problem behaviours or signs of disturbance to be rated on a three point scale as 0 = not true (as far as you know), 1 = somewhat or sometimes true, or 2 = very true or often true now or within the past six months. This project was only concerned with the basic demographic information and the third part of the checklist. Although there were earlier versions, the first major edition accompanied by a manual was published by Achenbach and Edelbrock in 1983. There were some minor differences in the behaviour problem section between the 1983 and the 1991 edition. For example, item 40 ("Hears things that aren't there") was changed to read "Hears sounds or voices that aren't there". While other changes helped to clarify items (e.g. "Uses alcohol or drugs" became "Uses alcohol or drugs for nonmedical purposes"), the main change occurred in item 42: "Likes to be alone" was changed into "Would rather be alone than with others". For the purpose of the current research, the two versions of the CBCL (1983 and 1991) were treated as equivalent. This was partly a pragmatic decision, given that it would have been extremely difficult, if not impossible to go back and trace the exact form used by individual parents and included in the final databases. Overall however, no major effect was expected due to these minor differences.

The other checklist that provided data for the current research was called the ACQ checklist, after its authors (Achenbach, Conners, & Quay, 1983). Apart from basic questions about the child's sex, age, etc., this checklist included 25 competence items and 215 problem items. These problem items were chosen, based on several reviews of the relevant literature, to represent 12 hypothesised syndromes of child psycho-pathology. Parents provided ratings on a four point scale (0 = never or not at all true (as far as you know), 1 = once in a while or just a little, 2 = quite often or quite a lot, 3 = very often or very much). The time frame was briefer than on the CBCL, namely "at any time during the past two months". Important for the current research was that the ACQ checklist included 115 of the 118 CBCL items or close approximations of them. While the majority of CBCL items were imported directly into the ACQ, some items were split. These included CBCL item 10 "Can't sit still, restless, or hyperactive" (split into "Can't sit still, squirms" and "Overactive"), item 43 "Lying or cheating" (split into "Lies" and "Cheats"), item 86 "Stubborn, sullen, or irritable" (split into "Stubborn" and "Irritable"), item 103 "Unhappy, sad, depressed" (split into "Looks unhappy" and "Sad or depressed"), and item 105 "Uses alcohol or drugs" (split into "Uses alcohol" and "Uses drugs"). These items were combined again in the current study in order to create a database comparable to the CBCL samples. The combination followed the same rule as suggested by Achenbach et al. (1991), namely that the highest rating on one of the two items was counted as the final score.

The focus of this project was clearly on the 85 items defining Achenbach's (1991a) cross-informant syndromes. However, an additional five items were judged to be worthy of inclusion in the analyses because they offered the promise to strengthen the definition of either the Delinquent or the Anxious/Depressed factor. Item 15 (cruel to animals) was included based on the clinical experience of the author and the fact that DSM-IV suggests that this behaviour is indicative of conduct disorder. Some recent debates about schoolyard schootings in the USA have shown a particular interest in this behaviour as a potentially useful prognostic sign. Another area of great current public interest is youth suicide. Neither of the two relevant items on the CBCL is currently scored on any of the syndromes. However, DSM-IV relates suicidal thinking clearly to depression. In addition there are studies in the USA by Nurcombe, Seifer, Scioli, Tramontana, Grapentine, and Beauchesne (1989) and Clarke, Lewinsohn, Hops, and Seeley (1992), and in Australia by Rey and Morris-Yates (1991), which have shown that CBCL item 18 (self-harm) and item 91 (talks suicide) are related to other depression items reported on the CBCL. All three studies also supported item 100 (sleep problems) as an indicator of depression. The fifth item added to the 85 cross-informant items was item 30 (fears school). Nurcombe et al. (1989) included this item in his CBCL depression scale and Rey and Morris-Yates (1990) supported its use in Australia. Achenbach, Conners, Quay, Verhulst and Howell (1989) listed this item as an indicator of the Anxious/Depressed factor which was replicated across all sex/age groups. Altogether 90 items were thus extracted from the CBCL and the ACQ to be submitted to the subsequent analyses. Table 7 provides the wording of all 90 items analysed, while Appendix B shows their assignment to the eight CBCL scales based on the 1991 cross-informant model.

Table 7. *CBCL Item Wording for the 90 Items Studied*

Q1	Acts too young for his/her age
Q3	Argues a lot
Q7	Bragging, boasting
Q8	Can't concentrate, can't pay attention for long
Q9	Can't get his/her mind off certain thoughts; obsessions
Q10	Can't sit still, restless, or hyperactive
Q11	Clings to adults or too dependent
Q12	Complains of loneliness
Q13	Confused or seems to be in a fog
Q14	Cries a lot
Q15*	Cruel to animals
Q16	Cruelty, bullying, or meaness to others
Q17	Day-dreams or gets lost in his/her thoughts
Q18*	Deliberately harms self or attempts suicide
Q19	Demands a lot of attention
Q20	Destroys his/her own things
Q21	Destroys things belonging to his/her family or others
Q22	Disobedient at home
Q23	Disobedient at school

Q25	Doesn't get along with other kids
Q26	Doesn't seem to feel guilty after misbehaving
Q27	Easily jealous
Q30*	Fears going to school
Q31	Fears he/she might think or do something bad
Q32	Feels he/she has to be perfect
Q33	Feels or complains that no one loves him/her
Q34	Feels others are out to get him/her
Q35	Feels worthless or inferior
Q37	Gets in many fights
Q38	Gets teased a lot
Q39	Hangs around with others who get in trouble
Q40	Hears sounds or voices that aren't there
Q41	Impulsive or acts without thinking
Q42	Would rather be alone than with others
Q43	Lying or cheating
Q45	Nervous, highstrung, or tense
Q46	Nervous movements or twitching
Q48	Not liked by other kids
Q50	Too fearful or anxious
Q51	Feels dizzy
Q52	Feels too guilty
Q54	Overtired
Q55	Overweight
Q56A	Aches or pains (not headaches)without known medical cause
Q56B	Headaches
Q56C	Nausea, feels sick
Q56D	Problems with eyes
Q56E	Rashes or other skin problems
Q56F	Stomachaches or cramps
Q56G	Vomiting, throwing up
Q57	Physically attacks people
Q61	Poor school work
Q62	Poorly coordinated or clumsy
Q63	Prefers being with older kids
Q64	Prefers being with younger kids
Q65	Refuses to talk
Q66	Repeats certain acts over and over, compulsions
Q67	Runs away from home
Q68	Screams a lot
Q69	Secretive, keeps things to self
Q70	Sees things that aren't there
Q71	Self-conscious or easily embarrassed
Q72	Sets fires
Q74	Showing off or clowning
Q75	Shy or timid
Q80	Stares blankly
Q81	Steals at home
Q82	Steals outside the home

Q84	Strange behavior
Q85	Strange ideas
Q86	Stubborn, sullen, or irritable
Q87	Sudden changes in mood or feelings
Q88	Sulks a lot
Q89	Suspicious
Q90	Swearing or obscene laguage
Q91*	Talks about killing self
Q93	Talks too much
Q94	Teases a lot
Q95	Temper tantrums or hot temper
Q96	Thinks about sex too much
Q97	Threatens people
Q100*	Trouble sleeping
Q101	Truency, skips school
Q102	Underactive, slow moving, or lacks energy
Q103	Unhappy, sad, or depressed
Q104	Unusually loud
Q105	Uses alcohol or drugs for nonmedical purposes
Q106	Vandalism
Q111	Withdrawn, doesn't get involved with others
Q112	Worries

Note. Q1 - Q112 = CBCL Item numbers. *Items additional to cross-informant items.

2.3. Analyses

As confirmatory factor analysis studies had questioned the cross-informant model, it was deemed necessary to go back to the drawing board and ask the data what model(s) might be more appropriate. Floyd and Widaman (1995) characterised exploratory factor analysis as a "model building"technique, while confirmatory factor analysis serves to test a model once it is established. The popularity of confirmatory factor analysis has grown to such an extent that exploratory factor analysis studies are sometimes regarded as unnecessary, archaic, and of minor quality. However, Gerbing and Hamilton (1996) demonstrated that exploratory factor analysis constitutes a useful heuristic strategy for model specification. Their Monte Carlo study evaluated different extraction and rotation methods and demonstrated the ability of exploratory factor analysis to correctly identify the known population measurement model. Even with small sample sizes and highly correlated factors they found that most of the indicators were correctly assigned to the factors. While strong advocates of the confirmatory approach sometimes present the two methods as exclusively different, the current study was based on the view that there is a continuum from exploratory to confirmatory. Moreover, exploratory factor analysis techniques can be used for confirmatory purposes (Comrey and Lee, 1992) and confirmatory methods for exploratory purposes (as evident by the extensive use of modification indices for model respecification). Theoretically, a major advantage of exploratory factor analysis is the ability to "find" factors and to show all relationships between factors and indicators. A disadvantage is the influence of distractor variables in the analysis, and difficulty in comparing solutions from different samples. A major advantage of confirmatory factor analysis is the ability to control which indicators are allowed to load on particular factors and to compare different samples using the same theoretical restrictions imposed upon the model. A disadvantage becomes clear when many restrictions have to be lifted again or changed because the original formulation proves to be wrong or too much of a straightjacket for the empirical data.

The current investigations used a flexible strategy which was mainly exploratory but also included elements of the confirmatory approach. In the first step an exploratory factor analysis was conducted and the results evaluated in comparison to Achenbach's (1991a) cross-informant model. This evaluation focussed on the optimal number of factors to extract and the examination of the loading patterns. In addition it sought to identify marker items which could be used in subsequent analyses to a.) provide a basis for conducting an exploratory factor analysis within a confirmatory framework and b.) enhance comparisons across samples. In the final step, factor scores were computed for the four major samples and the correlations between factor scores examined in the eight subgroups formed by males and females, younger and older children, clinic and general community samples.

All statistical analyses were carried out with the help of SPSS (e.g. SPSS 10.0 , 2000) and Mplus (e.g. Muthén & Muthén, 2001). New data was entered on the SPSS spreadsheet, while existing data was added from a number of formats, including SPSS, ASCII, Excel, and SAS. In the case of SAS the importation was only possible via an intermediate dBase format. Extensive data checking was carried out to ensure that all data was entered correctly and properly matched with other data files. Basic analyses like crosstabulations and checking for outliers were conducted in SPSS. This program was also used to create the ASCII data files required by Mplus. All factor analyses were calculated in Mplus. The factor scores were written back to SPSS and the final correlational analyses conducted again in SPSS.

An important decision in factor analytic research concerns the type of matrix to be submitted for factoring. Achenbach (1991a) computed product-moment correlations between items and submitted these to principal component analyses. However, the computation of product-moment correlations assumes interval level variables which in addition are normally distributed. Neither is true of the CBCL item distributions. The ratings obtained on the CBCLs consist of only three levels: “never”, “sometimes”, and “often”, coded 0, 1, and 2 respectively. If the items tap into constructs which are continuously distributed (and this was the assumption made in the current research), then their measurement on the CBCL is very coarse. Olsson (1979a) showed that the treatment of short coarse scales as interval scales can lead to serious distortions in the estimation of the correlation between two variables. In addition, Olsson (1979b) showed that the analysis of crudely classified variables can lead to substantial misfit in factor analysis and attenuated factor loadings. Dolan (1994, p. 325) studied 2, 3, 5, and 7 response categories for symmetrical as well as asymmetrical distributions. He concluded that "Given fewer than 5 response categories, we believe the ppm should not be analysed", where ppm stands for Pearson product-moment correlation. One alternative proposed by Olssen (1979a, b) involves the maximum likelihood estimation of the polychoric correlation. A comparison of the two coefficients was made in preparation for this study using a large empirical data set (Heubeck, 2000c). While the results showed an almost linear relationship between the two correlations, the product-moment correlations were consistently lower than the polychoric correlations (the "underestimation" ranging from 0.10 to almost 0.30). The maximum likelihood estimation of the polychoric correlation is now regarded by many (e.g. Jöreskog, 1990; E. Rigdon, personal communication, 12.15.2000) as the better choice of statistic. Muthén (2001) pointed out that for variables with strong floor or ceiling effects (i.e. more than 50% of cases pile up at the top or bottom of the scale) non-normal continuous variable methodology is not appropriate and recommended the use of categorical variable methodology which involves the computation of polychoric correlations as "a good approach". Many CBCL items showed this pattern and consequently polychoric correlations were computed as the basis for the factor analyses in the current study.

The polychoric correlation matrices were produced with Mplus, version 2.01 (Muthén & Muthén, 2001). Polychoric correlations use the concept of a normal latent variable

y^* underlying the observed responses. Categorical variables y_j $(j = 1,2,...,p)$ with ordered categories were defined as $y_{ij} = c$, if $\tau_{jc} < y^*_{ij} <= \tau_{j,c+1}$ for categories $c = 0,1,2,...,C - 1$ and $\tau_0 = - \infty$, $\tau_c = \infty$. Mplus derives the probabilities of outcomes from the latent response variable regression $y^* = \pi x + \delta$, where $y^* \mid x \sim N(\pi x, V(\delta))$, with $V(\delta)$ standardised to 1. Two threshold parameters τ_1 and τ_2 are associated with three categories as measured by the items on the CBCL. Muthén and Muthén (1998, p. 342) provided further details of estimating a single observed variable with three categories using probit regression. Once the underlying variables y^* have been determined, the bivariate correlations can be estimated.

In the next step the polychoric correlations were submitted to exploratory factor analysis. This model is a special case of the general modelling framework in Mplus. The latent factors are estimated as $y^*_i = \nu + \Lambda \eta_i + \varepsilon_i$ with $V(y^*) = \Lambda\Psi\Lambda' + \Theta$, where ν represents a p x 1 vector of measurement intercepts, Λ is a p x m matrix of loadings, η is an m-dimensional vector of latent variables or factors, and ε is a p-dimensional vector of residuals or measurement errors which is uncorrelated with other variables. Muthén and Muthén (1998, p. 349) explained that there are m^2 unknowns in this model so that m^2 restrictions need to be imposed on the elements of Λ and Ψ to assure the model is identified. Taking the analysis a step further, the current study included what may be called exploratory factor analyses within a confirmatory framework (L. Muthen, 2000, personal communication). These analyses required at least the same number of restrictions as the fully exploratory analyses. They were imposed on variables with high loadings on one factor and low loadings on other factors, effectively designating them as "marker variables". One hope associated with this strategy was that it would be possible to designate the same markers in different samples in order to increase the comparability of the results across samples and countries. A fully confirmatory factor analysis which would specify the same model for each sample upfront was not considered feasable given the findings from previous studies. A further benefit of the strategy that was adopted was that standard errors and *t*-tests could be calculated for all model parameters.

Estimation of model parameters was based on work by Christoffersson (1975), Muthén (1978, 1984, 1993), Muthén and Satorra (1995), and mainly on Muthén, du Toit and Spisic (1997). Earlier work by Christoffersson (1975) focussed on a binary factor analysis model and used a generalised weighted least-squares fitting function. Muthén (1978) discussed the linearisation of the binary factor model and the analogous fitting function $F_{WLS} = (\mathrm{s} - \sigma(\kappa))' \mathrm{W}_\mathrm{s}^{-1} (\mathrm{s} - \sigma(\kappa))$ where σ represents population thresholds and tetrachoric correlations. The weight matrix was estimated as gamma hat ($\hat{\Gamma}_\mathrm{s}$) which proved problematic because with many variables its inversion was very time consuming. Muthén (1993) reconsidered the approach and proposed an alternative, robust estimation procedure based on work by Satorra (1992). The details of this approach and its generalisation beyond the binary factor analysis model were presented in Muthén, du Toit and Spisic (1997). The asymptotic covariance matrix for the estimated parameter vector $\hat{\kappa}$ plays a central role in this new approach: $\mathrm{aV}(\hat{\kappa}) = n^{-1} (\Delta' \mathrm{W}^{-1} \Delta)^{-1} \Delta' \mathrm{W}^{-1} \Gamma \mathrm{W}^{-1} \Delta(\Delta' \mathrm{W}^{-1} \Delta)^{-1}$ where $\Delta = \delta\mu(\kappa) / \delta\kappa$. In this new formulation Γ is the asymptotic covariance matrix of s with μ representing σ. According to Muthén, du Toit and Spisic (1997, p. 4) "this provides for the robust estimation of parameter standard errors". Now W and Γ are separated and this offers a major advantage in that

Γ does not need to be inverted and a weight matrix can be chosen which is easier to invert. Muthén, du Toit and Spisic (1997) suggested to use "as a working weight matrix W" a diagonal matrix with its diagonal taken from the diagonal of gamma hat. The optimisation of the WLS fitting function can be achieved using first-order derivatives and building up an approximation to the second-order derivative matrix. Overall the approach offers considerable computational advantage over other weighting schemes. Finally robust chi-squares can be computed which are mean and variance adjusted (see later). Muthén and Muthén (1998) use the abbreviation WLSMV (weighted least-squares with mean and variance adjusted chi-square) to characterise the overall approach.

One of the attractions of WLSMV estimation is that it is computationally more efficient than the fully weighted least squares estimation (WLS) recommended by Jöreskog (1990). Although theoretically attractive, the huge number of cases needed for WLS estimation as well as the computational demands associated with the approach often leave researchers frustrated. In the current study the latest version of the Mplus software was employed (version 2.01, Muthén & Muthén, 2001) to calculate parameter estimates based on WLSMV estimation. Although earlier runs with Mplus (version 1) took considerable time, usually overnight, this was reduced a little with Mplus 2.01, and was shortened to about four hours per run after a Pentium III 800Mhz computer with large memory was bought especially for this project.

There has been a lot of debate in the psychological and statistical literature over criteria to determine the "right" number of factors to extract from a sample data set. Nowadays there is widespread agreement that Kaiser's eigenvalue greater than one rule is often misleading and should not be used (Comrey, & Lee, 1992; Gorsuch, 1983; Fabrigar et al., 1999; Reise et al. 2000). The general consensus is that in too many cases it leads to serious overextraction. It should be noted though, that some overextraction is generally seen as more acceptable than underextraction (e.g. Cattell, 1978; Gorsuch, 1983). One reason for this preference is simply that it is easier to recognise an overextracted factor as trivial than the fact that an underextracted factor contains elements of two or more factors. More importantly, research has shown that serious distortions can arise if not enough factors are extracted. These include not only poor estimates of loadings on factors included in the solution, but also false loadings on factors for items better represented by factors not included (cf. Fava & Velicer, 1992; Wood, Tataryn, & Gorsuch, 1996).

While the Kaiser criterion represents a popular but inappropriate way of deciding the number of factors, the so-called scree test (Cattell, 1966) is also popular and has received support in empirical studies (e.g. Hakstian, Rogers, & Cattell, 1982). Usually the graph of eigenvalues is inspected to find the last significant drop in eigenvalues after which they form a "scree", i.e. show a much flatter slope. A not infrequent problem encountered in practice is an eigenvalue curve which fails to show a clear drop at one point but has a continual decline. The scree plot of eigenvalues obtained from an empirical sample can be compared to the eigenvalues obtained for the same number of variables and the same sample size from completely random data (Horn, 1965). This kind of analysis has been called "parallel analysis" and has found support in several studies (e.g. Humphreys & Montanelli, 1975; Zwick & Velicer, 1986). It is rarely reported in the literature, presumably because of a lack of readily available software to conduct parallel analyses. From a theoretical perspective, however, determining the number of factors above those expected by chance appeared very attractive.

In addition to the eigenvalues, it is helpful to examine the residuals after a certain number of factors has been extracted. The root mean square residual (RMR, Jöreskog & Sörbom, 1989) is the square root of the avarage of the squared fitted residuals or $\mathrm{RMR} = [(1/k)\ \Sigma_{ij}\ (s_{ij} - \sigma_{ij})^{2}]^{\frac{1}{2}}$. The index can be used to compare two different models with the same data as well as determining an overall level of fit desired by the investigator. In the current study a RMR of less than 0.05 was chosen as a minimal condition and a RMR of less than 0.03 was seen as highly acceptable after a certain number of factors had been extracted. For comparison, Pedhazur and Schmelkin (1991, p.655) characterised a RMR of 0.026 as "small".

Returning to the number of factors problem, the following strategy was chosen in the current study to clarify how many factors to examine. Eigenvalues were computed for models ranging from 1 to 15 factors. The stepdown in eigenvalues was examined as in the scree test. A parallel analysis was conducted as well. The estimates of corresponding eigenvalues for random matrices were obtained based on an item distribution which reflected an approximate average of CBCL item distributions, namely 70%, 22%, and 8% of answers in the three response categories. The program was written specifically for this study in the R language by John Maindonald from the Department of Mathematical Sciences at the Australian National University. Product-moment correlations were used as no R routine for the computation of polychoric correlations could be found at the time. Each analysis specified the appropriate *N* and 90 variables for 500 bootstrap samples. The eigenvalues used for comparison to the empirical sample were calculated at the 99th percentile of the distribution of the 500 estimates. Two comparisons were made, the first to the corresponding eigenvalues based on product-moment correlations and the second to the eigenvalues based on polychoric correlations. In addition, the root mean square residual was calculated for all models in the four samples.

Initially the evaluation focussed on narrowing the range of factors to be examined by using the criteria outlined so far. However, as Fabrigar et al. (1999) pointed out, the decision on how many factors to extract is not only a statistical one, it has to include substantive issues as well. Previous research and relevant theory have to play an important role in determining how many factors are chosen. Therefore, in examining different solutions, a strong emphasis was put on evidence supporting the cross-informant syndromes as well as other factors identified in previous investigations.

In addition, the availablity of four different data sets made it possible to consider the replicability of various factors, a criterion which Cattell (1978) had especially stressed and which has been reiterated many times since (e.g. Fabrigar et al., 1999; Reise et al. 2000). However, no decision on tests of replicability was made upfront given that some similarity between different samples had to be established first, before it would make sense to even consider formal tests of replicability. By contrast, recent work on cross-cultural comparisons (e.g. Byrne & Campbell, 1999) has lead to demands for the strictest evaluation of equality of all model parameters across different samples. This kind of work seemed most suitable in areas where there are already firmly established models and measures and the equality rather than the similarity between samples is an issue. Given the exploratory nature of the analyses in the current study as well as the presumed complex structure underlying symptoms of child psychopathology, the application of multi-sample confirmatory factor analysis to the current problems was judged to be premature. Instead, the initial focus was on retaining similar factors with possibly similar marker variables in different samples, as mentioned earlier.

Another important decision involved the choice of rotation before interpreting factor loadings. Achenbach (1991a) had used varimax rotations and argued subsequently that orthogonal rotation often leads to scales which are correlated. Also, Gerbing and Hamilton (1996) were surprised to find little difference between orthogonal and oblique rotations. However, there is no convincing theoretical argument to expect factors of child psychopathology to vary completely independently, especially not at a stage where research is still unclear as to the final constructs in the area. In addition, all the empirical evidence reviewed in the introduction points to correlated constructs which are better modeled as such. Fabrigar et al. (1999) as well as Reise et al. (2000) clearly argued against orthogonal rotation, rightly pointing out that independent factors will show up under oblique rotation, but not the other way around. In addition, it was necessary to allow correlated factors for the second part of this project, which was going to examine "comorbidity" between syndromes. Looking for correlated factors would not exclude the possibility of finding relatively uncorrelated syndromes anyway.

Several oblique rotation methods exist (e.g., Harris & Kaiser, 1964; Hendrickson & White, 1964; Jennrich & Sampson, 1966) and all of them seem to work well in practice. For example, the simulation study by Gerbing and Hamilton (1996) found no difference between “Kaiser-Harris rotation” (with exponent parameter set at .5) and promax rotation with transformations at powers 2,3, and 4. Gorsuch (1983, pp. 190-195) provided a good description and an example using promax rotation in which an initial orthogonal solution was rotated to the best least squares fit. Gorsuch (1983, p. 191) concluded that “the procedure gives good simple structure” (cf. Thurstone, 1947). Further support for the use of promax rotation was reported in a dissertation by Milliron (1998) which compared five oblique with two orthononal rotations in three real and 24 simulated data sets. Using measures of variability and bias, the study found that promax was the superior rotation with both real and simulated data. In the current study the unrotated factor solutions were therefore also rotated by the promax method for easier interpretation.

The promax rotated loadings were inspected to assess the contribution of individual items to the identification of the underlying factors. The cross-informant model served as a hypothetical guide to identify items which loaded on their predicted factor (subsequently called “true positives”), items which loaded on other factors than predicted (“false positives”), and items which failed to load substantially on any factor (“false negatives”). Models were respecified excluding false negatives and trivial factors. The reestimated models were then examined again using the same criteria and respecified a second time if necessary, including the selection of marker items for each factor. Finally the fit of the model(s) was assessed using four different statistical criteria (in addition to the substantive evaluation of the meaningfulness of the factors).

The four indices of model fit included a robust chi-square (Muthén & Muthén, 1998), the Tucker Lewis index (TLI, Tucker & Lewis, 1973), the comparative fit index (CFI, Bentler, 1990), and the root mean square error of approximation (RMSEA, Steiger & Lind, 1980). A significant chi-square statistic relative to the degrees of freedom indicates that the observed matrix and the matrix estimated from the model are different. While a nonsignificant chi-square simply indicates that they are not different, it does not say that the model is correct, because there are usually other models fitting the data as well. This statistic is very sensitive to sample size with large samples usually producing highly significant results ($p < .001$). Different ratios of chi-square to degrees of freedom have been proposed as an alternative way of evaluating this statistic. Ratios from 3:1 to 5:1 have been suggested as still indicating a reasonable fit. The major problem with this statistic is that it does not behave well when the assumptions underlying the estimation are not met. Several attempts have been made to correct the test statistic using a scaling factor (cf. Satorra & Bentler, 1988, 1994). Several studies showed that the Satorra-Bentler scaling approach leads to acceptably robust results (e.g. Hu, Bentler, & Kano, 1992) and compares favourably to large sample distribution-free methods (e.g. Chou, Bentler & Satorra, 1991). Robust estimation was used in the current study and a chi-square statistic obtained which was mean and variance adjusted (for technical details see Muthén & Muthén, 1998, p. 357-358).

The Tucker-Lewis index (Tucker & Lewis, 1973) is an incremental fit index that can be used to compare a proposed model with a null model or to compare alternative models. It is computed using the chi-square statistic and ranges from 0 to 1: $\text{TLI} = [(\chi^2_{\text{null}} / \text{df}_{\text{null}}) - (\chi^2_{\text{proposed}} / \text{df}_{\text{proposed}})] / [(\chi^2_{\text{null}} / \text{df}_{\text{null}}) - 1]$. Bentler and Bonnett (1980) called the generalised form of the TLI the nonnormed fit index or NNFI. The comparative fit index or CFI (Bentler, 1990) was based on Bentler's earlier fit index BFI which in turn was identical to McDonald and Marsh's (1990) relative noncentrality index. The CFI limits the range of the BFI from 0 to 1 by specifying CFI = 1 - max [(χ^2_t -df_t), 0] / max [(χ^2_t -df_t), (χ^2_0 -df_0), 0]. Marsh, Balla, and Hau (1996) presented a major review of seven incremental fit indices and conducted a large study evaluating their independence from sample size, penalty for model complexity, reliability of estimation and interpretability. In conclusion they recommended the use of the TLI as well as the CFI (or their normed or unnormed counterparts, respectively). Many researchers use TLI or CFI $\geqq$ .90 as a rule of thumb in assessing model fit. However, Hu and Bentler (1995) warned that this rule may be misleading for small sample sizes or nonnormal distributions. In addition to the use of fit indices they recommended to evaluate the residuals that result from fitting a model to the data. As mentioned before, the root mean square residual was computed for all models in the current study and the absolute values of individual residuals were inspected as well.

Finally, the root mean error of approximation (RMSEA, Steiger & Lind, 1980) was computed. This index has enjoyed considerable support in the literature (e.g. Fabrigar et al., 1999; Jöreskog & Sörbom, 1993). It takes into account the error of approximation in the population as well as the precision of the measure itself. The RSMEA is defined as the square root of the population discrepancy function per degree of freedom and a confidence interval can be calculated for the estimate. Browne and Cudeck (1993) suggested that values of 0.05 or below show a close fit, while values of 0.08 are still acceptable.

Once models were defined which fitted the range of criteria outlined above as far as possible and made substantive sense as well, the final step in the analyses could be approached, namely the estimation of the position of individuals on the trait dimensions and the correlation of their syndrome scores in their respective subgroups. The factor score estimation followed the procedure outlined by Muthén and Muthén (1998). Considering a categorical variable y_j with categories s = 0,1,2,...., S_j - 1 and $\tau_{j,k,0} = -\infty$, $\tau_{j,k,Sj} = \infty$, the probability of y_j being observed in category s is defined as $f_j\,(y_{ij} \mid \eta_i, x_i) = \Phi\,[\,\tau_{j,s+1} - \lambda_j{}'\,\eta_i - \kappa_j{}'\,x_i\,)\,\theta_{jj}{}^{-1/2}] - \Phi\,[\tau_{j,s} - \lambda_j{}'\,\eta_i - \kappa_j{}'\,x_i\,)\,\theta_{jj}{}^{-1/2}]$, where $\lambda_j{}'$ is the jth row of Λ, $\kappa_j{}'$ is the jth row of K, and θ_{jj} is the jth diagonal element of Θ. The factor score estimate is $\hat{\eta}_i$ and was obtained from the mode of the posterior distribution of η_i by minimising the following function F with respect to η_i:
$F = ½\,(\eta_i - \mu_i)'\,\Sigma^{-1}\,(\eta_i - \mu_i) - \sum_{j=1}^{p} \ln f_j\,(y_{ij} \mid \eta_i, x_i)$. This minimisation was carried out by iterative techniques. "Mplus uses quasi-Newton techniques where only first order derivatives of F are needed", Muthén and Muthén (1998, p.386). The factor scores were initially written to the ASCII data file and subsequently imported into SPSS for the correlational analyses that investigated "comorbidity" in the eight subgroups.

In sum, the large number of items which measured the underlying constructs in a very coarse way provided a particular challenge for this project because normal procedures like the product-moment correlation coefficient and maximum likelihood estimation could not be used without serious risk of distorting the results. However, categorical variable methodology (cf. Muthén et al., 1997) offered a modern alternative which can deal with many of the problems associated with such data.

RESULTS

3.1. Initial Exploratory Factor Analyses

3.1.1. Number of Factors

Three types of eigenvalues were derived for the first 15 factors in every sample: Eigenvalues based on 500 simulations of random matrices of skewed variables as described in the analysis section, eigenvalues based on the product-moment correlations in each sample, as well as eigenvalues based on the analysis of polychoric correlations in the sample. Tables 8 to 11 show these labeled as SIM, PM, and PC, respectively. The simulated eigenvalues showed a flat function starting with a maximum of 1.340 for the first root in the Israeli sample and decreasing to 1.133 as the minimum for the 15th root in the ACQ sample. Thus all 15 random factors exceeded Kaiser's eigenvalue greater than one rule in all four samples. The simulated values provided the baseline to judge the actual eigenvalues derived from the sample product-moment correlations.

When the decrease in eigenvalues based on product-moment correlations was traced, a strong first factor stood out in all samples (eigenvalues > 18). A strong second factor was apparent as well (eigenvalues > 4.3 in all samples). The next three factors in the US and the next two factors in Australia and Israel showed eigenvalues > 2. This was followed by a gradual decrease in all four samples towards the point of crossover with the random eigenvalues derived for each sample size. The following criterion was adopted for this study: The last root before a factor was declared a random factor had to demonstrate an eigenvalue of at least 0.10 above the corresponding random value.

This meant that the following number of factors would have been chosen if this had been the only criterion: Ten factors in the ACQ, US, and Israeli samples (with eigenvalues of 1.324 vs. 1.160, 1.413 vs. 1.219, and 1.356 vs. 1.226, respectively), but only eight factors in Australia (1.443 vs. 1.175). Using a lower bound of an eigenvalue > 2.0 and an upper bound of an eigenvalue > 0.10 above the random eigenvalue it appeared after this step that the best solutions would lie in the following ranges: Between 5 and 10 for the ACQ and the US CBCL sample, between 4 and 8 in the Australian sample, and between 4 and 10 in the Israeli sample. However, going beyond ten factors (and eight in Australia) clearly risked extracting random factors.

The PM eigenvalues were compared to eigenvalues based on the analysis of polychoric correlation matrices. It is known that product-moment coefficients underestimate correlations for skewed, coarsly measured variables and lead to lower factor loadings, but the effects on the overall model are less well understood, especially if the model is large. In the current samples a clear difference of 10 points or more was observed for the first root in all four samples. However, by the fifth root values were approaching each other (2.360 vs. 2.067; 2.630 vs. 2.170; 1.989 vs. 1.966; 2.328 vs. 1.986, cf. Tables 8 to 11). For the three samples with a possible maximum of 10 factors the 10th eigenvalues were very similar (1.338 vs. 1.324; 1.423 vs. 1.408; and 1.445 vs. 1.356, cf. Tables 8 to 11). A similar convergence (1.333 vs. 1.443) could be seen in the Australian sample around the 8th factor which had been indicated as the last nonrandom factor in the previous analysis (see above).

Table 8. *Eigenvalues and Residuals for Different Numbers of Factors in the US Sample (ACQ Study)*

	ACQ Samples (*N* = 7304)			
FACTOR	SIM	PM	PC	RMSR
1	1.242	23.238	32.493	.0852
2	1.225	4.943	6.066	.0595
3	1.212	2.904	3.639	.0489
4	1.203	2.446	2.760	.0418
5	1.194	2.067	2.360	.0364
6	1.187	1.960	2.047	.0323
7	1.180	1.710	1.747	.0289
8	1.173	1.458	1.554	.0263
9	1.167	1.346	1.405	.0242
10	1.160	1.324	1.338	.0221
11	1.157	1.186	1.177	.0205
12	1.149	1.136	1.109	.0191
13	1.143	1.107	1.023	.0178
14	1.139	1.071	1.006	.0167
15	1.133	1.030	0.950	.0159

Note. SIM = simulation (99%ile, 500 random samples) , PM = product moment correlations, PC = polychoric correlations, RMSR = root mean square residual.

Table 9. *Eigenvalues and Residuals for Different Numbers of Factors in the US Sample (CBCL Study)*

	Matched US Samples (*N* = 4006)			
FACTOR	SIM	PM	PC	RMSR
1	1.335	20.203	30.896	.0909
2	1.308	4.406	6.000	.0685
3	1.289	3.203	4.337	.0540
4	1.279	2.367	2.957	.0470
5	1.265	2.170	2.630	.0408
6	1.256	1.790	2.071	.0371
7	1.246	1.730	1.825	.0341
8	1.238	1.590	1.731	.0310
9	1.227	1.465	1.509	.0289
10	1.219	1.408	1.423	.0266
11	1.210	1.235	1.250	.0250
12	1.202	1.205	1.168	.0236
13	1.195	1.138	1.084	.0223
14	1.188	1.110	1.073	.0211
15	1.181	1.103	1.027	.0202

Note. SIM = simulation (99%ile, 500 random samples) , PM = product moment correlations, PC = polychoric correlations, RMSR = root mean square residual.

Table 10. *Eigenvalues and Residuals for Different Numbers of Factors in the Australian Sample*

	Australian Sample (*N* = 7112)			
FACTOR	SIM	PM	PC	RMSR
1	1.245	27.635	40.173	.0898
2	1.229	5.514	7.037	.0529
3	1.216	2.621	3.159	.0439
4	1.206	2.197	2.468	.0378
5	1.197	1.966	1.989	.0336
6	1.191	1.815	1.988	.0291
7	1.183	1.497	1.530	.0261
8	1.175	1.443	1.333	.0238
9	1.169	1.226	1.166	.0221
10	1.163	1.189	1.127	.0206
11	1.156	1.133	1.072	.0190
12	1.150	1.093	0.981	.0178
13	1.146	1.056	0.914	.0168
14	1.141	1.019	0.877	.0159
15	1.135	0.951	0.817	.0149

Note. SIM = simulation (99%ile, 500 random samples) , PM = product moment correlations, PC = polychoric correlations, RMSR = root mean square residual.

Table 11. *Eigenvalues and Residuals for Different Numbers of Factors in the Israeli Sample*

	Israeli Sample (*N* = 3772)			
FACTOR	SIM	PM	PC	RMSR
1	1.340	18.192	29.992	.0912
2	1.317	4.354	6.188	.0668
3	1.303	2.796	3.700	.0571
4	1.289	2.611	3.118	.0496
5	1.275	1.986	2.328	.0454
6	1.264	1.892	2.146	.0415
7	1.253	1.683	1.933	.0383
8	1.243	1.593	1.762	.0355
9	1.234	1.504	1.723	.0326
10	1.226	1.356	1.445	.0309
11	1.217	1.263	1.315	.0293
12	1.209	1.235	1.255	.0278
13	1.201	1.198	1.202	.0263
14	1.193	1.173	1.154	.0249
15	1.186	1.142	1.089	.0236

Note. SIM = simulation (99%ile, 500 random samples) , PM = product moment correlations, PC = polychoric correlations, RMSR = root mean square residual.

The next indication of the most appropriate number of factors to extract is listed in the last column of Tables 8 to 11. At least seven factors were necessary in the ACQ sample to achieve a residual index (RMSR) close to 0.03, the initial target set for this study. Eight factors were needed for the US CBCL sample, six factors in Australia, but eleven factors in Israel. However, extracting eleven factors in the Israeli data would go beyond the ten factors above the random level described earlier. Therefore the result for this index was set to 10 factors for the Israeli sample with the RMSR close to 0.03 anyway (namely 0.0309).

Putting all these considerations together, it appeared that it would be fruitful to consider from six to ten factors overall (7-10 for the ACQ sample, 8-10 for the US CBCL sample, 6-8 for the Australian data, and 10 factors for the Israeli data). This meant that the eight factor cross-informant model could still be considered for any one of the four samples, but that it might actually form part of a larger model in the US and Israeli data. The main conclusion at this point of the investigation favoured the extraction of eight to ten factors for all samples with the exception of the Australian sample for which a seven factor solution was examined as well. The rationale for this decision was based on a preference for more rather than fewer factors, and in the case of the Australian sample, the option to compare findings with the nine and ten factor solutions in the other samples (keeping in mind the risk of overextraction).

3.1.2. Fit of Chosen Factor Models

Table 12 provides an overview of the fit indices calculated for the range of exploratory models considered for further examination. Use of the weighted least squares estimation procedure in Mplus allows for the estimation of a robust, mean and variance adjusted chi-square statistic of model fit. Whereas the degrees of freedom would be the same for comparable models under maximum likelihood estimation, the degrees of freedom under weighted least squares estimation are estimated from the data and can vary according to characteristics of the sample input data. This was indeed the case in the current study with df varying from 666 to 1174 for the eight factor model (compared to 3313 under ML estimation), to point out just one example. All chi-square values were statistically significant, indicating a poor fit of the models to the data. However, the sensitivity of this statistic with large samples has been criticised (e.g. Marsh, Balla, & McDonald, 1988).

The ratio between the chi-square statistic and the associated degrees of freedom on the other hand, showed that some models were within a range often considered acceptable. For example, all three US models showed a ratio under 5:1, as did the Israeli results. The residual indices also painted a more acceptable picture. All estimates of mean square errors in the population (RMSEA) varied around 0.03, with the highest estimate equalling 0.035 for the Australian seven factor model. Similar results were obtained by computing the root mean square residuals. Values under 0.03 were found in the ACQ and the Australian sample, the US sample values varied only slightly around this figure, while the Israeli results showed the highest residual statistics (0.033 to 0.037).

Table 12. *Fit Indices After Exploratory Factor Analyses (WLSMV) of 90 CBCL Items*

Sample- No. Factors	x^2	df	x^2 / df	RMSEA	RMSR
ACQ-8	10617	1096	9.7 : 1	0.034	0.028
ACQ-9	9292	1100	8.5 : 1	0.032	0.025
ACQ-10	8247	1125	7.3 : 1	0.029	0.023
US-8	4738	970	4.9 : 1	0.031	0.033
US-9	4189	975	4.3 : 1	0.029	0.030
US-10	3681	980	3.8 : 1	0.026	0.028
AUS-7	11562	1164	9.9 : 1	0.035	0.028
AUS-8	9989	1174	8.5 : 1	0.032	0.025
AUS-9	8686	1178	7.4 : 1	0.030	0.024
AUS-10	7538	1177	6.4 : 1	0.028	0.022
IS-8	3072	666	4.6 : 1	0.031	0.037
IS-9	2724	676	4.0 : 1	0.028	0.035
IS-10	2456	675	3.6 : 1	0.026	0.033

Note. For ACQ sample *N* = 7304, for US sample *N* = 4006, for AUS sample *N* = 7112, for Israeli sample *N* = 3772.

In conclusion, no clear winner could be declared from amongst these models. On the one hand the residual statistics indicated that a reasonable number of factors had been extracted, on the other hand the ratio of chi-square to degrees of freedom was relatively high for the ACQ and the Australian sample. Overall fit statistics after exploratory factor analysis can only assist in a summary evaluation of the data and models under study, but do not help in a more detailed analysis of fit and misfit, be it statistically or theoretically oriented. The next steps therefore focussed on the interpretation of the individual factors as well as the contribution of individual items to their measurement in an attempt to get "inside" these models and discern their particular strengths and weaknesses.

3.1.3. Evaluation of Factors

The evaluation of the factors was carried out with reference to the cross-informant model. The most general question asked whether any, and if so which cross-informant factors could be recognised among the patterns of loadings. When a factor was recognised the next question asked to what extent it showed up, i.e. how many model hypothesised loadings reached a minimum size. A conventional threshold of 0.30 was set before declaring that a hypothesised loading had been found. Across the four samples there were over 10000 factor loadings which needed to be visually inspected and then classified. Each item loading was either declared a true positive, that is a hypothesised target item with a loading of 0.30 or higher, a miss or false positive (i.e. a loading below 0.30), an additional loading, or irrelevant. Detailed tables were prepared that documented this evaluation and they are presented in Appendix C. The results of these evaluations were then summarised for each factor and model and are presented here in Table 13.

Table 13. *Evaluation of Loadings After Exploratory Factor Analyses (WLSMV) of 90 CBCL Items*

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Other
ACQ-8	9/0/1	6/3/0	13/1/3	4/4/1	5/2/2	10/1/1	9/4/5	20/0/15		
ACQ-9	9/0/1	6/3/0	13/1/3	3/5/0	5/2/2	9/2/0	9/4/6	20/0/16	-/-/4	
ACQ-10	9/0/1	6/3/0	11/3/3	3/5/0	5/2/3	10/1/1	4/9/1 7/6/6	20/0/16	-/-/5	
US-8	9/0/4	9/0/0	12/2/4	5/3/2	Attent.	9/2/8	10/3/6	16/4/11	-/-/6	
US-9	8/1/3	9/0/0	13/1/4	3/5/1	6/1/3	8/3/7	10/3/7	15/5/9	-/-/7	
US-10	8/1/3	9/0/0	12/2/3	3/5/3	6/1/2	7/4/1	10/3/6 5/8/2	14/6/5	-/-/9	
AUS-7	9/0/3	9/0/2	12/2/6	6/2/3	7/0/7	Thought	6/7/2	20/0/24		
AUS-8	8/1/2	9/0/1	13/1/5	6/2/3	7/0/6	Thought	7/6/2	20/0/24	-/-/3	
AUS-9	7/2/2	9/0/0	12/2/4	6/2/2	7/0/6	Thought	5/8/3 3/10/0	20/0/25	-/-/3	
AUS-10	7/2/2	9/0/0	13/1/6	3/5/0	7/0/1	8/3/3	5/8/2 3/10/0	20/0/24		Destruct.
IS-8	6/3/4	9/0/4	8/6/3	8/0/6	Delinq.	6/5/2	10/3/13	15/5/8		Immature
IS-9	3/6/3	9/0/4	8/6/2	5/3/2	2/5/5	6/5/2	10/3/10	15/5/8		Immature
IS-10	3/6/3	8/1/4	8/6/5	5/3/2	5/2/3	4/7/1 5/6/1	10/3/8	13/7/7	-/-/7	

Note. The first cell entry shows the number of true positive items, the second the number of false postives for the cross-informant model. The third entry shows the number of additional loadings ≧ .3 found on the factor. ACQ sample $N = 7304$, US sample $N = 4006$, AUS sample $N = 7112$, IS sample $N = 3772$.

The first and main finding concerned the fact that all eight cross-informant factors were found in one form or another in each sample, but that with very few exceptions the pattern of loadings was different from the hypothesised cross-informant pattern. In addition, factors emerged in some of the analyses which were called "Show off", "Destructive", and "Immature". They will be discussed shortly. Looking at the entries in Table 13, the first two numbers reflect the proportion of cross-informant items supported by the analysis (e.g. for the 8 factor model 9 out of 9 hypothesised items were found to load at or above 0.30 on the Withdrawn factor in the ACQ sample, but only 4 of the 8 hypothesised items on the Social Problems factor). The third entry reflects additional item loadings. For example, in the eight factor model for the ACQ data the Withdrawn factor also provided a significant loading for one additional item. By looking up the item loadings and evaluative indicators in Appendix C, Table C1) the item can be identified as item 71 (self-conscious or easily embarrassed) which according to the cross-informant model loads only on the Anxious/Depressed factor. Several entries in Table 13 show no numbers, but refer to another factor. This indicates that the items hypothesised for the factor loaded on the factor nominated, instead of forming their own factor (e.g. the cross-informant model items for the Thought Problem factor were found on the Attention Problem factor when eight factors were extracted in the US CBCL data). Having clarified how to read Table 13, the presentation now moves on to the consideration of findings in each of the samples.

ACQ-Sample:

The eight factor model showed a reasonable resemblance to the cross-informant model when convergent validity was the only criterion. Looking at each factor in turn, 100%, 66%, 93%, 50%, 71%, 91%, 69%, and 100% of the items hypothesised to load on the eight factors actually did, using the 0.30 criterion. The poorest result was obtained for the Social Problem factor. The central triad of item 25, 38, and 48 (doesn't get along with others, gets teased a lot, and not liked by other children) held together, while item 64 (prefers young) received a weak loading of 0.32. However, this last loading dropped below 0.30 in the nine and ten factor models. The other factor showing a substantial number of hypothesised items which did not load on the factor was the Delinquent Behaviour factor. Items 26, 63, 72, and 96 (no guilt, prefers older children, sets fires, thinks about sex too much) did not reach the criterion in the eight factor model. The nine factor model looked similar for this factor, but in the ten factor solution the factor broke up. One of these factors was characterised by lying, cheating, and stealing (items 43, 81, 82), while the other factor had high loadings on items 39, 67, 101, and 105, indicating bad companions, running away, truancy, and alcohol or drug use.

Turning to additional loadings, the most striking finding was the large number of additional loadings found on the Aggressive Behaviour factor (15 in the eight factor model and 16 for the nine and ten factor solutions). The newly introduced item 16 (cruel to animals) loaded highly (0.59) on this factor rather than the hypothesised Delinquent factor. Other loadings related the factor to items normally assigned to the Delinquent, Attention, and Social Problem factors (items 10, 25, 26, 41, 43, 48, 72, 81, 82, 88, 90, 106, can't sit still, not get along, no guilt, impulsive, lie cheat, not liked, sets fires, steals, sulks, swears, vandalism). In addition there were items which are attributed to the Anxious/Depressed factor by the cross-informant model, but which loaded on the Aggressive factor (items 14, 33, 34, cries, feels unloved, feels others are out to get him/her). Many of these loadings do not surprise the clinican who knows the multifaceted presentation of aggressive children. However, several loadings call into question common distinctions between aggressive and delinquent behaviour (e.g. the stealing items). Several loadings appeared to indicate the social consequences of aggressive behaviour (items 25, 48, 33, and 34). The loading of item 88 (sulks) may indicate a manipulative tendency but is probably also related to the emotion regulation problems of aggressive children. There were three items loading on the Anxious/ Depressed factor which are not specified on any factor by the eight factor cross-informant model: Item 18 (deliberately harms self or attempts suicide), item 30 (fears going to school), and item 91 (talks about killing self). The results showed that they did indeed measure the Anxious/Depressed factor as hypothesised for the current study. Finally, another factor was extracted which was labeled "Show-off". Items 7, 74, 93, and 104 (brags, shows off, talks too much, and loud) received loadings from this factor. Table 13 shows that this factor was found in the other samples as well. However, no items seemed to uniquely define this factor, making it a derivative proposition.

US CBCL Sample:

This was the sample for which the closest fit to the cross-informant model was expected since it was partly developed using this data. The eight factor model did not present a separate Thought Problem factor, but a factor called "Show-off" instead. In this solution the items attributed by the cross-informant model to the Thought Problem factor were found on the Attention Problem factor (cf. Appendix C). The Show-off factor was characterised by items 7, 63, 74, 93, 94, and 104 (brags, prefers older children, shows off, talks too much, teases, and unusually loud). This factor thus appeared very similar to the factor found in the ACQ sample. Extracting nine factors allowed the Thought Problem factor to appear, while the ten factor solution led to the breakup of the Delinquent Behaviour factor, as had happened in the ACQ sample. Contrary to the ACQ sample one of the Delinquent Behaviour factors continued to resemble the factor as expressed in the nine factor solution, keeping ten hypothesised loadings in the ten factor solution. The second Delinquent factor was characterised by items 43, 72, 81, 82, and 106 (lying, cheating, sets fires, stealing at home and outside, and vandalism), similar to the break off factor in the ACQ sample. Given that the nine factor solution included reasonable approximations of all eight cross-informant factors, this solution attracted most interest. The assessment of convergent validity showed that 89%, 100%, 93%, 38%, 86%, 73%, 77%, and 75% of the predicted loadings were found on the respective factors (from Withdrawn to Aggressive). The poorest result was obtained for the Social Problems factor. Only the central triad of item 25, 38, and 48 (doesn't get along with others, gets teased a lot, and not liked by other children) held together to form this factor.

A large number of additional loadings was found on three factors: the Attention Problems factor, the Delinquent Behaviour factor and the Aggressive Behaviour factor. Starting with the Aggressive Behaviour Problem factor, nine items not specified by the cross-informant model were affected by the factor: items 14, 15, 17, 18, 25, 33, 88, 90, and 91 (cries, cruel to animals, not day-dreaming, self-harm, not get along, unloved, sulks, swears, talks suicide). While most of these had been identified as additional loadings in the ACQ sample, the moderate loadings for the "suicidal" items were not found in that sample. Additional items on the Delinquent Behaviour factor included items 8, 11, 18, 23, 61, and 69 (can't concentrate, does not cling, self-harm, disobedient at school, poor school work, and secretive). Thus this factor also contributed a moderate loading to the self-harm item. Most of these extra loadings were moderate in size. However, item 61 (poor school work) received a strong loading (0.56). Additional items on the Attention Problems factor were generally in the moderate range and included items 11, 19, 20, 21, 64, 81, 82 (clings, demands attention, destroys own, destroys things belonging to others, prefers younger children, and steals). Two of the three additional items hypothesised to load on the Anxious/ Depressed factor showed substantial loadings, item 30 (fears school, 0.45) and item 91 (talks suicide, 0.47). However, item 18 did not seem to be substantially affected by the factor (0.21).

Australian Sample:

The Australian seven factor solution did not identify an Attention Problem factor. Instead the hypothesised items loaded on the Thought Problem factor. While at least one cross-informant factor had to give way in a seven factor solution, extraction of eight and nine factors did not create a separate Attention Problem factor either. However, a sudden shift took place with the extraction of the tenth factor which showed 8 out of 11 attention problem items loading on the factor as hypothesised (c.f. Table 13). Additional factors included the Show-off factor in the eight and nine factor model and a factor called Destructive in the ten factor solution. Items 18, 74, and 93 (does not harm self, but shows off, and talks too much) characterised the Show-off factor. The Destructive factor was made up of a combination of suicidal and destructive tendencies (items 18, 20, 21, 91, self harm, destroys own things, destroys things belonging to others, and talks suicide). The other remarkable finding across models was the breakup of the Delinquent Behaviour factor in the nine and ten factor models. The first Delinquent factor was characterised by the hypothesised items 39, 67, 90, 101, and 105 (bad companions, runs away, swears, truants, uses alcohol or drugs). The second Delinquent factor included three original delinquent items (43, 81, 82, lies, cheats, steals at home and outside). Thus the triad of lying, cheating, and stealing showed some consistency across the first three samples (see above).

When considering the convergent validity of items to the cross-informant model the seven factor solution showed that 100%, 100%, 86%, 75%, 100%, 86%, and 100% of items loaded on their respective factors. When the Attention factor was extracted, 73% of hypothesised items loaded on it. However, the convergent validity index for the Social Problems factor was substantially reduced with the extraction of ten factors (from 75% to 38%). Only the triad of items 25, 38, and 48 remained to measure this factor, thus confirming the results in the first two samples that these items form the core of the factor.

When considering additional loadings, the large number of loadings (24) on the Aggressive factor that were not specified in the cross-informant model stood out. Apart from the new item 15 which this study had reintroduced and hypothesised to load on the Delinquent factor, the extra loadings covered a wide range of behaviours normally seen as expressions of attention problems (items 8, 10, 41, 61), delinquent behaviour (items 26, 39, 43, 63, 67, 72, 81, 82, 90, 96, 106), social problems (items 25, 48), and anxious/depression (33, 34, 89) or withdrawl (item 65, 88). Many of these extra loadings were very substantial in size (cf. Appendix C). Clearly, this factor affected a very large proportion of problems included on the CBCL. Another factor which showed a number of additional loadings was the Anxious/Depressed factor. These included items 9, 11, 18, 27, 30, and 91 in the ten factor solution. Thus the three items 18, 30, and 91, which were added to the cross-informant model in this study and hypothesised to load on this factor, were supported in this sample as well. Finally, six to seven extra loadings were observed on the Thought Problem factor after extracting seven to nine factors. However, in the ten factor solution the factor emerged in the shape specified by the cross-informant model, except for a minor additional loading on item 46 (nervous movements or twiching).

Israeli Sample:

Overall, there was a higher number of cross-informant items which did not load on the hypothesised factors in Israel than in the other samples. This can be verified by adding up the second entries in Table 13 across factors and comparing the sums across models and samples. The Thought Problem factor did not emerge at all in the eight factor solution. Relevant items were found to load on the Delinquent Behaviour factor instead (cf. Appendix C). The nine factor solution included a factor with high loadings on two of the key items used to define the Thought Problem factor in the cross-informant model (item 40, hears things, and item 70, sees things). However, the ten factor solution showed five of the original seven Thought Problem items loading on the factor. Five predicted items failed to load above the criterion on the Attention Problem factor in the eight and nine factor solutions. When ten factors were extracted the Attention Problem factor broke up. One of these Attention Problem factors was characterised by items 8, 10, and 61 (can't concentrate, sit still, and poor school work).

The other Attention Problem factor painted a sluggish or drowsy picture (items 8, 13, 17, 61, 80, 102, can't concentrate, confused, day-dreaming, poor school work, stares, and underactive). The Anxious/Depressed factor was defined by eight items in each model, but six cross-informant items did not load on the factor at or above the criterion level. This was surprising given the much better results for this factor in the other samples. Several anxiety related items were "missing" from the factor, including item 50 (fearful), item 71 (self-conscious), and item 112 (worries). Using the nine factor model as an example, 33%, 100%, 57%, 63%, 29%, 55%, 77%, and 75% of items coverged with their hypothesised cross-informant model factors. An additional factor emerged as well. In the eight and nine factor solutions this factor was named Immature, whereas in the ten factor solution the factor resembled the Show-off factor found in the other samples. For example, in the eight factor model, the following items loaded on this factor: item 7, 10, 11, 14, 19, 27, 50, 74, and 93 (brags, can't sit still, clings, cries, demands attention, jealous, fearful, shows off, talks too much). In the ten factor solution the following items helped to define the factor, now called Show-off: item 3, 7, 19, 27, 63, 74, and 93 (argues, brags, demands attention, jealous, prefers older children, show off, talks too much).

When considering additional loadings not predicted by the cross-informant model the finding that stood out most was the number of extra items on the Delinquent Behaviour factor. In the nine factor solution these were items 15,16, 20, 21, 22, 23, 40, 57, 70, and 97 (cruel to animals, mean, destroys own and others' things, disobedient at home and at school, hears things, attacks, sees things, and threatens people). Together with the hypothesised delinquent behaviour items this meant that the Delinquent factor emerged as a very strong factor in this sample, affecting many behaviours usually considered under the Aggressive Behaviour factor.

The description so far provides only a summary, because the detailed interpretation of all findings would take considerably more time and space. Further details must be gleaned from the tables in Appendix C. Summarising the findings so far, all cross-informant factors could be found in the data in one form or another. However, hardly any analysis showed them up in the "clean" fashion suggested by the cross-informant model, i.e. even after taking the cross-loadings specified by the cross-informant model into account. In fact, the only exception was the Somatic Complaints factor which could be seen in its clean, hypothesised form in all three US models as well as in the Australian ten factor solution. Variability in the expression of the factors seems to be the norm rather than the exception. Even within the same country there were differences. It is possible that some of these differences resulted from differences between the two US samples. Some differences may have been due to a method effect related to the use of a four point scale in the ACQ sample. In addition, the importance of extraction and rotation became apparent when factors initially failed to emerge and then suddenly appeared fairly well defined when another factor was extracted (as happened, for example, with the Thought Problem factor in the US sample and the Attention Problem factor in Australia). An additional factor showed some similarity across samples and extractions, usually including a core of items that gave it its name, "Show-off". The Destructive factor only surfaced after extracting ten factors in Australia, while the Immature factor was only found in Israel and changed its nature when ten factors were extracted, so that it was relabled "Show-off".

At the end of this stage the following conclusions were reached: The eight factors of the cross-informant model can be traced to various degrees in all samples, but their presentation varies between samples. The clarity of their expression depends to some extent on the location of the factors in multivariate space, i.e. on the rotation. The two US and the Australian sample showed a reasonable degree of similarity, while more differences emerged with the Israeli sample. Additional factors were found in the data but they did not present a strong enough alternative to the cross-informant factors to consider them further. While the initial evaluation was focussed on the identification of the underlying factors as such, the next step focussed on the usefulness of each of the 90 CBCL items to indicate the factors.

3.1.4. Evaluation of Items with Reference to the Factors

For the next step in the analyses the Tables 1-90 in Appendix D were created. These tables greatly facilitated the evaluation of each individual item. Each table shows the factor(s) that is (are) supposed to be the underlying influence according to the cross-informant model. All loadings were listed for this (these) "target" factor(s). In addition, any loadings received from other factors were included as long as they showed a minimum strength of 0.30. This mapping of the items allowed for the following evaluations to be carried out:

1.) The item appeared unidimensional and loaded on the target factor in all samples,

2.) the item appeared multidimensional and loaded on the target factor in all samples,

3.) the item was multidimensional and loaded on the target factor in some samples,

4.) the item loaded on a different factor,

5.) the item was poor (low loadings, off target).

ad 1.) The following items were assessed as "unidimensional" because of their loadings on only one factor. In addition they loaded on the hypothesised factor. However, some judgement entered into this assessment. For example, item 3 showed a very clear pattern of loadings except in the ten factor Israeli model where a secondary loading of 0.34 was found on the Show-off factor. The other observation important about these items was that many showed a consistent pattern in the first three samples, but a different pattern in Israel. When this was the case the item is shown in brackets in the following list. The items assessed to follow the first pattern were items 3, 12, (15), (16), (19), 22, (30), 31, 32, 35, 38, (40), 42, (50), 51, 52, 54, 56a-56g, (57), (66), 68, 75, (84), (85), 87, 95, (97), (101), (105), (112).

ad 2.) The second group included items which received loadings from more than one factor, but still received loadings above the criterion from the target factor in all four samples. For example, item 8 would have been classified as a unidimensional item, had it not been for the loadings it received from the Thought Problems and Aggressive factors in the Australian sample. The following items were found to fit into this second group: item 8, 10, 13, 17, (20), (21), 25, 27, 33, 34, 37, 39, 48, 65, 67, 69, 70, 71, 81, 82, 86, 91, 94, 102, 104, and item 111. Again, items which showed a consistent pattern in the first three samples, but did not fit this pattern in Israel, are shown in brackets.

ad 3.) The third group of items was related to more than one factor and showed an inconsistent pattern of loadings across the samples. This group included items 1, 7, 18, 23, 43, 45, 46, 61, 62, 74, 80, 89, 90, 93, 103, and item 106.

ad 4.) The fourth group included items which are clearly misallocated by the cross-informant model. The weight of the evidence in Table D21 in Appendix D led to the conclusion that item 26 (doesn't seem to feel guily after misbehaving) was a poor measure of the Delinquent Behaviour factor. Strong relationships with the Aggressive factor were found in two samples instead, with moderate loadings in the other two samples. Similarly item 41 (impulsive, acts without thinking) appeared to be a poor measure of the Attention Problem factor, but showed strong relationships with the Aggressive factor in two samples. Item 72 (sets fires) had clear loadings on the Aggressive factor in two samples, and only showed the predicted relationship with the Delinquent factor in Israel. Finally, item 88 (sulks) did show a predicted pattern of loadings on the Withdrawn factor in three samples. However, a consistent pattern of much stronger loadings was observed on the Aggressive factor, a pattern not spelt out by the cross-informant model.

ad 5.) Finally, there was a group of items that performed poorly across models and samples. This group included items 9, 11, 14, (55), 63, 64, 96, and 100.

In summary, this analysis provided a detailed insight into the nature of the items and the underlying factors they reflect. Only 36 of the 90 items that were examined showed a clean loading pattern that replicated well, at least in the US and Australia. Another 26 items also proved their use as indicators of child psychopathology. While they revealed themselves as multidimensional or affected by different factors, they did show a pattern of loadings on the target factor(s) that was replicated across different samples. The 16 items with inconsistent support require further research or clarification, while the underlying model needs to be reformulated in relation to the four misallocated items. Finally, eight items were identified that consistently performed poorly.

3.2. Reduced Models and Replication

One purpose of the analyses so far had been the identification of aspects of the cross-informant model that were robust as reflected in significant items loadings and replication across models and samples. Given the detailed results available after this stage, a number of decisions were taken to simplify the analyses in the next phase. Firstly, the additional factors found in the exploratory analyses were dropped from further consideration. This meant that no attempt was made to further elucidate the nature of the Show-off, Destructive, or Immature factor. Instead, the decision was made to weaken the Show-off and Immature factor by deleting items 74 (showing off or clowning) and item 93 (talks too much). While both these items had high loadings on the Aggressive Behaviour factor, they also exerted a major "pull" in the analyses which helped to create an extra factor. In addition they were judged on clinical grounds to be nonessential to the definition and measurement of the Aggressive Behaviour factor. The second major decision concerned the Social Problem factor which was also dropped from further consideration. Three of the eight items were dropped because they performed poorly overall (items 11, 55, and 64). This left the factor with only five items of which only three performed consistently, namely item 25, 38, and 48 (not get along, teased, not liked). Therefore it was clear following these analyses that this factor was limited to this triad and in need of further development and explication. More importantly it seemed to say more about the social environment of a child or maybe the social consequences of disturbance than about any core syndrome of child psychopathology. Therefore the core items for this factor (25, 38, and 48) were dropped from the further analyses as well. The third decision involved dropping several other items which had performed poorly. These included item 14, 63, 96, and 100 (cries, prefers younger children, thinks about sex too much, and sleep problems). An exception was made for item 9 (can't get his mind off, obsessions) which also performed poorly. However, given the clinical importance of this item, it was kept in the item pool for further consideration. Altogether these decisions left a total of 78 items for further analysis.

As a consequence of these decisions the next stage in the analyses focussed on the extraction of the remaining seven factors in the four samples. Initial inspection of the output (cf. Tables E1 to E3, Appendix E) showed that data for the first three samples produced the hypothesised patterns to an extent that the factors were easily recognised amongst the loadings. The Israeli data (Table E4) however, showed such deviation from the seven factor cross-informant model and the other three samples that it required further investigation. The seven factor extraction did not produce a Thought Problems factor, but an Anxious factor. Therefore an eight factor solution was examined as well. This extraction again split an Anxious factor from the Depressed factor and did show up a factor which resembled the Thought Problems factor. However, its definition was very weak. Only items 40 (hears things), 70 (sees things), and 85 (strange ideas) received loadings above the criterion level from this factor, with the maximum strength of a loading estimated at -0.47 for item 70. The only additional loading was found for item 112 (worries) and this loading was relatively weak (-0.31, cf. Table E5, Appendix E). An attempt to estimate this model in a confirmatory framework failed and resulted in unreasonable estimates (e.g. loadings greater than 1).

Consequently, the Thought Problem factor was dropped from further consideration in Israel and the seven factor solution, including the Anxious factor, examined further.

The seven factor solution proved unsatisfactory on several grounds. Only three of the seven marker variables used in the other samples could be employed to conduct the factor analyses in a confirmatory framework, reducing the comparability of the overall solution considerably. The withdrawn factor which was replicated reasonably well in the other three samples, emerged as a bipolar factor after estimation in the confirmatory framework with loading on items 1, 3, 7, 8, 10, 19, 20, 21, 27, 37, 104, and 106, in addition to the withdrawn factor items which showed negative loadings on this factor. Many of these loadings were very substantial, e.g. item 10 (0.79), item 19 (0.63), item 20 (0.63), item 21 (0.59), item 27 (0.52). The Anxiety factor also showed a bipolar structure. The core items that gave the factor its name were item 50 (fearful), item 71 (self-conscious), and item 75 (shy) with loadings ranging from 0.51 to 0.80. The other end of the factor was characterised by the suicidality items 18 and 91, with loadings of -0.51 and -0.52. While the seven factor solution showed some interesting patterns, it was judged unsatisfactory for the purpose of this thesis in that it failed to provide a factor structure which offered some comparability with the other samples.

Based on a hunch that a six factor solution would show the relative weakness of the Anxiety factor compared to the other factors, one factor less was extracted in the next step. The Anxiety factor indeed dropped out of this solution and the rotation was improved so that all factors were now clearly interpretable in terms of the cross-informant model and comprisons with the other samples seemed more feasable (cf. Table E6 in Appendix E).

The search for marker variables was guided by the idea that they would assist in aligning the factors in multivariate space in such a way that the comparability between the samples was enhanced and an exploratory factor analysis in a confirmatory framework could be performed. This would also assist in judging the significance of individual factor loadings and allow for the computation of factor scores. The search for suitable marker variables in the Israeli sample was guided by the markers chosen for the other three samples, but was not restricted to them. Given that some cross-loadings to be set to zero differed across samples, the question was raised if this strategy should impose the same restrictions at all costs.

A marker variable was defined as an item with a high loading on the target factor and negligible loadings on all other factors. For the first three samples item 111 (withdrawn, doesn't get involved with others) was chosen as the marker for the Withdrawn factor, item 56c (nausea, feels sick) as the marker for the Somatic Complaints factor, item 52 (feels too guilty) for the Anxious/Depressed factor, item 70 (sees things that aren't there) for the Thought Problem factor, item 8 (can't concentrate, can't pay attention for long) for the Attention Problem factor, item 105 (uses alcohol or drugs) for the Delinquent Behaviour factor, and item 95 (temper tantrums or hot temper) for the Aggressive Behaviour factor. These choices were directed by the loadings found in the seven factor solutions reported in Appendix E, but also to some extent by clinical considerations. Marker variables should make clinical sense. There can be debate about some of the markers chosen, e.g. chosing hot temper as a marker for the Aggressive factor will lead to a slightly different positioning of the factor than, say item 37 (gets in many fights). The most debatable choice was probably item 105 (uses alcohol or drugs) for the Delinquent Behaviour factor. However, it needs to be remembered that the choice of a marker involved that the loadings on all other factors in all three samples were set to zero and that this should involve as little distortion to any cross-loadings as possible.

As mentioned before, the Israeli data posed a greater challenge in determining the "right" number of factors and suitable marker variables (cf. Table E6 in Appendix E). Attempts to employ the same marker items as in the other three samples for similar factors in the seven factor model, led to estimates of six loadings as greater than 1, showing that the choice of these markers led to considerable "strain" in the parameter estimation. In addition, the Mplus program returned a fatal error in the estimation of the associated factor scores. Therefore more appropriate marker items needed to be determined from the results of the Israeli exploratory analysis. This left only three factors targeted on to the same markers as in the other samples. As mentioned before, a six factor solution was then computed which improved the position of factors in space and increased the comparability with the other samples considerably. Closer examination of loadings and cross-loadings indicated that it was possible now for five out of six factors to use the same marker variables as in the other samples. The only exception was item 105 for the Delinquent factor which received a significant cross-loading from another factor. Item 82 (steals ouside home) was chosen as a marker item for this factor instead.

Table 14 lists the fit indices for the three seven factor models and the Israeli six factor model after factor analysis in the confirmatory framework. It needs to be kept in mind when reading Table 14 that Mplus adjusts the degrees of freedom in response to the characteristics of the sample data. Therefore df varied from sample to sample, although in each case it was a seven factor model with the same number of restrictions that was estimated. Chi-square statistics for the baseline models were reduced significantly when the model restrictions were imposed on the data. The ratios of chi-square to degrees of freedom ranged from 238:1 to 1281:1 for the baseline models but dropped to ratios ranging from 6.2:1 to 10:1 for the six and seven factor models. Bentler's (1990) comparative fit index (CFI) showed relatively high values ranging from 0.92 to 0.94, while the TLI (Tucker & Lewis, 1973) indicated a very good fit with values of 0.99 for the US and Australian samples and 0.98 for the Israeli sample. Browne and Cudeck (1993) suggested that a value of 0.05 represents a close fit when using the RMSEA as a measure of error of approximation in the population. In the current study all values obtained for this statistic were considerably lower with RMSEA ranging from 0.032 to 0.037 across the four samples. As a result these models were accepted for interpretation and their factor loadings examined (cf. Table 15).

Table 14. *Fit of the ACQ, US, and Australian Seven Factor Models and Israeli Six Factor model*

	ACQ	US	AUS	Israel
χ^2 baseline	116793	55785	135827	35228
df baseline	143	188	106	148
χ^2 model	9482	4428	9392	3496
df model	929	847	1009	559
CFI	0.93	0.94	0.94	0.92
TLI	0.99	0.99	0.99	0.98
RMSEA	0.036	0.032	0.034	0.037

Table 15. *Factor Loadings (x100) for the 78 Item 7-Factor Model in the ACQ, US, and Australian Samples and the 6-Factor Model in Israel*

Item	WD	SOM	AD	TP	AP	DB	AB
Q1	13/ 19/ 20/ 15	00/ 01/-06/-16	-05/-06/-01/ 03	02/-06/-08/ -	**55/ 54/ 66/ 56**	-17/-14/ 14/-09	19/ 09/ 09/ 06
Q3	-07/-04/-06/-22	09/ 00/ 09/-05	03/ 13/ 05/ 01	21/-16/-24/ -	14/ 11/ 29/ 26	-01/-02/-00/-31	**75/ 73/ 73/ 70**
Q7	-15/-14/-18/-41	05/-08/ 02/-16	-14/ 04/ 02/ 22	-02/ 03/-17/ -	22/ 18/ 37/ 23	-03/ 01/-12/-09	**56/ 50/ 52/ 45**
Q8	00/ 00/ 00/ 00	00/ 00/ 00/ 00	00/ 00/ 00/ 00	00/ 00/ 00/ -	**85/ 87/ 92/ 82**	00/ 00/ 00/ 00	00/ 00/ 00/ 00
Q9	06/ 15/ 09/-00	05/-05/-07/ 04	19/ 24/ 26/ 36	**-16/ 25/ 30/ -**	16/ 12/ 13/ 27	-01/ 01/ 02/-04	06/ 08/ 18/ 04
Q10	-30/-29/-26/-35	00/ 01/-03/-12	01/ 01/ 07/ 16	-21/ 13/ 13/ -	**62/ 66/ 66/ 62**	-24/-09/ 16/ 01	37/ 24/ 33/ 32
Q12	-04/ 10/-03/-09	25/ 16/ 09/-11	**39/ 48/ 48/ 75**	02/-15/-17/ -	05/ 04/ 23/ 06	-12/-21/ 06/ 02	18/ 17/ 22/ 01
Q13	39/ 43/ 38/ 52	06/-06/ 01/ 12	-05/ 01/ 09/-12	-17/ 27/ 16/ -	**56/ 40/ 41/ 64**	-00/ 10/-03/-09	-20/-18/-09/-18
Q15	-04 / 11/ 06/ 09	-02/ 07/-16/-24	-29/-22/-31/ 10	-27/ 01/ 26/ -	23/ 34/ 19/ 10	-01/-04/-04/ 39	53/ 40/ 56/ 14
Q16	-03/ 08/ 04/ 05	-01/-09/-12/-23	-28/-12/-14/ 12	-13/ 00/ 00/ -	07/ 10/ 09/ 02	02/ 08/-14/ 22	**85/ 77/ 85/ 53**
Q17	43/ 49/ 38/ 50	-01/-09/ 00/ 22	-04/-02/-04/-13	-01/ 31/ 16/ -	**63/ 34/ 53/ 55**	-09/ 02/ 02/-16	-19/-33/-22/-16
Q18	-17/-02/ 02/ 08	04/ 08/-20/ 15	32/ 20/ 28/ 58	-33/ 07/ 40/ -	-14/-03/-29/-42	45/ 36/-34/ 49	17/ 31/ 38/ 06

Table 15 continued

	WD	SOM	AD	TP	AP	DB	AB
Q19	-17/-09/-13/-38	10/ 06/ 00/-25	13/ 25/ 21/ 72	01/-15/-04/ -	28/ 33/ 34/ 36	-20/-24/ 13/-16	**62/ 55/ 61/ 29**
Q20	-07/ 08/ 09/-32	-04/ 33/-25/-36	-26/-29/-35/ 48	-31/-37/ 44/ -	31/ 68/ 14/ 31	06/-07/-11/ 49	**52/ 49/ 64/ 10**
Q21	-05/ 08/ 11/-30	-09/ 28/-26/-41	-36/-37/-39/ 48	-35/-34/ 43/ -	23/ 62/ 06/ 27	13/-03/-14/ 53	**67/ 62/ 74/ 17**
Q22	-06/ 04/ 04/-16	02/ 06/ 02/-11	-11/-07/-13/ 02	12/-25/-15/ -	28/ 33/ 31/ 32	13/ 14/-10/ 13	**73/ 69/ 73/ 62**
Q23	-17/-13/-17/-17	-05/-05/-13/-01	-20/-05/ 01/-14	-04/-08/-16/ -	50/ 50/ 64/ 35	34/ 33/-32/ 32	**39/ 39/ 36/ 41**
Q26	08/ 18/ 22/-07	-02/ 01/-04/-15	-30 /-26/-27/ 11	-06/-10/-08/ -	27/ 35/ 30/ 21	**20/ 22/-19/ 19**	53/ 41/ 58/ 40
Q27	01/ 08/ 05/-35	06/ 03/ 06/-34	14/ 29/ 21/ 73	04/-16/-27/ -	13/ 07/ 17/ 21	-13/-20/ 04/-12	**60/ 56/ 66/ 37**
Q30	11/ 05/ 12/ 01	17/ 20/ 18/ 20	38/ 42/ 42/ 47	-08/-08/-11/ -	03/ 10/ 08/ 06	19/ 10/-18/14	-11/-01/ 02/-18
Q31	01/-00/-06/-10	-01/-05/-14/-10	**53/ 62/ 64/ 85**	-20/ 10/ 12/ -	05/-02/ 13/ 00	-07/-08/-04/ 03	-02/ 03/ 10/-16
Q32	05/ 05/-04/-13	00/-04/-01/-08	**67/ 68/ 78/ 72**	08/-00/-12/ -	-19/-33/-11/-18	-09/-12/ 03/-17	11/ 09/ 11/ 06
Q33	-10/ 04/ 00/-25	06/ 07/ 02/-23	**52/ 55/ 50/ 96**	10/-32/-28/ -	00/ 04/ 09/-07	10/-02/-09/ 14	40/ 48/ 51/ 21
Q34	11/ 01/-02/-12	-01/-08/-04/-16	**22/ 47/ 44/ 74**	-06/-11/-14/ -	05/ 11/ 20/-04	17/ 11/-14/ 15	40/ 42/ 43/ 30

Table 15 continued

	WD	SOM	AD	TP	AP	DB	AB
Q35	10/ 12/ 07/ 13	-00/ 04/-07/-07	**63/ 68/ 71/ 69**	18/-36/-23/ -	19/ 18/ 24/ 03	16/ 11/-19/ 17	07/ 19/ 13/-07
Q37	03/-18/-21/-23	-05/-08/-11/-26	-22/ 05/ 12/ 21	-16/ 04/-03/ -	00/ 23/ 35/ 21	04/ 15/-18/ 08	**84/ 66/ 61/ 65**
Q39	-06/-09/-12/-10	-07/-02/-07/-01	-15/ 06/ 05/ 08	-12/-08/-19/ -	26/ 26/ 49/ 14	**58/ 58/-50/ 45**	21/ 25/ 29/ 29
Q40	-02/ 02/ 02/-12	11/-04/ 02/-07	01/-02/ 04/ 54	**-58/ 76/ 70/ -**	04/ 04/-03/ 10	-10/-04/-05/ 28	06/-03/ 03/-00
Q41	-01/ 01/-02/-03	-03/ 00/-07/-03	-07/-01/-06/ 02	-06/-01/ 02/ -	**49/ 48/ 54/ 31**	02/ 15/-09/ 16	45/ 34/ 42/ 40
Q42	**73/ 64/ 75/ 74**	-02 /-07/ 02/ 08	-09/-11/-14/-01	-01/ 14/ 08/ -	-09/-14/-03/-11	06/ 07/-07/ 05	-00/-13/ 04/-02
Q43	06/ 11/ 25/-03	-02/ 16/ 01/-03	-29/-17/-32/ 04	-09/-36/-16/ -	35/ 52/ 34/ 24	**33/ 38/-39/ 36**	43/ 39/ 50/ 25
Q45	-01/ 03/ 08/ 19	03/ 07/ 10/ 16	**23/ 33/ 41/ 04**	-27/ 15/ 06/ -	**28/ 20/ 14/ 10**	-12/-01/ 05/-10	29/ 19/ 27/ 54
Q46	-02/ 06/ 04/ 22	-01/ 07/ 04/ 06	08/ 03/ 18/-02	-42/ 33/ 25/ -	**41/ 30/ 32/ 25**	-16/-03/ 12/-03	12/-03/ 02/ 30
Q50	24/ 14/ 12/ 22	06/ 07/ 10/-03	**46/ 52/ 63/ 41**	-15/ 12/ 07/ -	00/ 05/ 08/ 26	-24/-15/ 20/-38	11/ 06/ 04/ 06
Q51	08/ 03/ 11/ 24	**73/ 44/ 53/ 78**	-06/ 14/ 19/-07	-12/ 30/ 12/ -	-07/-12/-04/-06	18/ 15/-04/-13	-11/-07/-11/ 13
Q52	00/ 00/ 00/ 00	00/ 00/ 00/ 00	**78/ 78/ 80/ 78**	00/ 00/ 00/ -	00/ 00/ 00/ 00	00/ 00/ 00/ 00	00/ 00/ 00/ 00

Table 15 continued

	WD	SOM	AD	TP	AP	DB	AB
Q54	32/ 24/ 27/ 35	**24/ 27/ 37/ 52**	07/ 07/ 12/-14	01/ 12/-06/ -	04/-09/ 07/ 01	02/ 10/-05/-01	08/ 05/ 02/ 14
Q56a	-00/ 11/ 05/-00	**68/ 68/ 71/ 71**	-03/-05/ 02/ 07	-02/ 08/-06/ -	07/-07/ 03/-06	-08/-07/ 01/ 05	09/ 09/ 04/ 11
Q56b	06/ 09/ 06/ 17	**75/ 69/ 72/ 86**	-06/-06/-02/-16	-02/ 10/-02/ -	02/-10/-03/-11	06/ 05/-07/-02	-02/ 03/ 04/ 14
Q56c	00/ 00/ 00/ 00	**92/ 88/ 90/ 88**	00/ 00/ 00/ 00	00/ 00/ 00/ -	00/ 00/ 00/ 00	00/ 00/ 00/ 00	00/ 00/ 00/ 00
Q56d	22/ 08/ 06/ 16	**08/ 39/ 36/ 41**	-04/-14/ 03/-05	-16/ 22/ 13/ -	10/-01/ 13/ 03	-03/ 04/-01/ 03	-06/ 02/-02/ 01
Q56e	07/ 06/ 13/ 07	**19/ 38/ 36/ 24**	-05/-08/-06/ 04	-24/ 15/ 07/ -	00/ 01/-04/-04	-02/ 01/ 02/ 05	10/ 03/ 01/ 13
Q56f	-00/ 05/ 01/-03	**89/ 77/ 83/ 65**	-02/ 03/ 01/ 05	-01/ 01/-03/ -	03/-09/-04/-01	-03/-06/ 03/-01	-01/ 07/ 02/ 12
Q56g	12/-05/ 02/-04	**40/ 76/ 68/ 65**	-07/-18/-04/ 05	-19/ 07/ 04/ -	-07/ 12/ 01/ 02	10/ 02/-05/ 06	01/ 02/-03/-04
Q57	-08/-06/-07/-08	-05/-10/-18/-23	-21/-07/-02/ 18	-31/ 10/ 13/ -	-03/ 02/-04/-03	11/ 09/-14/ 26	**80/ 78/ 91/ 68**
Q61	12/ 05/ 09/ 21	-03/ 07/-02/ 13	-01/ 04/-00/-18	16/-14/-20/ -	**69/ 60/ 81/ 58**	37/ 35/-24/ 17	-13/-03/-01/-08
Q62	34/ 39/ 21/ 53	06/ 09/ 07/ 05	-09/-18/-10/-03	-04/ 11/ 04/ -	**47/ 45/ 67/ 32**	-15/-18/ 13/ 04	04/-05/-05/-20
Q65	**50/ 72/ 74/ 62**	-07/ 01/ 05/ 02	-05/-23/-26/-14	01/-07/-07/ -	03/-02/-09/ 07	12/ 23/-28/ 09	26/ 15/ 29/ 13

Table 15 continued

	WD	SOM	AD	TP	AP	DB	AB
Q66	15/ 19/ 10/ 19	-03/-05/-15/-07	-21/-17/ 02/ 09	**-37/ 28/ 46/ -**	21/ 34/ 18/ 26	-03/-05/ 15/-04	24/ 19/ 25/ 20
Q67	00/ 04/ 05/ 09	-01/ 03/-04/-19	04/ 04/-04/-09	-11/-06/ 04/ -	-01/ 11/-04/-09	**60/ 62/-49/ 41**	13/ 18/ 51/ 38
Q68	03/-02/ 03/-00	00/ 09/ 06/-03	-03/ 06/-04/-07	-14/ 03/ 03/ -	-04/-06/-03/ 17	-19/-11/ 11/-18	**71/ 73/ 85/ 80**
Q69	**62/ 67/ 66/ 54**	-06/-02/ 07/ 04	-08/-11/-15/-07	02/-06/-12/ -	01/ 00/-02/-04	29/ 35/-38/ 00	09/ 05/ 20/ 24
Q70	00/ 00/ 00/ 01	00/ 00/ 00/-03	00/ 00/ 00/ 58	**-72/ 68/ 76/ -**	00/ 00/ 00/ 11	00/ 00/ 00/ 21	00/ 00/ 00/-11
Q71	51/ 46/ 45/ 52	02/ 12/ 17/-15	**40/ 38/ 43/ 15**	24/-23/-39/ -	-04/-13/ 01/ 17	-21/-18/ 05/-37	09/ 11/ 09/ 11
Q72	-10/ 08/-01/ 12	-05/ 24/-11/-01	-33/-40/-16/-13	-29/-17/ 13/ -	27/ 45/ 27/ 16	**28/ 15/-28/ 41**	38/ 37/ 38/ 22
Q75	**78/ 77/ 81/ 59**	-03/ 18/ 16/-16	15/ 06/ 16/ 13	18/-21/-31/ -	-11/-17/-13/ 21	-28/-25/ 17/-48	-08/-16/-18/-01
Q80	**57/ 63/ 52/ 65**	-03/-04/ 02/ 20	-14/-26/-17/-33	**-11/ 41/ 28/ -**	**52/ 22/ 33/ 68**	-07/ 01/-01/-19	-11/-13/-12/-17
Q81	15/ 09/ 32/ 07	-12/ 27/-03/ 12	-44/-25/-49/-05	-15/-55/-08/ -	30/ 64/ 25/-02	**46/ 46/-53/ 70**	37/ 33/ 45/ 11
Q82	10/ 03/ 27/ 00	-14/ 18/-13/ 00	-51/-26/-44/ 00	-26/-41/-01/ -	26/ 63/ 27/ 00	**53/ 49/-55/ 81**	31/ 31/ 40/ 00
Q84	24/ 31/ 22/ 47	-07/-19/-18/ 02	-12/-18/-09/ 03	**-47/ 51/ 64/ -**	13/ 13/-04/ 06	10/ 11/-01/ 12	12/ 13/ 29/ 23

Table 15 continued

	WD	SOM	AD	TP	AP	DB	AB
Q85	14/ 24/ 14/ 26	-04/-.18/-.15/-02	-06/-01/ 01/ 10	**-40/ 51/ 67/ -**	18/ 05/-07/ 06	05/ 13/-02/ 20	17/ 08/ 22/ 18
Q86	24/ 38/ 40/ 25	04/ 02/ 12/ 02	02/-10/-14/-15	23/-20/-15/ -	08/ 02/-04/ 14	-03/ 06/-06/-18	**73/ 69/ 75/ 74**
Q87	30/ 35/ 31/ 25	05/-01/ 06/ 15	12/ 08/-02/ 06	02/ 01/ 02/ -	-01/-07/-07/-02	06/ 12/-10/ -08	**45/ 49/ 65/ 53**
Q88	**38/ 41/ 45/ 14**	07/ 09/ 12/ 07	10/ 09/-07/-06	28/-19/-27/ -	02/-04/ 01/ 06	-05/ 04/ 01/-13	55/ 53/ 62/ 84
Q89	23/ 18/ 22/ 16	-02/-05/ 02/-01	**20/ 20/ 15/ 31**	-11/ 17/ 04/ -	-09/-07/-07/ 00	08/ 21/-15/-12	37/ 35/ 47/ 44
Q90	-06/-12/-10/ 01	-05/-04/-06/-08	-07/ 02/-01/-03	-10/ 04/ 02/ -	01/ 07/ 09/ 09	**43/ 38/-33/ 13**	47/ 56/ 66/ 66
Q91	-20/-17/-13/ 03	04/ 03/-16/ 11	47/ 52/ 54/ 64	-16/-08/ 21/ -	-16/-15/-22/-50	39/ 28/-32/ 43	25/ 45/ 40/ 20
Q94	-02/-06/-06/-12	-06/-08/-00/-22	-27/-09/-03/ 15	-14/ 19/-12/ -	13/ 07/ 23/ 23	-08/-06/-08/ 03	**80/ 56/ 71/ 66**
Q95	00/ 00/ 00/ 00	00/ 00/ 00/ 00	00/ 00/ 00/ 00	00/ 00/ 00/ -	00/ 00/ 00/ 00	00/ 00/ 00/ 00	**82/ 82/ 90/ 85**
Q97	-05/-05/-10/-03	-08/-17/-13/-17	-15/-03/-01/ 09	-28/ 21/ 06/ -	-08/-05/-06/-06	16/ 19/-20/ 25	**80/ 79/ 94/ 68**
Q101	08/-01/ 11/ 23	09/ 14/ 11/ 43	-04/ 09/ 07/-28	05/-10/-20/ -	06/ 09/ 10/-03	**78/ 77/-70/ 37**	-07/ 02/ 08/ 20
Q102	**80/ 70/ 68/ 71**	17/ 14/ 31/ 15	-17/-18/-07/-18	14/ 13/-16/ -	15/ 02/ 19/ 29	09/ 12/-16/ -02	-17/-20/-30/-16

Table 15 continued

	WD	SOM	AD	TP	AP	DB	AB
Q103	**41/ 41/ 35/ 44**	10/ 06/ 09/ 19	**20/ 39/ 34/ 26**	02/-14/-09/ -	-01/-04/-01/-10	17/ 19/-20/ 11	21/ 19/ 25/ 14
Q104	-19/-14/-19/-12	02/-02/ 04/-13	-08/-00/ 02/ 08	-09/ 19/ 04/ -	32/ 26/ 33/ 24	-21/-16/ 13/ 05	**71/ 58/ 63/ 64**
Q105	00/ 00/ 00/ 12	00/ 00/ 00/ 39	00/ 00/ 00/ 01	00/ 00/ 00/ -	00/ 00/ 00/-30	**81/ 87/-76/ 63**	00/ 00/ 00/ 11
Q106	-06/ 10/ 05/-23	-12/ 04/-17/-33	-38/-30/-30/ 37	-38/-15/ 23/ -	23/ 36/ 07/ 18	**38/ 49/-30/ 44**	42/ 35/ 67/ 29
Q111	**82/ 79/ 86/ 74**	00/ 00/ 00/ 00	00/ 00/ 00/ 00	00/ 00/ 00/ -	00/ 00/ 00/ 00	00/ 00/ 00/ 00	00/ 00/ 00/ 00
Q112	24/ 19/ 15/ 13	11/ 05/ 16/ 00	**56/ 68/ 66/ 44**	-01/ 05/-05/ -	-08/-18/-03/ 05	-14/-10/ 14/-40	07/ 02/ 07/ 13

Note. WD = Withdrawn factor, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour factor. The first entry in each cell was derived from the ACQ sample (*N* = 7304), the second entry from the US CBCL sample (*N* = 4006), the third loading from the Australian sample (*N* = 7112), and the last entry from the Israeli sample (*N* = 3772). Cross-informant model loadings are shown in bold and underlined.

Table 15 presents the central findings for the first part of this study. It includes a large amount of information in a very compacted form, listing all loadings for the seven factor model in the ACQ, US, and Australian samples, as well as the loadings for the corresponding six factors in the Israeli sample. When evaluating loadings on the factors their statistical significance could now be considered because estimates of their standard errors were available. The size of the largest standard errors found in the ACQ, US, Australian, and Israeli samples were 0.051, 0.085, 0.054, and 0.116, respectively. This meant that, as a general guideline, loadings above 0.10, 0.17, 0.11 and 0.23 could be regarded as significant at the p <.05 level in each of the samples respectively. However, the majority of estimated standard errors were considerably smaller, meaning that many loadings below these levels were statistically significant as well.

Considering the Withdrawn factor first, all nine items hypothesised by the cross-informant model showed significant loadings on the factor in the first three samples, and eight out of nine items in Israel. Not only were they statistically significant, but they were also substantial in size with loadings as high as 0.82, 0.79, 0.86, and 0.74 in the different samples for the marker item 111, to name just one example. The 99% confidence interval for the first loading listed here ranged from 0.80 to 0.84, for the second loading from 0.76 to 0.82, and for the third loading it ranged from 0.84 to 0.88, and for the last loading it ranged from 0.70 to 0.78. As in this example there was a tendency for loadings to show up in the same range across samples. However, item 88 (sulks), whilst supported in the US and Australian samples, failed (0.14) to show a substantial loading in Israel. Additional loadings which should be mentioned because they reached or exceeded the conventional 0.30 threshold to be declared meaningful in all four samples, included item 13 (confused), item 17 (day-dreaming), and item 71 (self-conscious). Two items found some support in three out of the four samples. These were item 62 (clumsy) and item 87 (sudden changes in mood). From an interpretive point of view these additional items seemed to fit into the picture of the withdrawn child, they seemed to make sense. Some items reached the 0.30 threshold in one or two samples, but not more samples to deserve mention here (for further details see Table 15).

The Somatic Complaints factor replicated well, but some items were supported less than others. Consistently high loadings were found in all four samples for six of the nine hypothesised items (51, 56a, 56b, 56c, 56f, and 56g). The other three items (items 54, 65d, 56e) only gained support in two or three samples, mostly through loadings which were moderate in size. No other item appeared to be consistently affected by this factor. The loading of 0.39 on items 105 (uses alcohol or drugs) and of -0.33 on item 106 (vandalism) in the Israeli sample were not replicated in any other sample and were therefore treated as unique to that sample.

The cross-informant model suggested that the Anxious/Depressed factor can be measured by 14 items. Item 14 (cries) had been excluded earlier. Eight items (12, 31, 32, 33, 35, 50, 52, and 112) obtained consistent support across all four samples, while two items (34 and 71) were supported in three samples using the 0.30 criterion. Item 45 (nervous) and item 103 (sad) received a loading above the criterion level in only two samples. However item 89 (suspicious) reached the criterion level in only one sample. Item 30 (fears school), which is not used in the cross-informant model, was supported as an indicator for this factor in all four samples. The two items related to suicide performed differently. Item 18 (self-harm) was not supported in all samples, but received a strong loading of 0.58 in Israel, while item 91 (talks about suicide) showed a strong pattern of loadings across all samples (0.47, 0.52, 0.54, 0.64). Some item showed negative loadings on this otherwise positive factor. Item 21 (destroys things belonging to others) and item 106 (vandalism) showed moderate negative loadings across the first three samples, but positive loadings in Israel. Moderate to strong negative loadings were also observed in two samples for the two stealing items. Finally, a number of loadings were only observed in Israel. These included a strong loading of 0.72 for item 19 (demands attention), and a loading of 0.73 for item 27 (jealous). Two items normally assigned to the Thought Problem factor (item 40 and 70) also loaded on this factor.

The Thought Problem factor was the weakest factor in the cross-informant model with only seven indicator items. It was not present in the Israeli six or seven factor model at all. Only four of the seven items received unequivocal support in the US and Australian samples, i.e. items 40, 70, 84, and 85 (hears things, sees things, strange behaviour, and strange ideas). Item 9 (can't take his/her mind of certain thoughts, obsessions) was identified as a poor item in the initial analyses, but kept because it was the only item indicating this particular and important clinical problem. However, the results again showed that it was a poor item in the context of the seven factors extracted. The other item related to a diagnosis of Obsessive Compulsive Disorder (DSM-IV, American Psychiatric Association, 1994) was item 66 (repeats certain acts over and over, compulsions). Only two of the three samples showed a loading above the criterion for this item relating it to the Thought Problem factor. The final hypothesised item on this factor was item 80 (stares blankly). Only the US CBCL sample showed a loading above 0.30, i.e. the sample which helped to define the cross-informant model. The only other consistent pattern of loadings above the criterion level was shown by item 20 and item 21 (destroys things). However, in the US CBCL sample the direction of the loadings was reversed compared to the other two samples. Overall, it was the four items mentioned initially that defined the factor, which remained the smallest of the seven factors after these analyses.

In the cross-informant model the Attention Problem factor is defined by eleven items. Eight of these replicated well across the four samples, i.e. items 1, 8, 10, 13, 17, 41, 61, and 62. Many loadings were high. For example, the marker item 8 (can't concentrate, can't pay attention for long) received loadings as high as 0.85, 0.87, 0.92, and 0.82 in the different samples. Item 46 (twitch) and item 80 (stares) were supported in three samples as indicators of this factor. However, item 45 (nervous, highstrung, or tense) did not reach the criterion level in any sample. When focussing on additional items loading on the factor, item 23 (disobedient at school) stood out with strong loadings in three samples and a moderate loading in Israel. Items with loadings above 0.30 across three samples were item 19 (demands attention) and item 43 (lying or cheating). Another interesting finding in relation to this factor were the high loadings on a number of items in the US CBCL sample which were not replicated in the other three samples (items 20, 21, 81, 82, destroys own things and others' things, steals at home and outside). Finally, a strong negative loading of -0.50 was found on this otherwise positive factor for item 91 (talks suicide) in Israel, but not in the other three samples.

The Delinquent Behaviour factor was related to 13 items in the cross-informant model, two of which had been excluded after the preliminary analyses (items 63, prefers older children, and item 96, thinks about sex too much). Eight of the remaining eleven cross-informant model items found support in all four samples (items 39, 43, 67, 81, 82, 101, 105, and 106). The marker item chosen for the first three samples also received a high loading of 0.63 in the Israeli sample, while the loadings for the marker variable chosen for the Israeli sample (item 82) hovered around 0.50 in the other three samples. Item 90 showed moderate loadings in three samples. Item 26 (doesn't seem to feel guilty after misbehaving) failed to gain support in any of the four samples, while it showed a strong pattern of loadings on the Aggressive factor in all four samples. Item 72 (sets fires) showed a similar pattern in three samples, although its loadings on the Aggressive factor were moderate in these samples. The additional loadings for item 23 (disobedient at school) were moderate and consistent across samples. While these loadings did not surprise, the consistent loadings of item 18 (deliberately harms self or attempts suicide) on this factor were not expected. Moderate loadings in two samples on item 91 (talks suicide) supplemented the picture that this factor is relevant to some extent to the understanding of suicidality.

Eighteen of the twenty cross-informant aggressive behaviour items entered into this analysis (items 74 and 93 had been excluded). Fifteen items showed substantial loadings in all four samples. The remaining three items replicated well in three samples, but not in Israel. They were item19 (demands attention), which loaded on the Anxious/Depressed factor in Israel, and items 20 and 21 (destroys things), which loaded on the Anxious/Depressed as well as the Delinquent Behaviour factor in Israel. Only one of the hypothesised items received moderate loadings overall, item 23 (disobedient at school). This item received its highest loadings from the Attention Problem factor and was also related to the Delinquent behaviour factor. Relatively strong loadings on the Aggressive factor were found for the "new" item 15 (cruel to animals), which were consistent across three samples. Other items that showed loadings above 0.30 across three or four samples included items 26 (doesn't seem to feel guilty after misbehaving), 33 (feels or complains that no one loves him/her), 34 (feels others are out to get him/her), 41 (impulsive, or acts without thinking) , 43 (lying or cheating), 72 (sets fires), 81 (steals at home), 82 (steals outside), 88 (sulks), 89 (suspicious) , 90 (swearing or obscene language), and 106 (vandalism). One loading (0.54) stood out as particular to the Israeli sample, namely item 45 (nervous, tense, or highstrung) which as an item reflecting neuroticism, was expected to load on an internalising rather than an externalising factor. Overall, the Aggressive Behaviour factor was clearly the strongest factor on the CBCL in all four samples.

In summary, no sample showed exactly the same factor loading pattern as another sample. However, considerable similarity made it possible to use the same labels for comparable factors, while keeping in mind the variability in expression encountered across samples and countries.

3.3. Covariation

3.3.1. Overall Correlations Between Latent Factors

As indicated in the introduction the correlation between latent variables can be seen as an approximation to the concept of comorbidity within the dimensional framework. The final parameter estimates obtained for the six and seven factor models included

Table 16. *Correlations (x100) Between Latent CBCL Factors in the ACQ, US, Australian, and Israeli Models (listed in this sequence)*

	WD	SOM	AD	TP	AP	DB
SOM	48/ 40/ 47/ 31					
AD	68/ 70/ 74/ 74	51/ 51/ 62/ 62				
TP	-55/ 51/ 61/ -	-41/ 56/ 61/ -	-54/ 61/ 68/ -			
AP	46/ 50/ 60/ 51	35/ 24/ 39/ 37	49/ 53/ 49/ 58	-39/ 58/ 64/ -		
DB	45/ 33/ -27/ 35	35/ 25/ -33/ 16	42/ 30/ -36/ 29	-26/ 30/ -38/ -	41/ 27/ -35/ 55	
AB	53/ 52/ 56/ 49	42/ 35/ 44/ 35	56/ 48/ 53/ 58	-44/ 57/ 59/ -	57/ 57/ 72/ 55	51/ 30/ -33/ 51

Note. WD = Withdrawn factor, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour factor. TP not extracted for final Israeli model. All correlations are significant, $p < .01$.

the correlations between the underlying factors estimated after taking errors in measurement into account. A convenient summary of these disattentuated correlations is presented in Table 16. Although the results for the four samples are listed together for each combination of factors, it has to be borne in mind that they were not strictly comparable because of differences in the exact composition of the latent variables in different samples. This proviso applied to an even greater extent to any comparison with the only study that had published similar estimates, i.e. Dedrick et al. (1997).

Perusal of Table 16 showed correlations between the latent factors that ranged from 0.16 to 0.74. Calculation of 95% confidence intervals demonstrated clearly that on the one hand these correlations were significantly different from zero and on the other they were significantly lower than unity. The "corresponding" correlations ranged from 0.19 to 0.82 in Dedrick et al.'s (1997) study. Thus it was clearly established that covariation estimates were substantial even after item overlap and error variance were taken into account. In addition the wide range of estimates was remarkable in spanning 42 to 58 points on a 100 point correlation scale (absolute values were considered only, because the negative correlations were simply a result of the valence of the original factors). Differences between the highest and the lowest correlation in each sample were statistically significant based on 95% confidence intervals. Intermediate correlations were not tested, although many were expected to differ significantly as well. Turning to the closest relationships first, a remarkable consistency was apparent with which the Withrawn factor and the Anxious/Depressed factor recieved the highest correlation estimates in all four samples (0.68 - 0.74), i.e. despite differences in exact item loadings. Dedrick et al.'s (1997) estimate of 0.73 was also very similar, despite being based on the original cross-informant model. However, a number of estimates appeared lower in the current study than in Dedrick et al.'s (1997) research. For example, their disattenuated correlation of 0.82 between the Thought and Attention Problem factors compares with estimates of 0.39, 0.58, and 0.64 in the current study. However, as said before, the definition of the factors has been changed. There were other areas where lower estimates resulted from these changes, e.g. in the correlation between Anxious/Depression and Attention Problems (0.76 vs. ~0.50) and in the correlation between Delinquent and Aggressive Behaviour Problems (0.74 vs. 0.30 - 0.51). Statistical tests of these differences were not appropriate given the different definitions behind the factors. Turning to the lowest correlations, it appeared that the Delinquent Behaviour Factor was involved in many of them (average correlation of 0.36 with other factors). The lowest correlation was found between the Delinquent and the Somatic Complaints factor in the Israeli model (0.16). This was also the lowest estimate (0.19) in Dedrick et al.'s (1997) study. In summary, substantial correlations between latent factors were found that spanned a wide range from 0.16 to 0.74. Comparisons across samples were limited because of differences in the underlying factors.

3.3.2. Correlations in Different Sex, Age, and Clinic Status Groups

Factor scores on all seven factors were estimated according to Muthén and Muthén (2001, p. 385-386) for each of 22194 individuals in this part of the study. These scores represented the best estimate of their position on each of the six or seven factors derived in their sample relative to the other individuals in their sample. For a small number of cases minimisation failed while computing factor scores (25 cases in the ACQ sample, 11 cases in the US CBCL sample, 16 in the Australian sample, and for 5 cases in the Israeli data). Given the small proportion of cases not estimated (<0.003%), no effect on the results of the overall analysis were expected. The polarity of some factors was negative, therefore a negative score indicated a higher position on these particular factors. Each of the four samples was split into eight subgroups created by the crossing of the sex (male versus female), age group (5-11years versus 12-18 years), and clinic status (clinic versus nonclinic) variables.

Subsequently the correlations between the factor scores for the six or seven factors were calculated for each subgroup. As some distributions in some of the subgroups showed skewness and/or kurtosis, the correlation coefficient chosen was Spearman's rank correlation (1904), which provided nonparametric estimates of the strength of the relationships between the variables. For distributions resembling normality, the estimates were very close to the results obtained from calculation of the commonly used product-moment correlation coefficient (usually within a range of 0.02).

Before considering specific effects it was useful to gain an overwiew of the effect sizes found. Table 17 shows the ranges in the different groups and samples (see also Tables 18 to 25). The size of the smallest comorbidity coefficient was 0.01, while the largest was 0.84. The smallest range within a sample was 0.39, while the largest range covered a breadth of 0.72 on the correlation scale. As the mimimum and maximum values of the comorbidity correlations differed significantly within each of the groups and samples, the assumption that all comorbidities are similar could be rejected.

Table 17. *Absolute Minimum and Maximum Values of Comorbidity Correlations in the Study Groups and Samples*

	Males		Females	
	5-11yrs	12-18yrs	5-11yrs	12-18yrs
ACQgeneral	0.35-0.74	0.35-0.78	0.31-0.76	0.34-0.82
ACQclinic	0.19-0.66	0.19-0.65	0.24-0.68	0.15-0.64
USgeneral	0.19-0.74	0.29-0.78	0.16-0.77	0.32-0.80
USclinic	0.20-0.70	0.04-0.68	0.18-0.64	0.20-0.72
AUSgeneral	0.19-0.80	0.36-0.84	0.15-0.78	0.33-0.80
AUSclinic	0.15-0.66	0.01-0.68	0.16-0.63	0.10-0.69
ISgeneral	0.08-0.74	0.23-0.78	0.12-0.77	0.19-0.83
Isclinic	0.04-0.75	0.02-0.74	0.10-0.72	0.11-0.73

Note. All minimum versus maximum correlations differ significantly $p < .05$ when comparing their 99% confidence intervals.

Altogether there were 624 comorbidity correlations to be examined (21 in each of eight groups in the US and Australian samples and 15 in each of eight groups in the Israeli sample). Four bands were established to judge the size of comorbidity correlations found: Correlations smaller than 0.30, correlations ranging from 0.30 to 0.49, correlations of 0.50 but smaller than 0.70, and those with a value of 0.70 or greater. Across all groups and samples 19.2% of correlations were smaller in size than 0.30. The smallest values were 0.01, which were obtained between the Delinquent Behaviour factor scores and the Withdrawn factor scores, as well as between

Delinquent Behaviour scores and Anxious/Depressed scores in the Australian sample of older clinic boys. A third of all correlations (33.8%) ranged from 0.30 to 0.49. Almost two fifth (39.4%) ranged from 0.50 to 0.69 and the remaining 7.5% of correlations ranged from 0.70 to the highest value found, namely 0.84. This last value was obtained between Withdrawn factor scores and Anxious/ Depressed factor scores for older nonclinic boys in Australia (cf. Table 22).

Across groups and samples, the highest comorbidity was found between the Withdrawn and the Anxious/Depressed factors. This pattern did not only show up consistently in the general population groups, but in the clinic groups as well, with all correlations exceeding 0.62 (cf. Tables 18-25). Overall the lowest comorbidity was found between the Delinquent Behaviour factors (DB) and other the factors. For example, 16 out of 32 correlations (50%) between the DB factors and the Withdrawn factors were smaller than 0.30. When examining the comorbidity between the DB factors and the Somatic Complaints factors, 20 out of 32 correlations (62.5%) were lower than 0.30. The same was found for the comorbidity between the DB factors and the Anxious/ Depressed factors. In relation to the Thought Problem factors 10 out of 24 correlations (41.7%) were smaller than 0.30, with nine of these found in the clinic groups. Out of 32 comorbidity correlations between the DB factors and the Attention Problem factors 14 (44%) were found with a value below 0.30, eleven of them in the clinic groups. Finally, 7 out of 32 comorbidity correlations (22%) between the DB factors and the Aggressive Behaviour factors did not reach the 0.30 level. Apart from some isolated comorbidity coefficients in the clinic samples, there was only one other pattern of low comorbidity that stood out: 15 out of 16 correlations (94%) in the clinic groups between the Somatic Complaints factors and the Attention Problem factors failed to reach a 0.30 level, while correlations as high as 0.56 were found in the general population groups.

In the next step, differences in comorbidity due to age, sex, or clinic status were investigated. If the null hypothesis is true and *n* is large (i.e. > 50), the distribution of the rank correlation coefficient is approximately normal (Neave & Worthington, 1988). All subsamples exceeded this minimum sample size considerably (cf. Tables 18-25). The difference between two correlation coefficients was therefore tested using Fisher's transformation to z as described for example, in Guilford and Fruchter (1973). The probability level set before declaring a difference statistically significant attempted to balance two competing demands. On the one hand the number of correlations to be compared suggested a very strict level, e.g. $p <.002$ following a Bonferroni type adjustment for the US and Australian samples and $p <.003$ for the Israeli comparisons. On the other hand, much of the analysis was exploratory and interested in "trends" and replications across samples which could guide future hypothesis testing. A probability level of $p < .01$ was adopted throughout these comparisons. This is the probability level shown for a significant difference between the corresponding correlations in Tables 18-25. Differences in age affecting the size of the comorbidity correlation in a sample are shown by the subscript a, while differences between boys and girls are denoted by the subscript b. Differences between the corresponding clinic and nonclinic group are shown by underlining.

Table 18.

Correlations (Spearman's rho) Between Seven CBCL Factors in ACQ General Population Sample by Sex and Age Group

		Males						Females					
		WD	SOM	AD	TP	AP	DB	WD	SOM	AD	TP	AP	DB
5-11 yrs	SOM	0.48						0.55					
	AD	$\underline{0.74}$	0.55					$\underline{0.76}_a$	$\underline{0.62}$				
	TP	$\underline{-0.66}$	-0.50	$\underline{-0.64}$				-0.66	-0.53	$\underline{-0.65}$			
	AP	$\underline{0.53}$	$\underline{0.43}$	$\underline{0.53}$	$\underline{-0.50}$			$\underline{0.54}$	$\underline{0.45}$	$\underline{0.55}_a$	$\underline{-0.52}$		
	DB	0.39_a	0.37	0.38	-0.35	$\underline{0.38}$		0.44	0.38	$\underline{0.41}$	-0.31	0.34_a	
	AB	$\underline{0.60}$	0.44_a	$\underline{0.60}$	$\underline{-0.55}$	$\underline{0.56}$	0.48	$\underline{0.62}_a$	0.50	$\underline{0.63}_a$	-0.50	$\underline{0.60}_a$	0.47_a
12-18 yrs	SOM	$\underline{0.57}$						$\underline{0.61}$					
	AD	$\underline{0.78}$	$\underline{0.61}$					$\underline{0.82}_a$	$\underline{0.65}$				
	TP	$\underline{-0.68}$	$\underline{-0.59}$	$\underline{-0.68}$				$\underline{-0.70}$	$\underline{-0.57}$	$\underline{-0.68}$			
	AP	$\underline{0.52}$	$\underline{0.50}$	$\underline{0.54}_b$	$\underline{-0.49}$			$\underline{0.62}$	$\underline{0.56}$	$\underline{0.67}_{ab}$	$\underline{-0.55}$		
	DB	$\underline{0.52}_a$	$\underline{0.44}$	$\underline{0.48}$	$\underline{-0.35}$	$\underline{0.48}$		$\underline{0.51}$	$\underline{0.44}$	$\underline{0.51}$	$\underline{-0.34}$	$\underline{0.53}_a$	
	AB	$\underline{0.65}$	$\underline{0.56}_a$	$\underline{0.67}$	$\underline{-0.55}$	$\underline{0.63}_b$	0.58	$\underline{0.71}_a$	$\underline{0.59}$	$\underline{0.74}_a$	$\underline{-0.57}$	$\underline{0.72}_{ab}$	0.60_a

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour. Males 5-11 (n = 697), males 12-18 (n = 498), females 5-11 (n = 697), females 12-18 (n = 496). Subscripts: a = signif. difference between age groups, b = between boys and girls. Underlined are signif. differences between clinic and nonclinic groups. p <.01.

Table 19.

Correlations (Spearman's rho) Between Seven CBCL Factors in ACQ Clinic Sample by Sex and Age Group

		Males						Females					
		WD	SOM	AD	TP	AP	DB	WD	SOM	AD	TP	AP	DB
	SOM	0.46						0.47					
5-11	AD	$\underline{0.66}$	0.52					$\underline{0.68}$	$\underline{0.51}$				
yrs	TP	$\underline{-0.57}$	-0.42	$\underline{-0.52}$				-0.61_a	-0.46	$\underline{-0.54}$			
	AP	$\underline{0.33}$	$\underline{0.27}$	$\underline{0.36}$	$\underline{-0.34}$			$\underline{0.40}$	$\underline{0.23}$	$\underline{0.34}$	$\underline{-0.37}$		
	DB	0.33	0.31	0.32_a	-0.26	$\underline{0.19}$		0.36	0.27	$\underline{0.29}$	-0.29_a	0.24	
	AB	$\underline{0.41}$	0.38	$\underline{0.45}$	$\underline{-0.44}$	$\underline{0.40}_a$	0.50	$\underline{0.48}$	0.43_a	$\underline{0.49}$	-0.48_a	$\underline{0.42}$	0.49
	SOM	$\underline{0.44}$						$\underline{0.39}$					
	AD	$\underline{0.65}$	$\underline{0.51}$					$\underline{0.64}$	$\underline{0.45}$				
12-18	TP	$\underline{-0.57}$	$\underline{-0.43}$	$\underline{-0.56}$				$\underline{-0.51}_a$	$\underline{-0.40}$	$\underline{-0.57}$			
yrs	AP	$\underline{0.27}_b$	$\underline{0.26}$	$\underline{0.35}$	$\underline{-0.29}$			$\underline{0.39}_b$	$\underline{0.28}$	$\underline{0.37}$	$\underline{-0.33}$		
	DB	$\underline{0.29}$	$\underline{0.28}$	$\underline{0.22}_a$	$\underline{-0.19}$	$\underline{0.23}_b$		$\underline{0.31}$	$\underline{0.16}$	$\underline{0.25}$	$\underline{-0.15}_a$	$\underline{0.35}_b$	
	AB	$\underline{0.39}$	$\underline{0.36}$	$\underline{0.46}$	$\underline{-0.43}$	$\underline{0.50}_a$	0.49	$\underline{0.47}$	$\underline{0.32}_a$	$\underline{0.45}$	$\underline{-0.35}_a$	$\underline{0.51}$	0.50

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour. Males 5-11 (n = 1996), males 12-18 (n = 1032), females 5-11 (n = 1188), females 12-18 (n = 675). Subscripts: a = signif. diff. between age groups, b = between boys and girls. Underlined are signif. differences between clinic and nonclinic groups. p <.01.

Table 20.

Correlations (Spearman's rho) Between Seven CBCL Factors in US General Population Sample by Sex and Age Group

		Males						Females					
		WD	SOM	AD	TP	AP	DB	WD	SOM	AD	TP	AP	DB
5-11 yrs	SOM	0.51						0.58					
	AD	0.74	0.60					0.77	0.68				
	TP	0.55	0.63	0.69				0.59	0.68	0.68			
	AP	0.52	0.36	0.56	0.66			0.51	0.34	0.52	0.62		
	DB	0.25	0.19	0.19	0.31	0.33_b		0.26	0.24	0.16_a	0.29	0.18_{ab}	
	AB	0.53	0.40	0.46	0.59	0.63	0.30	0.59	0.45	0.52	0.58	0.59	0.17_a
12-18 yrs	SOM	0.54						0.56					
	AD	0.78	0.59					0.80	0.65				
	TP	0.59	0.68	0.71				0.59	0.74	0.71			
	AP	0.52	0.31	0.60	0.64			0.60	0.41	0.60	0.67		
	DB	0.36	0.29	0.32	0.38	0.35		0.39	0.36	0.32_a	0.42	0.39_a	
	AB	0.57	0.43	0.58	0.63	0.59	0.41	0.60	0.50	0.61	0.66	0.65	0.43_a

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour. Males 5-11 (*n* = 534), males 12-18 (*n* = 449), females 5-11 (*n* = 559), females 12-18 (*n* = 459). Subscripts: a = signif. diff. between age groups, b = between boys and girls. Underlined are signif. differences between clinic and nonclinic groups. $p < .01$.

Table 21.

Correlations (Spearman's rho) Between Seven CBCL Factors in US Clinic Sample by Sex and Age Group

		Males						Females					
		WD	SOM	AD	TP	AP	DB	WD	SOM	AD	TP	AP	DB
5-11 yrs	SOM	0.45						$\underline{0.42}$					
	AD	0.70	0.53					$\underline{0.64}$	$\underline{0.53}$				
	TP	0.51	0.58	$\underline{0.57}$				0.51	$\underline{0.52}_a$	$\underline{0.53}_a$			
	AP	0.42	0.24	$\underline{0.41}$	0.59			0.42	$\underline{0.18}$	$\underline{0.36}$	0.55		
	DB	0.26	0.20	0.20	0.22_a	0.23		0.35	0.25	0.28	0.29	0.29	
	AB	0.42	0.34	0.41	0.51	$\underline{0.44}$	0.25	0.50	0.32	0.39	0.58	0.54	0.31
12-18 yrs	SOM	$\underline{0.37}$						0.44					
	AD	$\underline{0.68}$	0.52					$\underline{0.72}$	0.58				
	TP	0.48	$\underline{0.52}_b$	$\underline{0.61}$				0.53	$\underline{0.64}_{ab}$	0.64_a			
	AP	$\underline{0.36}$	0.21	$\underline{0.43}$	0.53			$\underline{0.46}$	$\underline{0.22}$	$\underline{0.47}$	0.59		
	DB	0.25	0.13	$\underline{0.09}$	$\underline{0.04}_{ab}$	$\underline{0.11}$		$\underline{0.23}$	0.25	0.20	0.30_b	0.25	
	AB	$\underline{0.38}_b$	$\underline{0.24}$	$\underline{0.34}$	$\underline{0.48}_b$	$\underline{0.46}$	$\underline{0.21}$	0.52_b	0.38	$\underline{0.45}$	0.63_b	$\underline{0.54}$	0.34

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour. Males 5-11 (n = 532), males 12-18 (n = 448), females 5-11 (n = 556), females 12-18 (n = 458). Subscripts: a = signif. diff. between age groups, b = between boys and girls. Underlined are signif. differences between clinic and nonclinic groups. p <.01.

Table 22.

Correlations (Spearman's rho) Between Seven CBCL Factors in Australian General Population Sample by Sex and Age Group

		Males						Females					
		WD	SOM	AD	TP	AP	DB	WD	SOM	AD	TP	AP	DB
5-11 yrs	SOM	0.56						0.56					
	AD	0.80	0.70$_a$					0.78	0.70				
	TP	0.63	0.63$_{ab}$	0.66$_a$				0.60	0.72$_b$	0.68			
	AP	0.63	0.42	0.49	0.73			0.62	0.46	0.49	0.70		
	DB	-0.19$_a$	-0.30$_a$	-0.27$_a$	-0.35$_a$	-0.28$_a$		-0.16$_a$	-0.30$_a$	-0.19$_a$	-0.31$_a$	-0.18$_a$	
	AB	0.58	0.48	0.51	0.62	0.70	-0.26$_a$	0.62	0.53	0.55	0.57	0.72	-0.15$_a$
12-18 yrs	SOM	0.63$_b$						0.52$_b$					
	AD	0.84	0.76$_{ab}$					0.80	0.66$_b$				
	TP	0.70$_b$	0.75$_a$	0.78$_{ab}$				0.62$_b$	0.71	0.71$_b$			
	AP	0.61	0.47	0.55	0.70			0.63	0.46	0.56	0.67		
	DB	-0.36$_a$	-0.46$_a$	-0.43$_a$	-0.50$_a$	-0.43$_a$		-0.33$_a$	-0.45$_a$	-0.39$_a$	-0.44$_a$	-0.39$_a$	
	AB	0.56	0.55	0.59	0.61	0.72	-0.45$_a$	0.62	0.53	0.60	0.56	0.69	-0.37$_a$

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour. Males 5-11 (*n* = 979), males 12-18 (*n* = 719), females 5-11 (*n* = 936), females 12-18 (*n* = 761). Subscripts: a = signif. diff. between age groups, b = between boys and girls. Underlined are signif. differences between clinic and nonclinic groups. p <.01.

Table 23.

Correlations (Spearman's rho) Between Seven CBCL Factors in Australian Clinic Sample by Sex and Age Group

		Males						Females					
		WD	SOM	AD	TP	AP	DB	WD	SOM	AD	TP	AP	DB
	SOM	$\underline{0.38}$						$\underline{0.38}$					
5-11	AD	$\underline{0.66}$	$\underline{0.57}$					$\underline{0.63}$	$\underline{0.59}$				
yrs	TP	$\underline{0.55}$	0.60	0.60				0.51	$\underline{0.54}$	$\underline{0.56}_a$			
	AP	$\underline{0.42}_a$	$\underline{0.24}$	$\underline{0.25}$	$\underline{0.54}$			$\underline{0.43}$	$\underline{0.17}$	$\underline{0.16}$	$\underline{0.52}$		
	DB	-0.15_a	-0.24_a	-0.26_a	-0.31_a	-0.20		-0.21	-0.31_a	-0.31_a	-0.37_a	-0.22	
	AB	$\underline{0.40}_a$	0.40_a	$\underline{0.37}_a$	$\underline{0.51}_a$	$\underline{0.54}$	-0.32_a	$\underline{0.38}$	$\underline{0.32}$	$\underline{0.27}$	$\underline{0.44}$	$\underline{0.56}$	$\underline{-0.31}$
	SOM	$\underline{0.32}$						$\underline{0.31}$					
	AD	$\underline{0.68}$	$\underline{0.55}$					$\underline{0.64}$	$\underline{0.56}$				
12-18	TP	$\underline{0.50}$	$\underline{0.56}$	$\underline{0.63}$				0.54	$\underline{0.60}$	0.69_a			
yrs	AP	$\underline{0.26}_{ab}$	$\underline{0.22}$	$\underline{0.22}$	$\underline{0.48}$			$\underline{0.42}_b$	$\underline{0.23}$	$\underline{0.22}$	$\underline{0.44}$		
	DB	$\underline{-0.01}_a$	$\underline{-0.11}_a$	$\underline{-0.01}_a$	$\underline{-0.14}_a$	$\underline{-0.21}$		$\underline{-0.10}$	$\underline{-0.17}_a$	$\underline{-0.13}_a$	$\underline{-0.23}_a$	$\underline{-0.22}$	
	AB	$\underline{0.21}_a$	$\underline{0.27}_a$	$\underline{0.26}_a$	$\underline{0.35}_a$	$\underline{0.55}$	$\underline{-0.20}_a$	$\underline{0.30}$	$\underline{0.27}$	$\underline{0.21}$	$\underline{0.34}$	$\underline{0.60}$	$\underline{-0.20}$

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour. Males 5-11 (*n* = 1442), males 12-18 (*n* = 971), females 5-11 (*n* = 551), females 12-18 (*n* = 737). Subscripts: a = signif. diff. between age groups, b = between boys and girls. Underlined are signif. differences between clinic and nonclinic groups. $p < .01$.

Table 24.

Correlations (Spearman's rho) Between Six CBCL Factors in Israeli General Population Sample by Sex and Age Group

		Males					Females				
		WD	SOM	AD	AP	DB	WD	SOM	AD	AP	DB
5-11 yrs	SOM	0.35					0.37				
	AD	0.74	0.60				0.77	0.65			
	AP	0.51	0.33	0.55_{ab}			0.59	0.42	$\underline{0.72}_{b}$		
	DB	0.21	0.08	0.18_{a}	0.60		0.22	0.12	0.24	0.55	
	AB	0.39_{a}	0.30	0.52_{a}	0.58_{a}	0.53	0.48_{a}	0.36	0.62	$\underline{0.66}$	0.49
12-18 yrs	SOM	0.32					0.44				
	AD	0.78	$\underline{0.62}$				$\underline{0.83}$	0.68			
	AP	$\underline{0.57}$	0.40	$\underline{0.68}_{a}$			$\underline{0.67}$	0.53	$\underline{0.72}$		
	DB	$\underline{0.36}$	$\underline{0.23}$	$\underline{0.35}_{a}$	$\underline{0.67}$		0.37	0.19	0.30	0.57	
	AB	$\underline{0.58}_{a}$	0.38	$\underline{0.68}_{a}$	$\underline{0.71}_{a}$	$\underline{0.60}$	$\underline{0.66}_{a}$	0.46	$\underline{0.70}$	$\underline{0.69}$	0.49

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour. Males 5-11 (n = 361), males 12-18 (n = 455), females 5-11 (n = 356), females 12-18 (n = 456). Subscripts: a = signif. diff. between age groups, b = between boys and girls. Underlined are signif. differences between clinic and nonclinic groups. p <.01.

Table 25.

Correlations (Spearman's rho) Between Six CBCL Factors in Israeli Clinic Sample by Sex and Age Group

		Males					Females				
		WD	SOM	AD	AP	DB	WD	SOM	AD	AP	DB
5-11 yrs	SOM	0.32					0.25				
	AD	0.75	0.61_{a}				0.72	0.60			
	AP	0.47	0.28	0.48			0.50	0.27	$\underline{0.51}$		
	DB	0.19	0.04	0.17	0.56		0.30	0.10	0.29	0.54	
	AB	0.35	0.21	0.49	0.47	0.51	0.45	0.28	0.55	$\underline{0.52}$	0.54
12-18 yrs	SOM	0.20					0.34				
	AD	0.74	$\underline{0.49}_{ab}$				$\underline{0.73}$	0.63_{b}			
	AP	$\underline{0.34}_{b}$	0.24	$\underline{0.38}_{b}$			$\underline{0.54}_{b}$	0.40	$\underline{0.54}_{b}$		
	DB	$\underline{0.08}_{b}$	$\underline{0.02}$	$\underline{0.05}$	$\underline{0.44}$		0.31_{b}	0.11	0.16	0.43	
	AB	$\underline{0.25}_{b}$	0.31	$\underline{0.45}$	$\underline{0.40}$	$\underline{0.42}$	$\underline{0.50}_{b}$	0.34	$\underline{0.52}$	$\underline{0.49}$	0.40

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, AP = Attention Problems, DB = Delinquent Behaviour, AB = Aggressive Behaviour. Males 5-11 (n = 975), males 12-18 (n = 342), females 5-11 (n = 518), females 12-18 (n = 304). Subscripts: a = signif. diff. between age groups, b = between boys and girls. Underlined are signif. differences between clinic and nonclinic groups. p <.01.

Beginning with differences in comorbidity due to age, a total of 30 out of 156 comorbidity correlations (19.2%) were found to differ significantly in size ($p < .01$) when young boys aged 5 to11 years were compared with adolescent boys aged 12 to 18 years. An interaction between age and clinic status was found when the direction of these effects was studied. In all cases in which the significantly higher correlation was found in the group of younger boys they came from a clinic group, while in all cases (except one) in which the higher correlation was found in the group of older boys they came from a general population sample. When young girls were compared with adolescent girls, a similar age pattern was found. Overall, 27 out of 156 comorbidity correlations (17.3%) were found to differ significantly between the two age groups. When the higher correlation coefficient was found in a younger group, the sample was typically a clinic sample. When the significantly higher comorbidity correlation was found in the adolescent group, the girls were typically from a general population sample (except for the comorbidity between Thought Problems and Somatic Problems and Anxious/Depression). The Delinquent and Aggressive Behaviour factors were involved in most of these age effects (80% of the age effects found for boys and 78% found for girls).

When focussing on sex effects in comorbidity correlations only three effects were found in the younger groups, i.e. only 3 out of 156 correlations (1.9%) differed significantly between boys and girls. For the adolescent groups 18 out of 156 comorbidity correlations (11.5%) differed significantly between boys and girls. In 14 of these 18 cases the higher correlation was obtained for girls and in 12 of these 14 cases the girls were from a clinic sample.

The comparison between the general population groups and the clinic groups revealed a major effect of clinic status across many comorbidity correlations. The comparison of young boys showed that 27 out of the possible 78 correlations (34.6%) differed significantly between the samples. In each case the clinic correlation was significantly lower than the corresponding correlation in the general population. A similar result was obtained for young girls where 35 out of 78 correlations (44.9%) were significantly different in size. All but one were larger in the general population than in the clinic samples. The clinic status effects seemed even more pervasive in adolescence with 67 out of 78 correlations (85.9%) differing significantly for the boys, and 53 out of 78 (67.9%) for the adolescent girls. The direction of these effects was unequivocal, all comorbidity correlations were stronger in the general population than in the clinic samples.

DISCUSSION

4.1. Need for this Study

The CBCL is currently one of the most widely utilised measures of child psychopathology in the world and thousands of research articles appear to back it up. Is this popularity not enough to justify its continued use? Why then was this study needed? There were seven answers to this question.

The first answer was simply based on the observation that there have been changes to the hypothesised syndrome patterns and that different studies employed different methodologies to study these patterns, and this reduced the comparability of results. This meant that there was actually only a relatively small body of evidence supporting the current cross-informant model of child psychopathology. The second answer was based on the most stringent assessments of this model (by CFA), the relatively moderate support found in three studies and the devastating critique of the internal validity of the cross-informant syndromes by Hartman et al. (1999). A revision as suggested in Heubeck (2000a) appeared necessary. The third reason for the study arose out of questions about the role of the cross-informant syndromes (or any revised syndromes) in the important social problem of suicidality. The fourth interest that motivated the study concerned the cross-cultural similarity between syndrome patterns. The fifth argument for the study responded to calls for a serious consideration of dimensional models of psychopathology for the next revision of the influential DSM-IV. The possible contribution of the cross-informant model to such a revision needed to be examined. The sixth argument was related to all previous ones and asked on a more philosophical level what could be learned from the study of syndrome patterns about the nature of child psychopathology in general. The final raison d'être of this thesis arose out of the hope to contribute to the continual improvement of a system which has so many intended and unintended effects on its customers.

4.2. Strengths of the Study

Achenbach (1991a) analysed CBCL data from a clinic sample of $N = 4455$ children and adolescents. Reynolds and Kamphaus (1992) by comparison, combined 3483 general population cases with about 400 clinic cases to conduct their factor analyses for the BASC. Hartman et al. (1999) examined 13226 CBCL parent reports from seven countries, mostly from general population samples. The current study was based on 22194 CBCL records collected in clinic and general population samples in three countries. As such it represents the largest single study of parent ratings of child psychopathology ever undertaken.

Close attention to the sample compositions was an additional strength. Good representation of cases was achieved in all cells of the sampling frame formed by the crossing of sex (male/female), age (5-11 and 12-18 years), and clinic status (general population sample versus clinic referred). In addition, statistical weighting was employed to ensure an exactly equal contribution of all cells to the final solutions.

The approach to data analysis was tailor-made to suit the quality of the raw data as well as the conceptual demands posed by the nature of the syndromes under study. It employed a hybrid form of factor analysis that went beyond the purely exploratory approach and permitted the statistical assessment of model fit. At the same time it avoided the rigid imposition of restraints found in some applications of confirmatory factor analysis. The massive calculations were carried out with the help of one of the most modern and advanced structural equation modeling programs (Mplus).

The analysis was not restricted to the 85 cross-informant syndrome items but included an additional five items thought to be of potential value as indicators of child psychopathology. The inclusion of the suicidality items proved to be especially useful. Careful attention to individual items reflected a rare focus on the most basic building blocks of syndrome definitions compared to the vast majority of research which is conducted with scales that are assumed to include valid and specific indicators.

4.3. Major Findings and Implications

The main finding was that overall fit of the CBCL model could be improved considerably compared to the 1991 cross-informant model tested in previous studies. DeGroot et al. (1994) did not report the fit indices relied on in the current study. However, comparison of GFI and RMR with Dedrick et al. (1997) and Heubeck (2000a) indicated that the Dutch clinic data did not fit the cross-informant model any better (if not less) than the US and Australian clinic data. Summarising fit indices from Dedrick et al. (1997), Hartman et al. (1999) and Heubeck (2000a) the following comparisons can be made: CFI ranged from 0.79-0.93 compared to 0.92-0.94 in the current study; TLI ranged from 0.88-0.91 compared to 0.98-0.99 in the current study; and RMSEA ranged from 0.075-0.14 compared to 0.037-0.032 in the current study. Thus the new model(s) showed a much better comparative fit as measured by the preferred Tucker-Lewis index (cf. Marsh, Balla, & Hau, 1996) and much smaller errors of approximation in the population. It has to be remembered though, that no direct comparison should be made between these fit indices due to the numerous changes made to the model, including the deletion of items and factors. However, they do illustrate the point made in Heubeck (2000a) that there is a strong core of items on the CBCL that is worth preserving and building on.

In addition Heubeck (2000a) claimed that there was a core structure that replicates well, although some variability was to be expected. The practical approach adopted in the current study to increase the comparability of factors was based on the idea that common marker variables could be identified in different samples and different countries. The following items were chosen as defining markers for the factors because their loadings were a.) high, b.) specific to the factor, and c.) replicated well across samples: Item 111 (withdrawn, doesn't get involved with others) for the Withdrawn factor, item 56c (nausea, feels sick) for the Somatic Complaints factor, item 52 (feels too guilty) for the Anxious/Depressed factor, item 70 (sees things that aren't there) for the Thought Problems factor, item 8 (can't concentrate, can't pay attention for long) for the Attention Problems factor, item 105 (uses alcohol or drugs for nonmedical purposes) for the Delinquent Behaviour factor, and finally item 95 (temper tantrums or hot temper) for the Aggressive Behaviour factor. There were two exceptions: No Thought Problem factor was extracted in the final Israeli model and a different marker needed to be chosen for the Israeli Delinquent Behaviour factor. The Israeli model will be discussed with reference to cross-cultural issues later. The main point in the current context is that for 26 out of 28 potential factors comparable marker variables could be identified and thus simplify the comparisons between models and samples considerably.

A factor loading was assessed as substantial if it reached 0.30 or more and was seen as replicated if observed in the two US samples as well as the Australian sample. In addition, replication in the Israeli sample was noted. For the Withdrawn factor 13 items replicated across the US and Australian samples and 11 in Israel. For the Somatic Complaints factor six items replicated across all four samples. Thirteen items measuring the Anxious/Depressed factor were replicated, 12 of them also in Israel. The Thought Problems factor was indicated by the same six items in each of the two US and the Australian sample. Eleven items measuring the Attention Problems factor were replicated, nine of them also in Israel. For the Delinquent Behaviour factor 11 items were found that measured the factor in the two US as well as the Australian samples. Although a different marker item was chosen for the Israeli sample, 10 of the 11 items just mentioned also measured the Israeli Delinquent factor. Finally, 31 items replicated the Aggressive Behaviour factor, 21 of which also measured this factor in Israel. Taken together this demonstrates a remarkable generality of these seven factors (and six in Israel). The final model(s) included many cross-informant model items. However, 14 cross-informant model items did not pass the strict criterion that they had to obtain loadings of 0.30 or above in the two US studies as well as the Australian study to be counted as replicated. This does not mean that they obtained no support in any study. Several cross-informant items loaded high enough in one or the other study, but they simply did not reach the criterion in all the three studies to be counted here.

While in general replication studies are rare in the literature, some replication attempts did actually exist for the CBCL cross-informant model prior to the current study. Some only reported overall fit (Hartman et al., 2000), others provided information about convergent loadings (Achenbach et al., 1989; Dedrick et al., 1997; DeGroot et al.. 1994; Heubeck, 2000a), but todate no study has provided the full detail needed to judge discriminant item validity. However, this issue reflects the core problem with the CBCL model and therefore the emphasis of the current investigation was on the examination of the full item loading patterns in different countries. While it was possible to identify marker items for the final factors which appeared to reflect the specific operation of each factor, it also became apparent that this type of "clean" indicator is rare and that the majority of CBCL items have complex relationships with the underlying factors. These relationships provided important new insights into the nature of the indicators as well as the underlying factors because so many of these cross-loadings have been overlooked in the past. Three examples may suffice to demonstrate this point. Item 17 (day-dreams or gets lost in his thoughts) was confirmed as an important indicator of the Attention Problem factor in all four samples. However, moderate to strong loadings were also found on the Withdrawn factor in all four samples, although this relationship was not included in the cross-informant model. An important question that arises from this finding is whether the item refers to the same observations or processes in each case or whether the daydreaming of the withdrawn child is different from the "daydreaming" of the child rating high on the Attention Problem factor. Another example pertains to item 34 (feels others are out to get him/her). The item was supported as an indicator of the Anxious/Depressed factor in three samples (as hypothesised by the cross-informant model), but also functioned as an indicator of the Aggressive Syndrome in all four samples. Again interesting questions arise about the underlying processes. It could be hypothesised, for example, that the item is more likely to express an irrational or imagined fear in an anxious/depressed child and a reality-based fear in an aggressive child who fears repercussions because of his/her behaviour. Another indicator which revealed a very different association to the one expected by the cross-informant model was item 88 (sulks a lot). Supported in three studies as an indicator of the Withdrawn factor, the item was also found to be strongly associated with the Aggressive factor in all four samples. If the sulking of the aggressive child is different to the behaviour labled as sulking in a withdrawn child, provides another interesting research question. For example, is there a manipulative component in aggressive sulking that is not apparent in withdrawn sulking? The investigation of questions such as these may lead to changes in the items in the future which may help to differentiate the underlying processes better. However, if no such differences can be teased out, then the indicator should clearly be declared a non-specific sign of several underlying factors (cf. Macmann et al., 1992; Heubeck, 2000a).

While specific and nonspecific indicators contributed to the identification of latent factors, their replication in large samples and different countries allows the discussion to now move on to take a closer look at these major factors of child psychopathology (item numbers will be shown in brackets). The Withdrawn factor described children who did not get involved with others (item 111) and would rather be alone (42). They were seen as secretive (69) to the point that they refused to talk (65) and stared blankly (80). Cognitively they appeared confused (13) and/or daydreaming (17). Their mood seemed volatile (87, sudden changes in mood) and to include anxious (71, 75) as well as unhappy, sad, or depressed components (103). These children were also often described as underactive, slow moving and lacking in energy (102).

Achenbach (1993) speculated that an inhibited temperament as described by Kagan, Gibbons, Johnson, Reznick, and Snidman (1990) can develop into a behaviour pattern as depicted by the Withdrawn syndrome. A large study by Caspi, Henry, McGee, Moffitt, and Silva (1995) showed that an inhibited temperament increased the risk of experiencing anxiety problems over a 12 year period. Kagan (1997) also interviewed adolescents and found that social phobia was more common among those who grew up with an inhibited temperament than among uninhibited adolescents. The Withdrawn syndrome included essential descriptors of this temperament (e.g. shy, timid) as well as some facets of social phobia (e.g. self-conscious, easily embarrassed). Several indicators of the Withdrawn syndrome begged for further clarification. For example, avoidance of eye contact is a recognised sign of social anxiety, however staring blankly, as indicated by item 80, may have a different meaning. Whether withdrawn children were secretive in the sense of deliberately witholding information or whether they simply volunteered less was also not clear. A lower rate of spontaneous verbalisation has been shown to characterise shy children (e.g. Rezendes, Snidman, Kagan, & Gibbons, 1993). However, refusal to talk (item 65) implied a pressure to talk which may need to be captured more clearly to properly understand these children's reactions to situational demands. In this context the distinction between familiar versus unfamiliar demands would be important to consider, according to Kagan (1997). The impression that withdrawn children were confused may have been related to their lower communicative competence (Evans, 1993) which in turn was likely to be based on verbal factors as well as anxiety. Mood played an important role in the Withdrawn factor. Sudden mood changes could occur, but anxiety was not the only mood observed. Parents also reported unhappiness, sadness, and depression. The lack of energy described by item 102 has also often been described as a sign of depression or dysthymia (cf. DSM-IV). Some withdrawn children may react with sadness or even depression when they experience the negative social effects of their inhibition. Feelings of depression may in turn have increased the tendency to withdraw (cf. Coyne, 1976).

Overall, the cross-informant Withdrawn factor was supported and extended, especially through the addition of the cognitive items and the social anxiousness item. It appeared to present a relatively coherent picture of problems which are thought to arise out of temperamental dispositions and which can be exacerbated and lead to serious clinical problems like social phobia and depression. Achenbach (1993) likened the cross-informant factor to the DSM category of Avoidant Disorder. The factor did not help to distinguish between anxiety and depression (cf. Kamphaus & Frick, 1996). Apart from the inclusion of anxious and depressive items, the factor was highly correlated (~0.71) with the Anxious/Depressed factor in all four samples. Therefore this factor will be considered next.

While children who were rated high on the Withdrawn factor appeared to lack social approach motivation and prefered to be alone, children rated high on the <u>Anxious/ Depressed</u> factor wanted to be accepted but felt that they had failed to gain approval. They felt unloved (33) and lonely (12). They had very high standards for themselves (32, feels he/she has to be perfect), were fearful and anxious (item 50) and worried a lot (112). Many of their problems were probably based on their fear of social evaluation. They were self-conscious and easily embarrassed (71), feared school (30) and feared that they might do something bad (31). Their sense of failure was so strong that they felt too guilty (52), felt worthless (35), and even talked of suicide (91). They would not destroy things belonging to others (21) or engage in vandalism (106), most likely for fear of disapproval. Again no clear separation of anxiety and depression emerged from these analyses. Perfectionism, self-consciousness, embarrassment, fears, and worries are usually regarded as anxiety based, while feelings of guilt, worthlessnes and suicidal talk are mostly seen as expressions of depression (e.g. in DSM-IV). However, self-critical thinking is also seen in many anxiety disorders (cf. Mash & Wolfe, 1999), guilt may be related to fear of punishment, and suicidal talk may not require a major depressive episode. Achenbach (1993) suggested that the concept of negative emotionality (Watson & Clark, 1984) may be more useful than the many distinctions between the mood disorders made by DSM-IV. Widiger and Clark (2000) also questioned the splitting of mood disorders into too many ostensibly distinct categories.

It is possible that the exact mood or distress experienced is not the main discriminating feature in this domain, but the underlying motivation and other processes. The social motivation underlying the Withdrawn versus the Anxious/ Depressed factor may provide a map for studying this domain further in the future. For example, Rubin and Asendorpf (1993) emphasised the importance of distinguishing between withdrawal from the peer group versus isolation by peers and noted that by late childhood both are significantly associated. Olweus (1993) proposed that inhibition towards the unfamiliar and inhibition due to social-evaluative concerns both feed into withdrawal due to shyness and fearfulness. In the current study, ratings of children as shy and timid were only associated with the Withdrawn factor, whereas self-consciousness and embarrassment were associated with the Anxious/Depressed factor as well. The high correlation between the factors may mean that there is a certain overlap in the underlying causes. While an inhibited temperament fearful of the unfamiliar (Kagan, 1997) may contribute primarily to the Withdrawn factor, it may also play a role in the Anxious/Depressed factor. However, this factor may also include perfectionistic self-standards and adverse transactions with the environment that are less prominent in the purely Withdrawn syndrome. While the two factors were highly correlated (~0.71) with each other, they also showed mainly strong associations with the Thought and Attention Problem factors (0.46-0.68). The correlations with the Aggressive Behaviour factor were moderate to strong and ranged from 0.48 to 0.58. Only the lower correlations with the Delinquent Behaviour factor (0.27-0.45) conformed to the idea of clearly separable Internalising and Externalising higher order factors.

Achenbach's (1991a) third "internalising" factor was labelled Somatic Complaints. The factor was found in a "clean" fashion in the current study with loadings specific to the factor and negligible cross-loadings. Six of the nine indicators specified by the cross-informant model were supported in all four samples: Dizziness, aches, headaches, nausea, stomachaches and vomiting. DSM-IV describes Somatisation Disorder as sometimes starting in adolescence, but lists it in the adult section. However, it is well known that individual symptoms like stomachaches are very frequent in childhood as well as adolescence (Garber, Walker, & Zeman, 1991; Litcher et al., 2001). The six symptoms replicated in this study were generally in accord with the DSM-IV diagnosis of Somatisation Disorder, although they did not exhaust all symptoms listed there. Compared to the Children's Somatisation Inventory (Garber et al., 1991; Litcher et al., 2001) the CBCL factor seemed to resemble the gastro-intestinal factor most rather than measure pseudoneurological or cardiovascular symptoms.

Associations between somatic complaints and symptoms of anxiety and depression have been reported in community and clinic studies (e.g. Essau, Conradt, & Petermann, 2000; Garber et al., 1991; McCauley, Carlson, & Calderon, 1991; Rutter, Tizard, & Whitmore, 1970). The highest correlations in the current study were found with the Anxious/ Depressed (0.51-0.62) and the Thought Problem factor (0.41-0.61), while correlations with the Withdrawn factor were more moderate in size (0.31-0.47). Corelations with the other factors were lower, especially with the Delinquent Behaviour factor (range 0.16-0.35).

Based on the number of indicators the definition of the cross-informant Thought Problems factor has always been weaker than the other factors because only seven items contributed to its measurement. Neither the obsessive (item 9) nor the compulsive item (66) on the cross-informant Thought Problem factor found strong support in the current study. Item 80 (stares blankly) also failed to gain consistent support. This left a core of four items which appeared to represent a symptom complex akin to schizotypal disorder or childhood onset schizophrenia (cf. Russell, Bott, & Sammons, 1989; Green, Padron-Gayol, Hardesty, & Bassiri, 1992). These were item 40 (hears voices), item 70 (sees things that aren't there), item 84 (strange behaviour), and item 85 (strange ideas). Russell (1994) reviewed several studies of childhood schizophrenia and concluded that auditory and visual hallucinations were common in diagnosed cases as well as delusions, thought disorder, and flat or inappropriate affect. While items 40 and 70 appeared to reflect auditory and visual hallucinations, item 85 (stange ideas) may have included delusions and item 84 (strange behaviour) may have included the display of inappropriate affect. However, these interpretations clearly stretched beyond the item content and could only be confirmed by analysis of the additional desciptions provided by parents for these last two items. Unfortunately the CBCL scoring instructions did not assist with this objective in any way. They simply stated that the items should not be counted if the idea or behaviour was mentioned already somewhere else on the checklist. This left the factor with two items which pointed at problems which were schizophreniform, and two items which were very vague and ambiguous indeed. Taken together the definition of this factor through these items must be regarded as unsatisfactory. Childhood schizophrenia is often insiduous in its onset (cf. Russell, 1994) which makes it more difficult to recognise early signs. This makes it all the more important to ask parents more rather than fewer pertinent questions in this area. If this factor is to represent the childhood-onset form of schizophrenia, items are needed that tap clearly into symptoms such as delusions, thought disorder, incoherent speech, disorganised behaviour, and flat and inappropriate affect.

Dedrick et al. (1997) reported a strong correlation of 0.82, disattenuated for error, between the Thought Problems and the Attention Problems factor. However, in the current study correlations with the Attention Problems factor were somewhat lower ranging from 0.39 to 0.64 in the three samples (the factor was not extracted in the final Israeli model). Some literature reported a large overlap of schizophrenic and affective symptomatology (e.g. Apter, Bleich, & Tyano, 1987; Bashir, Russell, & Johnson, 1987; Russell et al., 1989). In the current study the correlation between the Thought Problem factor and the Anxious/ Depressed factor was as high as 0.54 to 0.68, which can be compared to the correlation of 0.67 reported by Dedrick et al. (1997) for the corresponding cross-informant factors. Other factor correlations in the current study ranged from 0.41 to 0.64 with the exception of the correlations with the Delinquent

Behaviour factor which were lower (0.26-0.38). Alcohol and/or drug use were important indicators for the Delinquent Behaviour factor in the current study, as was involvement with others who get into trouble. Werry and Taylor (1994) considered the relationship between alcohol and drug use and schizophrenic disorders, but found it complex and unclear. Dixon, Haas, Weiden, Sweeney, & Frances (1991) put forward the hypothesis that some degree of personality integration is necessary to get and use alcohol and drugs. It may be possible to extend this argument and posit that involvement in a delinquent peer group requires a degree of functioning difficult to maintain for a young person who sees and hears things that are not there. The lower correlation obtained with the Delinquent Behaviour factor may partly reflect an attraction to outsiders but also an inability to maintain these relationships.

The Attention Problems factor was of particular interest because it was one of the two factors which was least suppported in the first study in the current project (Heubeck, 2000a), the other being the Social Problems factor. While the first study was restrained by the strict application of confirmatory factor analysis, the current study was more flexible and actually found fairly strong support for an Attention Problem factor which included eight of the original eleven cross-informant items. The following eleven indicators were supported in the two US and the Australian sample: Acts too young for his/her age (item 1), can't concentrate, can't pay attention for long (8), can't sit still, restless, or hyperactive (10), confused or seems to be in a fog (13), day-dreams or gets lost in his/her thoughts (17), disobedient at school (23), impulsive or acts without thinking (41), lying or cheating (43), nervous movements or twitching (46), poor school work (61), poorly coordinated or clumsy (62). This factor was also identified by the same items in Israel, except through items 43 and 46. A two factor structure of inattention and impulsivity which could be postulated based on other work related to this domain (cf. DuPaul et al., 1998; Edelbrock, 1988; Gomez, Harvey, Quick, Sharer, & Harris, 1999; Reynolds & Kamphaus, 1992) did not emerge. More items to detail the expression of these factors might have facilitated their recognition in the data. For example, the hyperactivity-impulsivity factor (cf. DSM-IV) was only represented by items 10 and 41 on the CBCL Attention Problem factor. However, it was an interesting finding that the impulsivity item (41) was also related to the Aggressive Behaviour factor and that this association was found in all four samples. Some other behaviours that could be seen as related to the ADHD syndrome were actually found to have a closer relationship to the Aggressive factor (e.g. brags, demands attention, talks too much, screams, unusually loud). These and other aggressive behaviours may be based on a similar underlying cause that results in a range of impulsive behaviours. Studies that examined the factor structure of the DSM-IV criteria and did not include symptoms of ODD/CD were not able to detect these relationships (e.g. Gomez, Harvey, Quick, Sharer, & Harris, 1999). These contradictory conclusions (a separate impulsivity factor which belongs to a multidimensional ADHD construct versus inclusion of this facet in the Aggressive factor) provide a prime example of the difficulties in drawing boundaries around disorders in this area. The findings offered by Angold et al. (1999) highlighted very similar problems in a categorical framework. Of all the relationships considered in their meta-analysis, the highest comorbidity estimate was obtained for the relation between ADHD and ODD/CD. The current study also found a substantial correlation between the Attention Problem factor and the Aggressive Behaviour factor which ranged from 0.55 to 0.72 in all four samples. Correlations with the other factors in this study were slightly lower, but the lowest correlations were found with the Delinquent Behaviour factor (0.27-0.55) and the Somatic Complaints factor (0.24-0.39).

The Delinquent Behaviour factor clearly emerged in all four samples, but a different marker variable was needed in Israel compared to the other three samples. The choice of markers was determined by their factorial purity, i.e. their lack of cross-loadings. Item 105 (uses drugs or alcohol) fulfilled this criterion in the first three samples. Alcohol or drug use is not a criterion for a DSM-IV diagnosis of conduct disorder. However, studies have shown a.) drug and alcohol use that starts early, i.e. before the teeenage years (Huizinga, Loeber, & Thornberry, 1993), b.) a close relationship between alcohol and/or drug use and delinquency (e.g. Johnson, Wish, Schmeidler, & Huizinga, 1991) and c.) support for the notion of overlapping pathogenic mechanisms by identifying risk factors that precede both drug use and delinquency (Farrington & Hawkins, 1991). Item 82 (stealing outside the home) was chosen as the marker item for the Israeli factor in order to enable the estimation of model fit. Despite this difference the final factors were relatively comparable because the following ten items characterised them in all four samples and in the three countries: Deliberately harms self or attempts suicide (18), disobedient at school (23), hangs around with others who get in trouble (39), lying or cheating (43), runs away from home (67), steals at home and outside (81, 82), truancy, skips school (101), uses alcohol or drugs for nonmedical purposes (105), and vandalism (106). Importantly, the marker chosen for the first three samples was also a prominent indicator for the Israeli sample and the Israeli marker was a meaningful indicator of the factor in the first three samples.

Following the cross-informant model it was hypothesised that item 26 (doesn't seem to feel guilty after misbehaving) would reflect this factor as well and that in fact it would represent a core feature. Lack of guilt plays a prominent role in psychoanalytic and cognitive theories of delinquent behaviour (cf. Friedlander, 1947; Lee & Prentice, 1988). Consequently it was somewhat surprising to find that the item achieved not even a moderate loading in any of the four samples. On the other hand, Nelson, Smith, and Dodd (1990) concluded that there was considerable individual variability in the moral reasoning of delinquents. In the current study the guilt item was actually found loading on the Aggressive Behaviour factor in all four samples. Given the covert nature of many of the behaviours involved in the CBCL Delinquent syndrome parents may often not progress in their discussions with their children to a point where the guilt question is considered, whereas angry denial of responsibility and counter-attack are a predictable response from aggressive children when confronted about their usually more obvious misbehaviour (cf. Dodge & Somberg, 1987; Patterson, 1982).

Given that having bad companions (item 39) was a strong indicator, the Delinquent Behaviour factor appeared to represent the "socialised" or subcultural form rather than the unsocialised form of delinquency (cf. Jenkins & Glickman, 1946; Quay, 1986; Rutter & Giller, 1983). This interpretation was also backed up by research that showed a clear association between alcohol and drug use and an affiliation with peers who are delinquent and use alcohol and/or drugs (e.g. Lynskey, Fergusson, & Horwood, 1998). It is possible that other Delinquent Behaviour indicators were also related to a subcultural group, e.g. running away from home and truancy may have involved joining up with a group, and stealing and vandalism may have been group activities.

However, these latter CBCL items were not specific enough to be able to accurately judge whether they refered to solitary or to group related activities.

The Delinquent Behaviour cross-informant factor was strongly correlated (0.74) with the Aggressive Behaviour factor in Dedrick et al.'s (1997) investigation. Imposition of the cross-informant model may have led to these higher estimates than in the current study (0.30-0.51) because of likely mispecifications in the factor structure. For example, the current study showed convincingly in at least three samples that disobedience at school was related to both factors, as were lying and cheating, stealing at home and outside, swearing and vandalism. Allocation of these items to only one of the respective factors, as specified in the cross-informant model, can be expected to lead to an inflated estimate of the correlation between the factors, i.e. despite the disattenuation achieved in Dedrick et al.'s study by taking error variance into account. This result is important in comparison to the higher correlation between the Attention Problem and the Aggressive Behaviour factors found in the current study (which ranged from 0.55 to 0.72). Achenbach (1991a) based his higher-order Externalising grouping on the stronger correlation between the Delinquent and the Aggressive Behaviour scales compared to the somewhat lower correlation of these scales with the Attention Problems scale. The current study did not support the exclusion of the Attention Problems factor from the Externalising grouping (neither did Dedrick et al. who reported a correlation of 0.79 between the Attention Problem and the Aggressive factor).

When considering the remaining correlations of the Delinquent Behaviour factor with the other factors found in the current study, it became clear that relatively speaking this was the most independent factor with correlations ranging from 0.16 to 0.55 and averaging 0.34. In Edelbrock et al.'s (1995) twin study, ratings on the Delinquent Behaviour scale resulted in the lowest estimates for genetic effects (0.35) apart from the anxious/depressed scale (0.34). It is possible that there is a set of specific environmental effects that are unique to the development of a delinquent syndrome, e.g. the influence of a delinquent subculture which sets the syndrome somewhat apart and results in smaller "comorbidity" correlations. However, a different theory would be needed for the anxious/depressed situation because, despite low heritability estimates in the Edelbrock et al. study, high correlations between the Anxious/ Depressed factors and other factors were found, especially with the Withdrawn factor. For example, the mix of shared versus nonshared environmental factors may be different in the delinquent compared to the anxious/depressed case. However, these speculations are based on a comparison with a study which used the cross-informant definitions of the factors and it is not clear to what extent the results would be robust under the new definitions of the factors put forward in the current study.

The Aggressive Behaviour factor emerged as the largest factor in the current study. While Achenbach (1991a) effectively controlled the number of items loading on the factor by allocating items with cross-loadings above 0.30 on other factors to those other factors only, no such self-defeating practice was employed in the current study and all loadings were fully mapped. The following items received substantial loadings in all four samples: Argues a lot (item 3), bragging, boasting (7), cruelty, bullying, or meaness to others (16), disobedient at home and at school (22, 23), doesn't seem to feel guilty after misbehaving (26), easily jealous (27), feels others are out to get him/her (34), gets in many fights (37), impulsive or acts without thinking (41), physically attacks people (57), screams a lot (68), stubborn, sullen, or irritable (86), sudden changes in mood or feelings (87), sulks a lot (88), suspicious (89), swearing or obscene language (90), teases a lot (94), temper tantrums or hot temper (95), threatens people (97), and is unusually loud (104). In addition a number of items were replicated in the three samples excluding the Israeli sample: Cruel to animals (15), demands a lot of attention (19), destroys own and others' things (20, 21), feels or complains no one loves him/her (33), lying or cheating (43), sets fires (72), steals at home and outside (81, 82), and vandalism (106). The factor(s) thus involved major problems with mood regulation and impulsiveness (cf. Cole & Zahn-Waxler, 1992) leading to aggressive and antisocial responses with negative social consequences (others are out to get him/her). The factor included many symptoms of Oppositional Defiant Disorder (e.g. temper, disobedience), but clearly extended beyond its perimeter because it also included many behaviours which according to DSM-IV were indicative of Conduct Disorder (e.g. bullying, threatening, attacking). There is considerable debate in this area as to the best way to "carve nature at its joints". DSM-IV stipulates that a diagnosis of Conduct Disorder overrides a diagnosis of ODD. While most children with ODD do not progress to a conduct disorder, those who are diagnosed with Conduct Disorder usually meet the criteria for ODD as well (Hinshaw, Lahey, & Hart, 1993). The CBCL Aggressive factor is in agreement with a notion that there is a continuum between the two diagnoses.

When comparing the Aggressive with the Delinquent Behaviour factor several symptoms showed consistent relations to both. Assuming a basis for aggressive behaviour in individual emotion regulation difficulties and impulsivity and a basis for delinquent behaviour in delinquent subgroup norms and pressures, the study found that disobedience at school can either have an aggressive or a delinquent base (and can also be influenced by attention problems). Swearing, lying, cheating, and stealing were also found to be influenced by aggressiveness/impulsiveness as well as delinquent attitudes. Finally, it was shown that vandalism could have an aggressive basis or occur in a delinquent subgroup context (or both). Thus the cross-informant model was shown to lead to a quite artificial separation of these symptoms and their relationships with these factors. These two factors were not the only ones with replicable cross-loadings. This situation is simply pointed out in more detail at this point because the Aggressive factor was always highly suspect in its cross-informant form because of the explicit rule of ignoring loadings of items that loaded on other factors. As a result of ignoring cross-loadings such as the ones listed above, the estimates obtained for the correlations between the factors would have been inflated. As mentioned before, the correlations obtained in the current study between the Aggressive and the Delinquent Behaviour factors were considerably lower (0.30-0.51) than those reported by Dedrick et al. (1997). The only other factor with relatively low correlations with the Aggressive factor was the Somatic Complaints factor (0.35-0.44). Interestingly, the Aggressive factor was correlated more highly with the Withdrawn and Anxious/ Depressed factors (0.48-0.58) than the Somatic Complaints factor was related to these other two so-called internalising syndromes (0.31-0.48). At the same time these correlations of the Aggressive factor with the Withdrawn and Anxious/Depressed factor were slightly higher than the correlations with the Delinquent Behaviour factor. Taken together, this pattern of factor correlations did not support the cross-informant model definition of higher order Externalising and Internalising factors (the other contradictory result being the higher correlation between Aggression and Attention compared to Aggression with Delinquent Behaviour).

In summary, numerous differences were found compared to the cross-informant model, but considerable similarity emerged as well across samples and across countries. There were many close matches in item loadings in the two US and the Australian samples. More differences emerged in the Israeli data, with difficulties in extracting a meaningful Thought Problems factor, and differences in item allocation between the Aggressive and the Delinquent factor. An earlier study by Auerbach and Lerner (1991) examined parent reports for 450 clinic referred Israeli boys aged 6 to 11 years. Using principal component analysis with varimax rotation they also failed to identify a Thought Problem factor. The current study used a considerably broader sample in terms of age, sex, and clinic status and the factor did not emerge as specified in the cross-informant model. Auerbach and Lerner (1991) asked whether parents from different cultures assign the same meaning to items such as "strange ideas". Given the ambiguity of these items in the same culture, the answer is likely to be negative.

The Israeli Delinquent factor involved additional problems like cruel to animals (15), destructiveness (20,21), and sets fires (72), all of which loaded on the Aggressive factor in other countries. The more delinquent these youngsters were, the less fearful (50), less self-conscious or easily embarrassed (71), less shy or timid (75), and the less worried (112) was the description provided of them by their parents. The data did not allow one to investigate whether these youngsters really were less anxious or bolder than US or Australian youngsters. An alternative hypothesis that has some plausability is that the delinquent behaviours described on the CBCL factor were evaluated against different cultural standards in Israel than in the other two countries and implicit theories about the kind of person who commits such acts came into play. In the absence of objective data theories such as these must be regarded as pure speculation. This reservation also has to be applied to Auerbach and Lerner's (1991) attempt to use the threshold model of cultural influence (Weisz, Somsong, Chaiyasit, & Walter, 1987) to explain some of their results.

Overall, what has been achieved at this stage is a demonstration that six similar factors emerge from parental descriptions of children and their behaviour in three different countries. This must be seen as a very encouraging result for future cross-cultural studies on child psychopathology. However, differences are as important as similarities because they can also provide important pointers for further study. For example, truancy (101) was related to the Somatic Complaints factor in Israel but not in the other three samples. Although somatic complaints are voiced often by children in the US and Australia when they try to stay home, the interpretation of somatic symptoms or of truancy may differ between the countries. Another example concerned item 105. One reason why alcohol or drug use could not serve as a marker item in Israel was the loading of this item on the Somatic Complaints factor. Again, interesting questions arose: Do Israeli children and adolescents use more alcohol and/or drugs when they experience psychosomatic symptoms or does their use lead to more symptoms? The detailed patterns reported in the current study provide a rich background for investigating questions such as these in future studies. However, despite the size of the Israeli sample, it should be kept in mind that with 3772 children it was the smallest sample in the current study and replication is desirable for any study that wants to investigate further specific cross-cultural differences in particular factor loadings.

There were two additional questions investigated in the current study. The first one pertained to the role that any replicable factors of child psychopathology may play in suicidal thinking and behaviour. Based on a US study (Lewinsohn et al., 1995) and a New Zealand study (Fergusson & Lynskey, 1995) it was hypothesised that suicidality was not only related to depression but conduct disorder and substance use as well. Further it was expected that these relationships would show up not only in the USA but in Australia and Israel as well. Two items were studied which represented two levels of severity: talks about killing self (91) and deliberately harms self or attempts suicide (18). The main findings showed that suicidal talk was substantially affected by the Anxious/Depressed factor in all four samples, while self-harm was consistently related to the Delinquent Behaviour factor in all four samples. Thus there was considerable cross-cultural similarity in the results. In addition, the findings suggested an interesting new hypothesis, namely that progression from suicidal talk to sucidal action may require the additional influences behind the Delinquent Behaviour factor. However, on closer scrutiny the picture was somewhat more complicated in one or the other sample. The Aggressive and the Delinquent factor were related to suicidal talk in two different samples each. The picture behind suicidal behaviour was even more complex. Apart from the main pattern of Delinquent Behaviour factor effects, there were loadings on the Anxious/Depressed, Thought Problem, and Aggressive Behaviour factors in two samples each, but not necessarily in the same two samples. Finally, negative loadings were found for suicidal talk and behaviour on the Attention Problem factor in Israel only. The Anxious/Depressed effects were expected (e.g. Lewinsohn et al., 1995). In relation to the Thought Problem factor a study by Asarnow, Tompson, and Goldstein (1994) was relevant. In 8 out of 21 cases of childhood schizophrenia they found suicidal ideation, and in another 8 cases a suicide attempt. The current study found an effect of the Thought Problem factor on suicidal behaviour (but not suicidal talk) in the ACQ sample and in the Australian data. However, due to differences in sampling and diagnosis no direct comparison between the studies was possible. In relation to the two samples with loadings on the Aggressive factor, the impulsive as well as the aggressive, antisocial attitudes expressed by this factor may have been involved in the suicidal behaviour reported. Finally, the two suicidality items were included to help a possible Depression factor to emerge with more clarity. As discussed earlier, this did not eventuate, possibly because anxiety and depression may be too difficult to separate in parent reports and a broader concept of negative emotionality may be more appropriate to adopt anyway (cf. Watson & Clark, 1984).

The discussion pertaining to the factors and their replication in the current study also alluded to the correlations between the factors, an issue related to the problem of comorbidity in diagnostic research. As Angold et al. (1999) found, there has been very little research considering differences in comorbidity between younger and older children or between boys and girls. Translating the issue of comorbidity into dimensional concepts, the current study examined the correlations between the replicable CBCL factors not only in four large samples in three countries but also in all subgroups created by crossing sex, age group, and clinic status. Apart from considering suggestions by Loeber and Keenan (1994) no further specific hypotheses were formed because of the different conceptualisation and measurement of comorbidity. Despite the number of published comorbidity studies, the current investigation represented an advance into largely uncharted territory. It returned with a detailed map of correlations based on the relative position of each child or adolescent on each of the underlying factors.

Probably the single most important finding pertained to the variability of correlations (0.01 to 0.84) across the 32 subgroups (8 groups in four samples). Such variability was very encouraging in terms of future research efforts which may want to explain the reasons behind such differences. Four factors could be considered in the current study: The combination of latent factors, sex, age, and clinic status. The latent factors involved in different comorbidity correlations had a major impact on the size of the correlations found. For example, a correlation exceeding 0.62 was found in all 32 subgroups between the Withdrawn and the Anxious/Depressed factor. At the other end, most of the lowest correlations involved the Delinquent Behaviour factor: Half or more of its correlations with the Withdrawn, Anxious/ Depressed, and the Somatic Complaints factors were lower than 0.30. Low correlations or relative independence in different subgroups were an important finding because they provide a counter-argument to the view that reports of child psychopathology reflect nothing more than parents' general level of concern (cf. Macmann et al., 1993). Such relative independence was also encouraging for future research that wishes to examine differentiating factors and processes that lead to the development of behaviours characteristic of different latent factors.

Vitually no sex effects were found among the comorbidity correlations in the younger age groups. Only 11.5% of correlations differed significantly between boys and girls in the adolescent groups. Most of these cases were clinic girls who obtained higher estimates than clinic boys. Although not directly comparable, Rey (1994) studied an adolescent clinic sample in Australia and also reported similar comorbidity patterns in boys compared to girls. Age effects were also relatively rare in the current study (17.3% for boys and 19.2% for girls). In these cases age seemed to interact with clinic status. On the one hand the higher correlations were found in the younger rather than the older clinic groups and on the other hand in the older rather than younger nonclinic groups. Any explanation for this pattern is likely to be complex and must not only include a focus on the particular factors involved but also a consideration of the developmental patterns behind the syndromes involved (cf. Loeber & Keenan, 1994). These latter authors centered their review of sex and age effects on the comorbidity of conduct disorders with anxiety, depression, somatisation, ADHD, and substance use. A more focussed analysis that concentrated on just these comorbidities and translated the relevant hypotheses into hypotheses concerning correlations between latent factor scores found very little support for their assumption that age and gender were "primary influences on patterns of comorbidity" (Loeber & Keenan, 1994, p. 497). Paradoxical effects of gender as conjectured by these authors were not supported either.

Finally, clinic status was examined in relation to comorbidity correlations. Numerous differences were found between clinic and nonclinic samples, about 35% of correlations in the younger age groups and 86% in the adolescent groups. Thus a strong age effect became obvious in this comparative context. The direction of these differences was unequivocal, with all correlations stronger in the general population than in the clinic samples. Inspection of joint distributions revealed fanshaped scatterplots with clinic samples represented at the open end of the fans, i.e. the greater dispersion of factor scores in the clinic samples affected the correlation estimates. One factor that may have contributed to this picture was the fact that the CBCL was developed as a clinical measure and is more sensitive to differences in functioning in the disturbed behaviour range (cf. Drotar et al., 1995). Further considerations arise out of the possibility that as children become more disturbed they may "specialise" into one or the other disturbance although their overall profile rises as well. The overall finding that comorbidity correlations were substantial but smaller in clinic samples than in general population samples on the surface contradicts the widespread belief that the reverse is true. This belief is largely based on Berkson's bias (1946) and referral biases. However, Berkson's bias requires a.) categorical medical-type diagnoses for which it is established that the diseases are actually distinct and b.) a case control design. Neither applied in the current study. Use of a dimensional measurement model meant that the general population groups were located along the same factor dimensions with some overlap with the clinic samples and the design was not a case control design. McConaughy and Achenbach (1994) employed Berkson's bias as a rationale in their study of comorbidity in clinic and nonclinic samples. Comparisons of frequency counts of diagnosis-like classifications showed the predicted higher frequencies of comorbid cases in clinic samples, and the same result was found in the current study. However, McConaughy and Achenbach (1994) tried to stretch the argument to include the odds ratios between classifications based on CBCL cutoff scores. They did not report the actual results but stated that "the odds ratios would be higher in the clinical than in the general population samples" (McConaughy and Achenbach, 1994, p. 1152). However, for the CBCL data this is not the case. Analyses not reported in this thesis showed quite clearly that the odds ratios followed the same pattern as the correlations, i.e. they were lower in the clinic samples. This is an important result that needs to be made more widely known to encourage a more differentiated approach to the question of "comorbidity" than the generalised expectation that comorbidity in clinic samples is high. While clinicians can continue to expect on average elevated scores across the symptom profiles their clients present with, they also need to know that there is considerable variability within these profiles, in fact more variability than for clients with lower average profiles.

4.4. Limitations of the Current Research and Findings

Consideration of the limitations of this study has to start with the raw data. Parent ratings have been attacked as biased (e.g. Griest, Wells, & Forehand, 1979) and incomplete in relation to school and peer situations (Achenbach et al., 1987). However, there have been critical voices that questioned the depression-distortion hypothesis which maintained that parental depression is a better predictor of parental ratings than actual child behaviour (Richters & Pellegrini, 1989; Richters, 1992). One possible answer seemed to be the combination of different rater perspectives. It was thought that this could help to reduce any bias and expand the realm of observation to other settings. Some studies have considered the purpose for which different rater reports are best suited. For example, Power et al. (1998) found parent or teacher reports equally useful for ruling out ADHD, but the combination better for positively diagnosing the disorder. On balance it seemed that parent reports are often given more credence than children's reports (cf. Achenbach et al., 1987; Jensen et al., 1999). The important study by Hinden et al. (1997) showed that parent reports obtained the highest validity coefficients for each CBCL cross-informant construct compared to teacher and youth self-reports, thus offering strong empirical support for the decision to concentrate on parent reports in the current study. Theoretical arguments could be mounted in addition, referring to mature adult perspectives, best knowledge of their children, etc. Nonetheless, potential bias or limited parental knowledge of children's behaviour at school could not be excluded as a concern in the current study. This limitation was also related to cost. Given the large sample sizes sought for the study, the resources did simply not exist to obtain such a large number of teacher or child reports as well (and for the data that had already been collected it was practically impossible anyway).

The next limitation became apparent when the nature of the information provided by parents within the confines of the CBCL structure and answer format was examined. This involved questions about the quality of the ratings obtained as well as the coverage provided by the items of relevant child behaviours. Earlier this discussion pointed out items that were so vague in their formulation that they gave parents enormous scope to respond with observations that may or may not have been related to the construct under measurement (cf. strange behaviour and strange ideas). Clearly the items or the scoring instructions have to be improved to assure that an unambiguous interpretation can be made. Given that these items represented 50% of the replicated Thought Problems factor, this situation was serious. While the new data collected especially for this study was subjected to special checks, a large part of the raw data that was obtained from other parties could not be checked as to the exact scoring rules applied to these items. Apart from these two items which form a special case because of the lack of clear scoring rules, other items may require further explication in the future now that their loadings on different factors are known. As pointed out in several cases, the meaning of the same item may actually differ in the context of different factors, but their vagueness prevented those differences from emerging more clearly (e.g. day-dreaming). Future research may be able to distinguish the day-dreaming of the anxious/depressed child from that of the child with attention problems and this may lead to the formulation of two new more distinct items. A related problem was the wider coverage of issues or potential indicators. This problem was shown to be particularly accute in relation to the Thought Problems factor which requires much more explication. It was also pointed out in Heubeck (2000a) in relation to the Attention Problem factor which requires additional items if the attention versus hyperactivity/impulsivity distinction made by other researchers is to be given a chance to emerge. Some years ago, Dreger (1982) pointed out that other researchers started with a different set of items and also arrived at acceptable solutions. Moreover, any comparisons with DSM-IV diagnoses remain vague as long as DSM-IV criteria are not directly included in research conducted within the empirical dimensional tradition. It is critical to remember that methods like factor analysis are completely dependent on the input variables in their ability to throw light on a certain area of interest. For the current study the items on the CBCL offered the opportunity to investigate a wide range of behaviours (represented by 90 items), but at the same time the study was also limited by that particular item pool.

The study also applied its own limitations. Only 90 items were chosen for the initial factor analyses (albeit after screening out the remaining CBCL items because of low correlations). In addition, whole factors were excluded after the first analyses. These included the Social Problems, Show off, Immaturity, and Destructive factors. The main rationale was the lack of comparability with the cross-informant model and the lack of replication across all samples. In the case of the Social Problems factor theoretical considerations entered into the decision process as well (see later). Other researchers may entertain a particular interest in these factors and may wish to develop them further in the future.

Although it was argued that the form of factor analysis chosen for this study (exploratory factor analyses in a confirmatory framework) was particularly suited to the data and the concepts under examination, limitations remained nonetheless. These arose out of the assumptions underlying the factor analytic model, especially linearity and the assumption of uncorrelated error terms. There is no a priori rationale that asserts that indicators of psychopathology are organised in a strictly linear fashion. Overall however, linear statistics appear to work well for many purposes. The issue of correlated errors has caused considerable debate in the literature. Criticism has been voiced about the post-hoc inclusion of correlated errors to improve model fit (e.g. Bargozzi, 1983). There may be a substantive meaning to such correlations (Gerbing & Anderson, 1984), but often the interpretation is found in retrospect. The current study proceeded on the assumption of uncorrelated residuals, but this may have violated reality. In terms of the overall models, the choice of the number of factors was obviously critical. Although every attempt was made to base decisions on rational criteria, a preference for the cross-informant model and replicability affected the final choices as well. The full examination of models with a different number of underlying factors (e.g. two factor models) would have expanded the thesis enormously. Alternative models were therefore not submitted to the same scrutiny as the seven and six factor models finally computed.

A stop also had to be called to the further analysis of the models actually presented here in order to contain the thesis. Structural equation modeling allows for the testing of the equality of all parameters in a model (cf. Byrne & Campbell, 1999). However, given the complexity and fuzziness of the CBCL model (and other models like it), the application of multigroup methodology and subsequent testing of each individual parameter would have constituted a truly formidable task. Given the results of the exploratory factor analyses it was clear that no CBCL model would ever fit the idea of full measurement equality across samples and/or countries. In addition the full use of this potentially very revealing methodology would have required an individual test run for each of the 78 factor loadings, each error term, and each correlation between factors in the six combinations of the samples with each run taking up to three hours. No wonder any examples of this approach which have been published in the literature so far were typically confined to very small models.

In relation to the investigation of "comorbidity" correlations a similar guillotine was applied. The general attitude behind the current research was to pay closest attention to the most basic data. In the factor analyses that meant maintaining a focus on individual indicators and in relation to the correlations between factors maintaining a focus on individual factor combinations. Angold et al. (1999) pointed out that by far the majority of all comorbidity studies in the categorical diagnostic framework were restricted to the investigation of concurrence in two conditions rather than three or more. Achenbach and Edelbrock's (1979) profile analysis offered a much more comprehensive approach to understanding how groups of children are affected by all CBCL factors simultaneously. However, going down that road would have practically doubled the size of the current thesis. There were other considerations that restrained the expansion of analyses into that area and these pertained more to the most appropriate way to progress the overall taxonomy at this point in time. The next practical steps should involve the reanalysis of teacher and youth self-reports and the revision of the CBCL related model and materials, rather than further work into what could be called higher order questions.

The core question in all this research has of course been if the "real" factors of child psychopathology have been identified. The answer has to be cautious for several reasons. Firstly, the factors presented here are simply statistical constructs. Reifying statistical constructs is fraught with dangers. Secondly, these factors gain their status as hypothetical constructs only through a process of interpretation. To the extent that they are misinterpreted they can miss the reality of child psychopathology. Thirdly, they describe the phenomenology of child behaviour as seen through parent eyes and not the underlying causes. However, as pointed out earlier, real syndromes of child psychopathology involve complex multifactorial transactional processes around which largely arbitrary boundaries are drawn. Fourth, the resulting images are akin to fuzzy prototypes (Achenbach, 1993) rather than exact reflections. Finally, replication in other countries (Heubeck, 2000a) and most of all, external validation is required (Cantwell & Rutter, 1994) to progress our understanding of these syndromes in the next phase of research.

4.5. Outlook

When standing back and asking how to evaluate the current research and its possible impact, it may be helpful to consider the following three perspectives. The first perspective considers the research within the framework set by empirical dimensional models, while the second takes a broader view of the taxonomic efforts in the area of child psychopathology and includes different approaches like DSM-IV as well. The third perspective is in a sense an outsider perspective, i.e. the view of the user of the results, be it for clinical, research, or administrative/policy purposes.

Despite changes, research based on the empirical dimensional framework has also been characterised by a remarkable degree of stability. To some extent this stability has been achieved through a lack of questioning. Given its over 20 year history there has been relatively little critique and CBCL scales were adopted by thousands of researchers as if their basis had been fully established. There are for example, hundreds of reports that “validate” other measures by showing correlations with CBCL scale scores. Despite its impressive research basis, the CBCL model was in danger of turning into an orthodoxy or even a dogma. Fortunately, a small number of researchers refused to accept the model without testing it. The findings initially questioned the model at the edges and finally rejected it completely (Hartman et al., 1999). This process led to the current reexamination which was based on one of the largest databases ever assembled in this area. The reshaping of the model paid not only close attention to the convergent but also the discriminant aspects of each individual rating provided by parents in three countries. A new model began to emerge which resembled the old one in parts and also showed up which criteria were ambiguous. Numerous leads for further research emerged. The new model now needs to be tested further in other countries and against teacher reports and youth self- reports.

Hopefully this new model can now be entered into a process of development that is more flexible and dynamic than in the past. The CBCL model needs to show more openess to ideas from the outside. Stronger liaison with other promising developments is needed to overcome agendas that simply perpetuate current models. Research that attempts to integrate proven sets of basic criteria derived from the CBCL tradition as well as DSM research is now needed in order to move ahead, not more research correlating composites. The CBCL model may benefit from integrating successful criteria from matching DSM disorders, and such research may in turn contribute to the reshaping of DSM concepts. Widiger and Clark (2000, p. 954) suggested that the next version of DSM should offer "an ordered matrix of symptom-cluster dimensions, a diagnostic table of the elements that are used in combination to describe the rich variety of human psychopathology". The current project asked if the CBCL cross-informant model could provide such a matrix. The answer was negative because for parent reports the model was misspecified in many places. However, a revision of the model as presented in a budding version here, could be developed further to a point where it could aspire to such a role. Two major considerations should influence this further development: Firstly, the criteria and structure of CBCL syndromes could be clarified further based on the phenomenology of disturbed child behaviour. This process would also need to consider increasing the coverage to problems like immaturity, learning problems, anorexia, etc. Secondly, the theoretical basis of classification should be reconsidered. Both the CBCL model and the DSM classification present themselves as basically atheoretical. While this has facilitated phenomenological descriptions which have achieved some degree of reliability, more attention to the underlying causes and processes related to child psychopathology is needed. Even a simple distinction between antecedents, personal reactions, and consequences could help to avoid some confusion that currently exists in the field. For example, the Social Problems factor was deleted in the current analyses because the triad of not getting along with others, getting teased a lot, and not being liked, was judged an antecedent or a consequence, but not a core description of a child's functioning in such a context. Employing theoretical considerations could move the field towards other classification principles which complement the current surface descriptions. This would encourage a similar cross-fertilisation in the area of child psychopathology as we have seen in biology between phenetics and cladistics for many years.

Finally, where does this leave the customers of the CBCL measures and taxonomy, who wish to understand their children better, need to assess them in their clinical practice, advise the government on children's mental health needs, or wish to design new research to study particular problems in children? Customers have a wide range of needs and demands - some may be realistic, others unrealistic. However, we can assume that all customers want quality information about the tools they wish to employ in the pursuit of their goals. Research building on the CBCL has created an impressive data base that can contribute enormously to our understanding of child psychopathology. To what extent its customers are fully aware of the potential as well as the limitations of the CBCL and its associated taxonomy would make an interesting research question. The current project will hopefully contribute to a realistic appraisal of the 1991 cross-informant syndromes as well as their potential for further development. An even more important project would be to examine the full cycle that includes what input customers have into research with the CBCL and the resulting theories and how they use the findings in turn. Such a project could improve the collaboration of all interested parties and has the potential to fast-track the further development of the empirical taxonomy to the ultimate benefit of all children with emotional and/or behavioural problems.

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APPENDIX A

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Cross-Cultural Generalizability of CBCL Syndromes Across Three Continents: From the USA and Holland to Australia[1]

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The study asked how well Achenbach's 8-factor cross-informant model for the Child Behavior Checklist (Achenbach, 1991a, 1991b, 1991c) fits clinic data in the USA, Holland, and Australia. DeGroot et al.'s Dutch 8-factor model (DeGroot, Koot, & Verhulst 1994) was also tested for its cross-cultural generalizability. Achenbach's matched clinical sample data ($N = 2110$) were analyzed and contrasted with the previously reported Dutch findings ($N = 2335$), as well as a new data set collected on clinic referred children and adolescents in Australia ($N = 2237$). Confirmatory factor analyses supported the Dutch as much as the American model in the USA, Holland, and Australia. Although about 90% of items showed convergent validity across models and countries, the attention and especially the social problems factor found least support. Most double loadings in the current models were not upheld. Instead, additional analyses discovered a number of unmodelled loadings including many cross-loadings. This led to the redefinition of the social problems factor as a mean aggression factor (with associated social problems) whereas the original aggression factor focuses on emotional acting out and the delinquent factor describes an evasive, covert type of antisocial behavior. Overall most support was obtained for the withdrawn, somatic, anxious/depressed, thought problems, and aggressive factors.

KEY WORDS: CBCL; confirmatory factor analyses; clinical samples; USA; Holland; Australia.

INTRODUCTION

The fundamental importance of our clinical constructs cannot be pointed out more clearly and dramatically than by Feinstein (1967) and repeated by Mezzich and Mezzich (1987, p. 34): "The diagnostic taxonomy establishes the patterns according to which clinicians observe, think, remember, and act." Two taxonomies have dominated the last decade of this century: The DSM system based on clinical observation and reasoning (cf. American Psychiatric Association, 1994) and empirical, dimensional approaches as represented by the factors or syndromes derived from the Child Behavior Checklist (CBCL) and its offshoots (Achenbach, 1991a, 1991b, 1991c). Both taxonomies are in widespread use and exert a very pervasive influence on clinicians and researchers not only in the USA but around the world. However, they have also been criticized, have gone through changes, and are continuing to evolve in a process that is nowhere near completion. The focus of this paper is on the CBCL and the current taxonomy derived from it.

A mammoth amount of research has gone into the development of the empirical approach based on the CBCL (e.g., Achenbach, 1966, 1978; Achenbach, 1991a, 1991b, 1991c; Achenbach, Conners, Quay, Verhulst, & Howel 1989; Achenbach & Edelbrock, 1978, 1979, 1981, 1983; Edelbrock & Costello, 1988). The earlier CBCL model described factors of child psychopathology that varied by sex and age group (cf. Achenbach & Edelbrock, 1983). Initially seen as a major strength of this approach, this developmental specificity made comparisons between sex

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and age groups difficult. Consequently the revision sought to establish factors that are common across these groups (Achenbach, 1991a). In addition, the revision attempted to integrate several rater perspectives, i.e., it demanded that factors or syndromes can be identified by at least two raters, if not three: by parents, teachers, and young people themselves (Achenbach, 1991a, 1991b, 1991c; see also Achenbach, McConaughy, & Howell, 1987). The resulting eight "cross-informant syndromes" form the core of the current empirical taxonomy (Achenbach, 1993). The fact that these syndromes can be observed across a wide age range, in males and females, and from three rater perspectives, represents a major strength of the taxonomy. In addition, there is some evidence that these syndromes can be identified in other countries as well (e.g., DeGroot, Koot, & Verhulst, 1994). Despite this success, the CBCL and its taxonomy has not been without its critics (e.g., Drotar, Stein, & Perrin, 1995; Macmann, Barnett, & Lopez, 1993) and therefore it is interesting to reexamine the process by which the syndrome scales were generated.

Achenbach (1991a) computed product–moment correlations and used principal component analysis with varimax rotation. The ratings obtained on the CBCLs consist of only three levels: never, sometimes, and often. Olsson (1979) showed that the treatment of short ordinal scales as interval scales can lead to serious distortions in the estimation of the correlation between two variables. Following Olssen (1979), the maximum likelihood estimation of the polychoric correlation is now regarded by many (e.g., Joreskog, 1990) as the better choice of statistic. Further, exploratory procedures like principle component analysis are nowadays regarded as appropriate in the first phase of instrument development. Once, however, a model has been established, confirmatory factor analysis (CFA) is seen as providing a more appropriate test of a model in a new sample (cf. Floyd & Widaman, 1995; Hull, Lehn, & Tedlie, 1991). Finally, Achenbach's use of varimax rotation seems to be based on practical reasons rather than a strong theory about the underlying independence of different syndromes. In the generation of the 1991 scales only varimax rotations were used, leaving the question open as to whether oblique rotations may better represent the underlying factors.

By the beginning of 1999 only two studies of the CBCL had been published that used a confirmatory factor analysis approach. Dedrick, Greenbaum, Friedman, Wetherington, and Knoff (1997) reported on a moderately sized (given the size of the model) sample of 631 children in the USA, and DeGroot et al. (1994) examined a substantial sample of 2335 Dutch children. Although both studies investigated the 8-factor cross-informant structure of CBCL ratings, Dedrick et al. also included a test of a 1-factor model. Based on Macman et al.'s analysis of the CBCL as a one-dimensional measure (Macman et al., 1993, p. 327), which provides "a global index of the relative intensity of informant concerns," the 1-factor model may represent the most appropriate comparison to evaluate the fit of any more differentiated model. Macman et al. also criticized the assignment of five items to two or three factors and Dedrick et al. found little support for this practice in their sample. In addition, the decision to assign aggression items to other syndromes if their loadings equal or exceed .3 (although loading .4 or higher on the aggression factor) meant that some misspecification was built into the model from the start. Some discriminant validity problems can thus be expected. Dedrick et al. did not investigate these at the item level, but instead asserted that the syndromes possess discriminant validity because their correlations were less than perfect.

Drotar et al. (1995) raised a number of other problems with the checklist, amongst them an unreflected use in different cultures. Although they point to research demonstrating the possibility that there are different thresholds for distress about particular problems in different cultures (cf. Weisz, Sigman, Weiss, & Mosk, 1993), the issue may be deeper, and not only concern mean differences, but also include differences in the very symptom constellations that are rated and by inference in the underlying syndromes. If, however, it could be demonstrated that the CBCL measures similar problems or syndromes across "... countries that differ in language, culture, and referral practices..." (DeGroot et al., 1994, p. 225), our ability to compare and use findings from studies in different countries would be enormously enhanced.

DeGroot et al. (1994) concluded that they had found supportive evidence for the cross-cultural generality of the CBCL cross-informant syndromes in a study of clinically referred children in Holland. They also used exploratory factor analyses to generate a Dutch model of CBCL factors, which shared 74 loadings with the American model, but assigned 37 items differently. Not only were they able to cross-validate this model in a second large sample of clinically referred children and adolescents, but they also showed in this cross-validation that the Dutch and the American model both provided an equally good fit to the Dutch data. The question of double loadings was not addressed in that study. In fact, the Dutch model exacerbated the problem by assigning not just five, but nine items to two factors each. Despite this drawback, the Dutch 8-factor model constitutes a major alternative to the US model, given the strength of its database and development. So far it has not been tested with American data, nor has any other test of the model been published so far.

Whether either the American or the Dutch model apply to Australian children and adolescents is also not known. Although Hensley (1988) reported norms for the CBCL in Sydney, Australia, these were based on the pre-1991 American syndrome structures. More importantly, no research has been published todate to demonstrate that either the pre-1991 or the new 1991 American CBCL syndromes are actually seen in clinics in Australia. A demonstration that the CBCL measures the same constructs in Australia as in the USA and Holland would go some way to reassure Australian practitioners and researchers that the CBCL is an appropriate instrument for use on this continent. Outside of Australia it would contribute to the further development of the global cross-cultural perspective on child psychopathology.

One other study was located that reported a confirmatory factor analysis of CBCL items (Berg, Fombonne, McGuire, & Verhulst, 1997). Unfortunately, only 43 items common to French and Dutch exploratory factors were subjected to CFA ($N = 673$). The study points to a possibly major issue with the thought problems syndrome in some cultures because the factor was not replicated at all in this study. In addition, DeGroot et al. (1994) reported a poor replication for the American social problem scale and some difficulties with the Dutch attention problem scale as well. Put together with some exploratory factor analyses (e.g., Doepfner, Schmeck, Berner, Lehmkuhl, & Poustka, 1994), these results question the assumption that all eight CBCL factors can be identified with equal clarity and stability across all western cultures.

The current study set out to test the US as well as the Dutch 8-factor model with clinically referred children and adolescents in Australia. As Achenbach (1991a) did not report a confirmatory factor analysis, an analysis of the US matched clinical data was also planned to (a) provide a common method basis for comparisons across countries and (b) examine the Dutch model with American data. In addition, the study was to compare the 8-factor model with the simpler 1-factor model and pay particular attention to the issue of discriminant validity and double loadings.

METHOD

Samples

Australian Samples

Sydney is with more than 3.5 million residents the largest city in Australia, which in turn has a total population of about 18 million people (only slightly larger than Holland). Sydney is the capital of New South Wales, which has about 6 million inhabitants. All the data for this study were collected in Sydney. However, clients from country regions of New South Wales were also serviced by some of the agencies as detailed later. Altogether, over 3000 CBCL records were collected during the period of 1983–1997. After excluding second raters of the same child and records with too much missing data, 2237 CBCLs were analysed, 643 from an agency called Arndell, 466 from Rivendell, 600 from Redbank, 450 from a Mental Health Service at Liverpool, and 78 from Hensley's study (Hensley, 1988). *The Arndell Child and Family Unit* is a department of the Royal North Shore Hospital, offering tertiary level psychiatric outpatient, daypatient, and inpatient services. Most clients live in the Northern Sydney Health Region (up to 60% of referrals) whereas others travel from other metropolitan areas of Sydney (~20%) as well as country areas (about 20% of referrals). *The Department of Child, Adolescent, and Family Psychiatry at Redbank House* is part of Westmead Hospital in the Western Sydney Health Region. It is a tertiary level service, providing outpatient, daypatient, and inpatient programs mainly to the Western Sydney Health Region, and to a lesser extent to the Wentworth area, other regions of Sydney, and country regions of NSW. *The Rivendell Adolescent and Family Psychiatric Service* at Concord offers tertiary level assessment and treatment services for adolescents on an outpatient, daypatient, and inpatient basis. Although a substantial section of the clientele is drawn from the local central Sydney area, Rivendell offers its services to all metropolitan areas and over half of its clientele usually comes from other areas of Sydney. In addition, services are provided to selected country regions of NSW and around 15% of clients in any one year may come from outside of Sydney. *The Pediatric Mental Health Service* at Liverpool is a specialized tertiary level unit offering outpatient assessment and treatment for infants, children, adolescents, and their families. The unit also provides consultation to other service providers, but does not offer an inpatient option. All clients resided within the South Western Sydney Area Health region, which mainly covers suburbs ranked low or very low in socioeconomic prestige. Hensley (1988) provided normative data for the CBCL based on interviews with 1300 Sydney parents. Her norms explicitly excluded 78 children (51 boys and 27 girls) who were assessed or treated or both assessed and treated by school counselors, psychologists, or psychiatrists. Their CBCL records were included in the current study, although they had no discernible impact on the results.

While 891 boys in the total sample were under 12 years old, the other 632 boys were 12 years or older. Only 263 girls under 12 years were included whereas 451 girls were 12 years or older. For boys the exact age distribution (*n*/age 4–17) was as follows: 70, 57, 100, 92, 129, 142, 154, 147, 175, 166, 127, 90, 66, and 8. For girls the exact numbers per age (4–18) were 26, 33, 17, 27, 45, 43, 43, 29, 93, 84, 103, 87, 71, 12, and 1. Mothers provided ratings for 90% of CBCLs, fathers for 5%, others for 3%, and for 2% this information was not recorded. Many forms did not include the occupational data required to estimate the socioeconomic status of the clients' families. All that can be said from the information available is that families from a wide range of socioeconomic backgrounds used these services. Although the majority of participants were of Caucasian background, the information on ethnic background was too scatchy to provide exact figures. No claim of representativeness of the overall sample for clinic services in Sydney or New South Wales can be made. However, the large number and diversity of participants hopefully mitigated against some of the possible selection biases.

The US Samples

Achenbach (1991a) performed his analyses in clinical samples of boys and girls at three age levels, 4–5, 6–11, and 12–18 years with *N*s ranging from 292 to 1339 per sex/age group. These children and adolescents were seen in 52 different settings in eastern, southern, and midwestern USA. The services included a wide range of private and public psychology and psychiatry services. In order to compare clinic and nonclinic cases, Achenbach (1991a) formed samples of $N = 2110$ each, who were matched by sex and age, and as far as possible also by respondent, ethnicity, and SES. It was this matched clinic subsample data that was analyzed for the current study. It included 1032 boys and 1078 girls, with at least 48 subjects at every sex/age level, except for 17-year-old girls ($N = 28$) and 18-year-old boys and girls (total $N = 24$). Just over 74% of CBCLs were obtained from mothers, another 10% from fathers, 7.8% from others, and for the remainder this information was missing. About 3 out of 4 children were Caucasian, but for 6.4% this information was missing. Information about socioeconomic status was available for 92% of the sample, showing a broad distribution across the SES spectrum with a mean of 5.1 ($SD = 2.4$) on Hollingshead's scale.

Dedrick et al.'s sample included 631 children and adolescents identified as suffering from severe emotional disturbances for a national adolescent and child treatment study (Dedrick et al., 1997). They came from six different US states, were mostly white (72.3%), and male (76.4%). Their ages ranged from 8 to 18 years, with a mean age of 14 years ($SD = 2.4$ years). Over half (55%) participated in special education programs for severely emotionally disturbed children whereas almost 45% resided in mental health facilities. Their socioeconomic background was not reported. Dedrick et al.'s findings are included in the current presentation to facilitate a direct comparison between studies (Dedrick et al., 1997).

West-European Sample

The Dutch data was collected at 25 mental health centers in the province of Zuid-Holland. Demographic details of the wider Dutch sample were reported in DeGroot et al. (1994), including a slightly larger number of girls than boys and an age range from 4 to 18 years (mean = 9.8 years). More than half (55%) of the respondents were mothers and 12% were fathers. The remaining CBCLs were answered by both parents or an adult custodian. About 93% of children were Caucasian. The mean SES of the total sample was average for Holland. The representativeness of the sample could not be established, but "to avoid selective biases as much as possible subjects were recruited from a diversity of sources . . ." and a broad distribution of demographic variables (DeGroot et al., 1994, p. 226). For the current investigation, the results based on the 2335 cases in the "validation sample" are included to facilitate the direct comparison between countries.

Models and Data Analyses

A major aim of the analyses was to achieve maximum comparability of results across studies. Therefore, only studies that examined all 85 cross-informant items and only models that had been tested previously, i.e. the 1-factor model (Dedrick et al., 1997) and the 8-factor model in its American and Dutch form, were considered (Achenbach, 1991a; Dedrick et al., 1997; DeGroot et al., 1994). The 8-factor model was tested in its correlated as well as uncorrelated form to clarify whether Achenbach's correlated scales represent underlying factors that are also correlated (Achenbach, 1991a). In addition, the basis of analysis, namely a matrix of polychoric correlations, as well as the method of estimation, i.e. unweighted least-squares estimation, was held constant to avoid a possible method confound in comparing results across studies. Although Joreskog (1990) suggested the use of weighted least-squares estimation (WLS) for polychoric correlation matrices, the size of the models to be tested prohibited the computation of stable weight matrices. Both, Dedrick et al. (1997) and DeGroot et al. (1994) used unweighted least-squares estimation (ULS) to overcome this problem. Their choice was supported by the findings of a Monte Carlo study conducted by Rigdon and

Ferguson (1991), which showed that ULS estimation did not produce more biased parameter estimates than WLS did. Consequently, ULS estimation was chosen for the current study as well.

In the choice of fit indices, comparability with other studies was again a major criterion. The χ^2 statistic is known to be strongly dependent on sample size (e.g., Marsh, Balla, & McDonald, 1988) and, although reported, was not used in the evaluations of model fit. DeGroot et al. (1994) reported the goodness of fit index (GFI), adjusted goodness of fit index (AGFI), and the root mean square residual (RMR). They too are affected by sample size, but are reported to be able to compare the American and Australian findings with the Dutch results. The main criteria used to judge model fit included the normed fit index (BBI) proposed by Bentler and Bonett (1980), Bentler's comparative fit index (CFI) (Bentler, 1990), a nonnormed index, TLI (Tucker & Lewis, 1973), and the root mean square error of approximation (RMSEA; Steiger & Lind, 1980). A recent Monte Carlo study of incremental fit indices by Marsh, Balla, and Hau (1996) supported the TLI and the CFI in the assessment of model fit. Dedrick et al. (1997) judged fit to be acceptable for models with CFI and TLI greater than .90 while RMSEA was less than .08. DeGroot et al. (1994, p. 229) implied that their results (GFI = .88 and AGFI = .88) reflected a limited "fit," and assessed their RMR of .096 as "small." Others have suggested that a GFI and AGFI >.90 and RMR <.05 characterize a relatively "good" model fit. As no criteria exist to determine precise cutoffs, interpretation of fit indices has to take into account a number of measures as well as the nature of the data and the model under examination. All computations were carried out using the PC versions of Prelis 2 and LISREL 8 (Joreskog & Sorbom, 1994).

RESULTS

Table I shows the models used, the data sets to which these models were applied, and the fit indices calculated for the current study (US Achenbach and Sydney) or reported previously (US Dedrick and Holland). The chi-square statistic of the null models varied between studies, obviously mainly as a function of sample size. The independence chi-square for the Dutch model was not reported and neither was a test of the 1-factor model.

Dedrick et al. (1997) found that the 1-factor model was not completely unfitting and analysis of Achenbach's data for the current study showed very similar results (e.g., CFI and TLI = .85 and .84, respectively; BBI = .83 and .84, while RMSEA = .104 and .109, respectively). In Sydney, however, the fit of the 1-factor model was worse than in both of the American data sets (e.g., CFI, TLI, and BBI = .80, while RMSEA = .122).

Dedrick et al. (1997) reported a very poor fit for the uncorrelated 8-factor model. This finding was replicated in the current study for the Achenbach and the Sydney data using the US as well as the Dutch model (CFI, TLI, BBI <.38, while RMSEA >.21). However, when the model allowed for the substantial correlations between the underlying eight factors (ranging, for example, from .30 to .69 in the US model and data), the Dutch data showed a moderate fit, the Sydney data fit the US model as well as the Dutch model slightly better, and the American data showed the relatively best fit (CFI, TLI, BBI = .90, with RMSEA = .085). At the same time the size of the fit measures and the residuals demonstrated that the fit of these models was not exactly perfect and that it would be useful to examine the data in more detail.

One way of further scrutinizing the fit of the data to these models is by computing the loadings of items on the factors they are thought to express or represent. Table II shows the number of items for each syndrome that passed the conventional .3 criterion for convergent validity in the US and Dutch 8-factor models. The Table also includes the number of items with loadings of .4 or higher because Achenbach (1991a) chose this higher threshold for the selection of items for the aggressive factor. Full details are reported in Appendix A for each of the hypothesized eight correlated factors in the US model as well as the Dutch model. Between 89%–93% of items loaded above .3 on the factors they are meant to measure in the US model. The corresponding finding for the Dutch model showed 87%–93% of items loading above .3 on their respective factors in different countries.

Examination of individual syndromes in the US model showed the best convergent validity for items measuring somatic complaints, anxious/depressed, and the aggressive syndrome. In each case only one out of four samples produced an item loading below the .3 criterion. The same syndromes showed the best convergent validity for individual items in the Dutch model. At the other end, a number of items on the social problems factor did not perform well under the US model, and the worst results were obtained for the attention syndrome. At least three items received loadings under .3 in different samples and in Sydney there were four items showing a lack of convergent validity. Under the Dutch model similar problems with three and four attention items were found.

Further examination revealed that 12 items were responsible for the reduction in convergent validity under the US model (items 1, 45, 55, 56e, 62, 63, 75, 80, 93, 101, 103, 105) and under the Dutch model (13, 17, 23, 31, 50, 55, 61, 64, 75, 80, 101, 105). There was an overlap of

Table I. Fit Indices for First-Order Confirmatory Factor Analysis Models in US. Dutch, and Australian Samples

Model	Data	χ^2	*df*	GFI	AGFI	RMR	CFI	TLI	BBI	RMSEA
Null	US Dedrick	162,029	3, 570							
	US Achenbach	553,138	3, 570							
	Sydney	591,649	3, 570							
1-factor	US Dedrick	27,083	3, 485	NR	NR	NR	.85	.85	.83	.104
	US Achenbach	91,033	3, 485	.86	.85	.109	.84	.84	.84	.109
	Sydney	120,089	3, 485	.83	.82	.121	.80	.80	.80	.122
US 8-factors (uncorrelated)	US Dedrick	109,243	3, 479	NR	NR	NR	.33	.32	.33	.220
	US Achenbach	363,874	3, 479	.43	.41	.217	.34	.33	.34	.222
	Sydney	376,652	3, 479	.45	.42	.215	.37	.35	.36	.219
Dutch 8-factors (uncorrelated)	US Achenbach	370,537	3, 476	.42	.39	.219	.33	.31	.33	.224
	Sydney	388,304	3, 476	.43	.41	.218	.35	.33	.34	.223
US 8-factors (correlated)	Holland	100,580	3, 451	.88	.88	.096	NR	NR	NR	NR
	US Dedrick	17,018	3, 451	.91	.90	.086	.91	.91	.89	.079
	US Achenbach	55,839	3, 451	.91	.91	.085	.90	.90	.90	.085
	Sydney	69,021	3, 451	.90	.89	.092	.89	.88	.88	.092
Dutch 8-factors (correlated)	Holland	96,578	3, 448	.88	.88	.096	NR	NR	NR	NR
	US Achenbach	55,940	3, 448	.91	.91	.085	.90	.90	.90	.085
	Sydney	67,204	3, 448	.90	.90	.091	.89	.89	.89	.091

Note. NR = not reported. *N* = 2210 US Achenbach; *N* = 631 US Dedrick; *N* = 2335 Holland; *N* = 2237 Sydney.

Table II. Number of Standardized Loadings ≥.3 (and .4) in US, Dutch, and Australian Samples for US and Dutch Models of the CBCL

	US Model					Dutch Model			
Syndrome	No. of items	US Dedrick data	US Achenbach data	Dutch data	Sydney data	No. of items	US Achenbach data	Dutch data	Sydney data
Withdrawn	9	7 (7)	9 (6)	7 (4)	8 (6)	8	8 (6)	8 (7)	6 (6)
Somatic	9	9 (9)	9 (9)	8 (8)	9 (9)	10	10 (9)	10 (8)	9 (9)
Anxious/Depressed	14	13 (12)	14 (11)	14 (13)	14 (13)	14	14 (12)	13 (11)	14 (13)
Social problems	8	8 (6)	6 (5)	5 (5)	6 (4)	7	6 (5)	6 (6)	6 (6)
Thought problems	7	7 (6)	6 (6)	6 (6)	6 (6)	11	9 (8)	10 (9)	10 (10)
Attention	11	8 (8)	8 (7)	8 (8)	7 (7)	11	7 (7)	8 (6)	7 (5)
Delinquent	13	12 (12)	13 (12)	13 (10)	11 (10)	14	14 (12)	13 (10)	11 (10)
Aggressive	20	19 (19)	20 (20)	20 (20)	20 (20)	19	19 (19)	19 (19)	19 (19)
Sum	91	83 (79)	85 (76)	81 (75)	81 (75)	94	87 (78)	87 (75)	82 (78)
Convergence (%)		91% (87%)	93% (84%)	89% (82%)	89% (82%)		93% (83%)	93% (80%)	87% (83%

five nonperforming items between the two models. Five of the low loading items were assigned to more than one factor in the US model (1, 45, 62, 80, 103), and eight in the Dutch model (13, 17, 23, 31, 50, 61, 64, 80). Deletion of these items in the US Achenbach sample as well as the Sydney sample yielded correlations above .95 for the US model and above .92 for the Dutch model, between the shortened scales and the respective full length scales suggested by the models.

Discriminant validity was assessed in the US Achenbach sample as well as the Sydney clinic sample. Inspection of modification indices demonstrated a large number of potential crossloadings as well as correlations between error variances. Exploratory factor analyses c eight factors in the US and Sydney clinic samples foun no additional items loading (.3+) on the somatic com plaints and anxious/depressed factor, one extra item o thought problems, two on the delinquent factor (three i the US sample), three more items on the withdrawn fac tor, three (in Sydney) and five (US) extra items on th aggressive factor, one in the US and five in Sydney on th attention factor, and another eight (Sydney) and eleve (US) loadings on the social problem factor.

These "new" loadings did not have a major impact c the interpretation of the withdrawn factor as they simpl added that someone who rates high on the factor does n display restless behavior, does not show off, or talk too much. The additional loading of item 13 (confused) on the thought problem factor would also not be considered to change its basic meaning. Additional items on the attention problem factor included item 93 (talks too much) in Sydney and five items in the US that mainly describe the social correlates of attention problems (items 23, 25, 38, 48, 64).

Additional items on the delinquent factor showed that these children do not cling to adults (US and Sydney) and are secretive (Sydney). The aggressive factor showed additional loadings, which included crying, showing no guilt, and sulking in both countries. Restlessness and impulsiveness also received loadings from this factor in Sydney.

The majority of the cross-loadings described so far were in the .3–.4 range and would not impact in a major way on the interpretation of these factors. However, a new picture emerged from the exploratory factor analysis of the social problems factor. Only three items (25, 38, 48) on the original social problems factor were supported in the US as well as the Sydney sample. Eleven new items joined the factor in the US sample (16, 20, 21, 37, 57, 72, 81, 82, 94, 97, 106) and eight new items in the Sydney sample (16, 21, 34, 37, 57, 81, 82, 97), seven of them the same items as in the US solution. The highest loadings were found on items like attacks, fights, is mean, threatens, does not get along with others, and is not liked (range .4–.6). These cross-loadings raised the question of how distinct the newly defined social problem factor is from the delinquent and aggressive factors. The matrix of factor correlations showed that the factors are quite distinct. Correlations between the new social problems factor and the delinquent factor were low (.17 in the US, .26 in Sydney) as were correlations between the aggressive and delinquent factors (.20 in the US, .23 in Sydney). However, correlations between the new social problems factor and aggression were moderately high (.41 in the US and .45 in Sydney).

DISCUSSION

Although a number of studies have reported exploratory factor analyses of the CBCL in different countries, the many decisions that have to be made along the way (e.g., factor method, number of factors to be extracted, type of rotation, etc.) have meant that results were often not directly comparable. The current study employed exactly the same methodology (CFA) across countries to test five models that were identified a priori and found support for large sections of the Dutch and the US correlated 8-factor models. However, additional analyses also identified a number of misspecifications that should be considered in a revision of the model.

Both correlated 8-factor models demonstrated that they significantly improve measurement over the 1-factor model suggested by Macmann et al. (1993), thus countering criticism that the CBCL only measures overall level of parental concern. However, the uncorrelated 8-factor models did substantially worse than even the 1-factor model, thus strongly arguing against the use of varimax rotation in this area of inquiry. The basic strength of the 1-factor model needs to be recognized. This strength establishes a fairly high baseline (CFI, TLI, BBI of .84) and leaves relatively little room for further factors to improve fit before a ceiling is being reached. Theoretically the 1-factor solution may represent a basic psychopathology factor, a higher order factor, or indiscriminant reporting by parents. Further study needs to address to what extent these interpretations apply, preferably involving some criteria outside the CBCL itself.

Despite the strength of the 1-factor model, fit indices like the CFI, TLI, and BBI rose to .90 when eight factors were specified (and potentially could rise even more after adjusting the model for misspecification, see later). Examination of convergent item validities found that about 90% of items loaded on the factors the models say they represent. More specifically, there was good support for the claim that the majority of items on six of the eight scales measure the factors they were designed to tap. Very important also is the finding that there was considerable consistency in these item loadings across the three countries. The withdrawn, somatic complaints, anxious/depressed, thought problems, delinquent, and aggressive behavior scales can thus be used with some confidence not just in the USA and Holland but in Australia as well. It should be clear though, that this conclusion is based on the convergent validity data. This means that practitioners who currently administer these scales can continue their use in the knowledge that the scale scores they compute will be highly correlated with any scale modified to adjust for the few low loading items. This recommendation only pertains to situations where individual scale scores are used to rank order children independent of their scores on other scales. It does not extend to other uses of the scales like the assessment of comorbidity or interpretation of the CBCL profile, which heavily depend on another criterion, namely discriminant validity (see later).

This study found less support for the CBCL attention factor. Given that 9 out of 14 items supposed to measure attention problems demonstrated low loadings in one or the other model, it may be most instructive to point out the items that did show cross-cultural generalizability, namely item 8 (concentrate), item 10 (sit still), and item 41 (impulsive), all with strong loadings in each country and model. Each of these items is also part of the Child Attention Profile (CAP; Edelbrock, 1988), which uses items from the Teacher Report Form of the CBCL. The CAP has a clear factor structure measuring inattention and overactivity and has been shown to be sensitive to stimulant drug effects (cf. Barkley, DuPaul, & McMurray, 1991). In view of the better performance of items on instruments derived from the CBCL, the maintenance of the original item composition on the parent form may turn out to be a procrustean bed that hampers further development. The CAP is not the only source that could assist the future clarification and development of this factor. DSM researchers who have embraced dimensional ideas have also contributed to the definition of two dimensions related to the AD/HD category, that they also call inattention and overactivity (cf. DuPaul et al., 1998; Gomez, Harvey, Quick, Sharer, & Harris, 1999). It seems as if future revisions of the CBCL could benefit from incorporating some of these advances.

The social problems factor needs a major reconceptualization. Achenbach (1993) observed that there is no clear counterpart for this factor in DSM, although at least 13 studies have reported similar factors previously. The US and the Dutch model overlap by only four items and only three of these performed well across models and countries (not get along, teased, and not liked). The three additional items in the Dutch model were supported across countries (feels persecuted, fights, and attacks). Berg et al. (1997) identified the same three core items as the current study as measuring the French-Dutch cross-cultural social problems factor. However, Doepfner et al. (1994) suggested that social problems and social withdrawal do not form separate factors and also reported substantial loadings of these three items on their aggressive factor. Additional exploratory factor analyses conducted in the current study supported the Dutch model of the factor more than the US model. Most importantly, they revealed a number of additional false negative items in the US model (mean, threatens, destroys, steals, etc.) in both the US and Sydney sample. Taken together, these results indicate a significant shift in the meaning of this factor from the original US model, which portraits an immature and clumsy child who does not get along with peers. The new factor paints the picture of a child who may be rejected, but who is mean, destructive, antisocial, and probably a bully.

Decreased convergent loadings on some items and additional loadings found in this study also suggest a slightly different emphasis in the interpretation of the delinquent and aggressive factors. The delinquent syndrome was characterized by lying, stealing, running away, truancy, and alcohol and drug use, in the US as well as Sydney. The Sydney data also showed a substantial loading for the secretive item. Taken together, this factor describes an evasive and often covert form of antisocial behavior. The aggressive factor always contained a large number of mood related items, e.g., jealous, stubborn, mood change, temper. The current study found significant additional loadings for crying and sulking on this factor in the US and in Sydney (as well as impulsiveness in Sydney), suggesting the interpretation that an emotion-regulation deficit may underlie this factor. Taken together this means that there are three behaviour problem factors measured on the CBCL: an emotional acting out factor, a mean, aggressive, and destructive factor, and an evasive, delinquent factor. Correlations ranging from .17 to .45 showed that the underlying factors are distinct. How do they relate to the literature? Cole and Zahn-Waxler (1992), for example, described the problem of emotional dysregulation in disruptive behavior disorders; Frick, O'Brien, Wootton, and McBurnett (1994) distinguished between impulsive conduct problems and callous/unemotional psychopathy; Patterson (1982) examined the overt–covert dimension of antisocial behavior; and Burns et al. (1997) factor analysed DSM symptoms of ODD and CD. How exactly the three CBCL factors just described relate to such conceptualizations will require more research.

Another issue addressed by the current study concerned the performance of items that are assigned double loadings in either model. Overall, there was little support for this practice in relation to the items currently assigned to more than one factor. In the US model none of the five items obtained substantial loadings on both factors they were meant to measure (or all three in the case of item 80). However, item 45 (nervous) and item 103 (sad) received substantial loadings across countries and models from the anxious/depressed factor. The scoring of several scales can thus be simplified by counting items on one scale only. Macmann et al. (1993) argued that items that need to be scored on several scales lack discriminant validity by definition and that the practice is undesirable. This line of reasoning assumes that there are clear diagnostic signs in child psychopathology, which are uniquely related to distinct conditions. Although an interesting ideal, the reality of child psychopathology may be different. Just as fever needs not to be dropped as a sign of many medical conditions, an item like confusion needs not to be dropped as a sign of attention as well as thought problems. What is important though, is that the discriminan validity of the item is known and taken into account. A number of cross-loadings were found in the current study which would improve model fit if incorporated into a revised version. Macmann et al. (1993) were also concerned that double scoring of items inflates correlations between scales. Although this is correct, this is not a problem of the model as such, but of the incorrect application or interpretation of statistics. The use of factor scores can easily overcome this problem in most research. In clinical practice with individual clients the issue usually only arises in the context of the CBCL profile, where considerable caution will continue to be necessary in the interpretation of intraindividual profile differences.

Just as DeGroot et al. (1994) had found in Holland, comparison of the US and Dutch model showed similar (minimally better) fit to the data in the USA and Australia. The models share 74 loadings and both require some revision. Bringing together all findings in this study, it is clear that there is a strong core of items on the CBCL, which generalize well across models and countries. Any revision should preserve this core and improve model structure by taking convergent as well as discriminant validity equally into account. The current findings will hopefully contribute to such a revision, which could carry the CBCL and its associated taxonomy into the 21st century. However, further considerations should also enter into the process.

Firstly, the CBCL has kept the same items for the last 20 years (cf. Achenbach, 1978; Achenbach & Edelbrock, 1979). Although this constancy enabled an unprecedented accumulation of research findings that can be directly compared, it may have prevented a more dynamic development of the CBCL system by adapting items to newer insights from clinical studies. It appears that the attention syndrome may be a prime candidate for improvement through the addition of items that have already proven their worth in other studies. Secondly, the current study was limited in the sense that only a small number of models was tested. Other viable models include a two dimensional specification (e.g., internalizing and externalizing), a seven factor model (cf. Berg et al., 1997; Doepfner et al., 1994), or hierarchical models. The additional presentation of these models would have far exceeded the space limitations of a journal article, but any serious revision should include tests of these models as well. Thirdly, given the undeniable importance of different rater perspectives (cf. Achenbach et al., 1987), research with the Teacher Report Form and Youth Self-Report needs to be considered as well, just as Achenbach (1991a, 1991b, 1991c) did in the initial creation of the cross-informant syndromes. Fourthly, although the current study focused on the core syndromes that can be identified across sex and age groups (Achenbach, 1991a), there is a need to establish that any revision is also applicable in different sex and age groups. Finally, the support obtained in the current research for six of the eight CBCL syndromes should give researchers some confidence that these factors are measurable across countries as diverse as the USA, Holland, and Australia. After revision, eight syndromes may emerge as generalizable across these countries. Nonetheless, researchers need to remember that they are all so-called "Western" countries, and that further work is needed before the results can be generalized to Eastern, African, Latin, or Islamic nations.

APPENDIX A

Factor Loadings for the American and Dutch Model in the American, Dutch, and Australian Sample for the CBCL Withdrawn (WD), Somatic Complaints (SC), Anxious/Depressed (ANX/DEP), Social Problem (SP), Thought Problem (TP), Attention Problem (AP), Delinquent Behavior (DB), and Aggressive Behavior (AB) Factors

		US Model			Dutch Model		
Factor	Items	US data	Dutch data	Sydney data	US data	Dutch data	Sydney data
WD	42 Rather alone	.37	.30	.44	.44	.41	.53
	65 Refuse talk	.57	.58	.60	.64	.68	.65
	69 Secretive	.67	.67	.66	.76	.85	.72
	75 Shy	.30	.21	.09	.36	.34	.19
	80 Stares	*.32*	*.38*	*.39*	*.33*	*.41*	*.27*
	88 Sulks	.92	.86	.80	—	—	—
	102 Underactive	.54	.37	.44	.63	.52	.55
	103 Sad	*.44*	*.04*	*.30*	—	—	—
	111 Withdrawn	.68	.55	.60	.77	.73	.72
	17 Daydreams	—	—	—	*.54*	*.55*	*.48*
SC	51 Feels dizzy	.74	.63	.75	.74	.61	.74
	54 Overtired	.66	.67	.63	.66	.67	.63
	56a Aches, pains	.73	.69	.67	.72	.68	.67
	56b Headaches	.74	.72	.74	.74	.70	.73
	56c Nausea	.76	.78	.81	.75	.76	.80

(*Continued*)

Appendix A (*Continued*)

Factor	Items	US Model			Dutch Model		
		US data	Dutch data	Sydney data	US data	Dutch data	Sydney data
	56d Eye problems	.52	.60	.52	.52	.60	.53
	56e Skin problems	.51	.29	.41	.50	.30	.41
	56f Stomachaches	.65	.66	.67	.65	.64	.68
	56g Vomiting	.59	.57	.58	.58	.56	.58
	55 Overweight	—	—	—	.30	.37	.28
ANX/DEP	12 Lonely	.55	.73	.55	.53	.72	.54
	14 Cries	.52	.53	.53	—	—	—
	31 Fears impulses	.52	.50	.56	*.53*	*.35*	*.50*
	32 Perfect	.39	.31	.34	.37	.31	.33
	33 Feels unloved	.74	.79	.72	.72	.80	.69
	34 Feels persecuted	78	.83	.78	*.39*	*.48*	*.40*
	35 Feels worthless	68	.66	.69	.67	.65	.67
	45 Nervous, tense	*.33*	*.55*	*.60*	.73	.73	.67
	50 Fearful, anxious	62	.49	.54	*.68*	*.21*	*1.0*
	52 Too guilty	.56	.58	.46	.55	.58	.45
	71 Self-conscious	.51	.42	.41	.50	.41	.40
	89 Suspicious	.82	.83	.78	.82	.85	.76
	103 Unhappy, sad	*.36*	*.77*	*.47*	.72	.73	.71
	112 Worries	.60	.50	.55	.58	.54	.54
	27 Jealous	—	—	—	.70	.67	.66
SP	1 Acts too young	*.33*	*.16*	*.28*	—	—	—
	11 Clings	.45	.43	.39	—	—	—
	25 Not get along	.87	.87	.81	.80	.79	.70
	38 Teased	.73	.70	.69	.65	.62	.58
	48 Not liked	.81	.84	.85	.73	.76	.73
	55 Overweight	.23	.27	.21	—	—	—
	62 Clumsy	*.29*	*.14*	*.31*	—	—	—
	64 Prefers young	.47	.45	.52	*.00*	*.24*	*.21*
	34 Feels persecuted	—	—	—	*.39*	*.48*	*.40*
	37 Fights	—	—	—	.80	.73	.80
	57 Attacks	—	—	—	.71	.79	.82
TP	9 Mind off	.68	.55	.63	.64	.52	.56
	40 Hears things	.55	.55	.59	.51	.52	.52
	66 Repeats acts	.67	.46	.65	.63	.44	.58
	70 Sees things	.53	.53	.53	.50	.51	.46
	80 Stares	*.18*	*.25*	*.19*	*.38*	*.41*	*.42*
	84 Strange behavior	.66	.74	.70	.62	.70	.62
	85 Strange ideas	.73	.71	.77	.69	.66	.68
	13 Confused	—	—	—	*.83*	*.47*	*.84*
	31 Fears impulses	—	—	—	*−.02*	*.17*	*.05*
	46 Twitches	—	—	—	.49	.53	.46
	50 Fearful	—	—	—	*−.01*	*.33*	*−.50*
AP	1 Acts young	*.15*	*.22*	*.27*	.48	.38	.52
	8 Concentrate	.67	.69	.75	.69	.72	.77
	10 Sit still	.62	.64	.70	.66	.68	.73
	13 Confuse	.69	.76	.56	*−.15*	*.40*	*−.20*
	17 Day-dream	.53	.41	.49	*.17*	*.13*	*.25*
	41 Impulsive	.84	.87	.87	.86	.91	.91
	45 Nervous	*.33*	*.20*	*.08*	—	—	—
	46 Twitch	.49	.45	.40	—	—	—
	61 Poor school	.49	.44	.56	*.18*	*.25*	*.32*
	62 Clumsy	*.21*	*.48*	*.28*	.48	.63	.55
	80 Stares	*.18*	*.10*	*.12*	—	—	—
	11 Too depend.	—	—	—	.42	.40	.31

(*Continue*

Appendix A (*Continued*)

Factor	Items	US Model			Dutch Model		
		US data	Dutch data	Sydney data	US data	Dutch data	Sydney data
	23 Disob. school	—	—	—	*.28*	*.35*	*.19*
	64 Pref. young	—	—	—	*.45*	*.17*	*.24*
DB	26 No guilt	.71	.82	.72	—	—	—
	39 Bad companions	.65	.54	.64	.66	.56	.65
	43 Lie, cheat	.79	.81	.82	.80	.83	.83
	63 Prefer older	.45	.35	.35	.46	.36	.36
	67 Run away	.54	.60	.56	.54	.61	.57
	72 Set fire	.62	.61	.66	—	—	—
	81 Steal at home	.67	.65	.73	.68	.67	.74
	82 Steal out	.66	.65	.69	.66	.67	.70
	90 Swear	.72	.78	.77	.73	.81	.79
	96 Think sex	.58	.57	.55	.58	.59	.55
	101 Truant	.44	.33	.24	.45	.34	.24
	105 Alcohol, drugs	.35	.33	.27	.34	.34	.27
	106 Vandalism	.67	.80	.76	.67	.81	.77
	7 Brags	—	—	—	.64	.72	.66
	23 Disobedient school	—	—	—	*.47*	*.44*	*.50*
	61 Poor school work	—	—	—	*.33*	*.21*	*.26*
AB	3 Argues	.70	.80	.75	.70	.81	.74
	7 Brags	.56	.63	.60	—	—	—
	16 Mean	.72	.78	.76	.71	.77	.76
	19 Demands att.	.67	.73	.72	.66	.72	.71
	20 Destroys own	.66	.66	.71	.65	.65	.70
	21 Destroys other	.67	.72	.76	.67	.71	.75
	22 Disob. home	.74	.78	.78	.74	.77	.78
	23 Disob. school	.62	.65	.61	—	—	—
	27 Jealous	.64	.62	.64	—	—	—
	37 Fights	.73	.69	.73	—	—	—
	57 Attacks	.65	.74	.75	—	—	—
	68 Screams	.62	.70	.67	.62	.70	.67
	74 Show off	.56	.65	.62	.56	.64	.62
	86 Stubborn	.74	.72	.72	.73	.72	.72
	87 Mood change	.73	.70	.73	.73	.71	.73
	93 Talk much	.52	.55	.51	.52	.55	.51
	94 Teases	.63	.75	.69	.62	.74	.69
	95 Temper	.73	.74	.80	.73	.74	.79
	97 Threatens	.75	.69	.79	.74	.68	.78
	104 Loud	.68	.71	.71	.67	.71	.70
	14 Cries a lot	—	—	—	.44	.40	.40
	26 Lacks guilt	—	—	—	.60	.54	.66
	72 Sets fires	—	—	—	.52	.54	.59
	88 Sulks	—	—	—	.70	.64	.58

Note. Loadings are shown in italics if model relates item to more than one factor.

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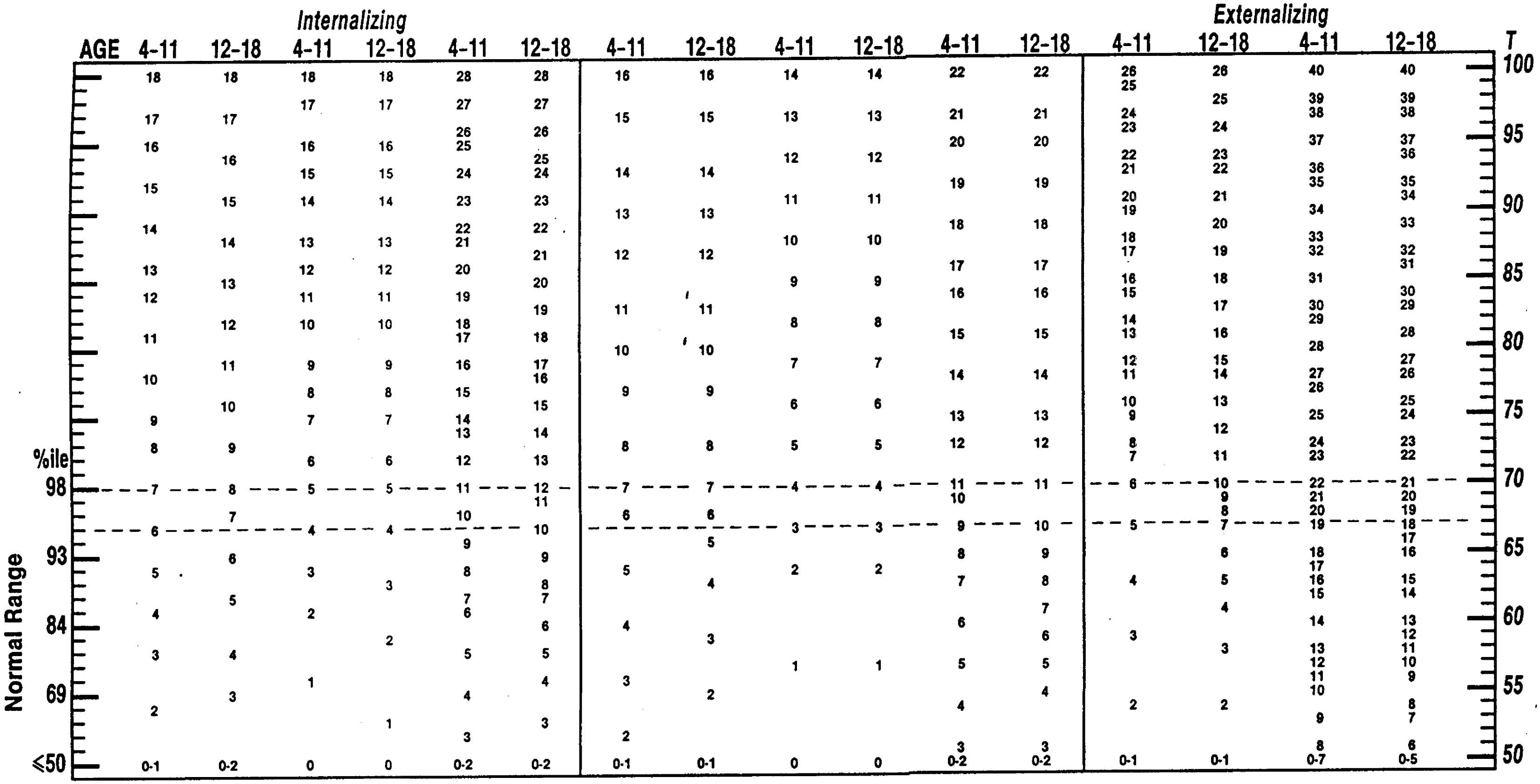
APPENDIX B

CBCL Scoring Sheet

1991 CBCL/4-18 Profile for Boys – Problem Scales

Name____________________

ID # ________



Age ________

Date ________

No. of Items ________

Total Score ________

Total *T* ________

Internalizing ________

INT *T* ________

Externalizing ________

EXT *T* ________

I *WITHDRAWN*

____ 42. Rather Be Alone
____ 65. Won't Talk
____ 69. Secretive
____ 75. Shy
____ 80. Stares
____ 88. Sulks
____102. Underactive
____103. Sad
____111. Withdrawn
____*TOTAL*

II *SOMATIC COMPLAINTS*

____51. Dizzy
____54. Tired
____56a. Aches
____56b. Headaches
____56c. Nausea
____56d. Eye
____56e. Skin
____56f. Stomach
____56g. Vomit
____*TOTAL*

III *ANXIOUS/ DEPRESSED*

____ 12. Lonely
____ 14. Cries
____ 31. Fear Do Bad
____ 32. Perfect
____ 33. Unloved
____ 34. Out To Get
____ 35. Worthless
____ 45. Nervous
____ 50. Fearful
____ 52. Guilty
____ 71. Self Consc
____ 89. Suspic
____103. Sad
____112. Worries
____*TOTAL*

IV *SOCIAL PROBLEMS*

____ 1. Acts Young
____11. Clings
____25. Not Get Along
____38. Teased
____48. Not Liked
____55. Over-Weight*
____62. Clumsy
____64. Prefers Young
____*TOTAL*

V *THOUGHT PROBLEMS*

____9. Mind Off
____40. Hears Things
____66. Repeats Acts
____70. Sees Things
____80. Stares*
____84. Strange Behav
____85. Strange Ideas
____*TOTAL*

VI *ATTENTION PROBLEMS*

____1. Acts Young
____8. Concentrate
____10. Sit Still
____13. Confuse
____17. Day-dream
____41. Impulsv
____45. Nervous
____46. Twitch*
____61. Poor School
____62. Clumsy
____80. Stares
____*TOTAL*

VII *DELINQUENT BEHAVIOR*

____26. No Guilt
____39. Bad Compan
____43. Lie Cheat
____63. Prefers Older
____67. Run Away
____72. Set Fires
____81. Steal Home
____82. Steal Out
____90. Swears
____96. Think Sex*^{S}
____101. Truant
____105. Alcohol Drugs
____106. Vandal*
____*TOTAL*

VIII *AGGRESSIVE BEHAVIOR*

____3. Argues
____7. Brags
____16. Mean
____19. Dem Attn
____20. Dest Own
____21. Dest Othr
____22. Disb Home*
____23. Disb Schl
____27. Jealous
____37. Fights
____57. Attacks
____68. Screams
____74. Show Off
____86. Stubborn
____87. Mood Change
____93. Talk Much
____94. Teases
____95. Temper
____97. Threaten
____104. Loud
____*TOTAL*

OTHER PROBS

____5. Act Op Sex^S
____6. BM Out
____15. Cruel Anim
____18. Harm Self
____24. Not Eat
____28. Eats Non-Food
____29. Fears
____30. Fears School
____36. Accidents
____44. Bite Nail
____47. Nightmare
____49. Constipat
____53. Overeat
____56h. Other Phys
____58. Pick Skin
____59. Sex PrtsP^S
____60. Sex PrtsM^S
____73. Sex Probs^S
____76. Sleep Less
____77. Sleep More
____78. Smear BM
____79. Speech Prob
____83. Stores Up
____91. Talk Suic
____92. Sleep Walk
____98. Thumb Suck
____99. Too Neat
____100. Sleep Prob
____107. Wet Self
____108. Wets Bed
____109. Whining
____110. Wsh Op Sex^S
____113. Other Prob

**Not on cross-informant construct*

IX Sex Problems (Age 4-11) Total S _____ *T* _____

INT = Scale I + II + III – Item 103 = _____; EXT = Scale VII + VIII = _____

Not scored on total problems: _____ *2. Allergy;* _____ *4. Asthma*

Broken lines = borderline clinical range

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APPENDIX C

Loading Patterns After Initial EFAs

Table C1.

Item Loadings for Eight Factor Solution Based on 90 CBCL Items Extracted from US ACQ Data

Factor	1	2	3	4	5
Name	ATT	AGG	WD	DEL	TP
Item					
Q1	0.411 +	0.265	0.109	-0.124	0.030
Q3	0.015	0.729 +	-0.006	0.112	0.248
Q7	0.086	0.621 +	-0.116	0.030	0.067
Q8	0.698 +	0.122	-0.066	0.180	-0.013
Q9	0.166	0.024	0.021	0.088	-0.220 -
Q10	0.441 +	0.436 +	-0.290	-0.082	-0.221
Q11	0.146	0.137	0.131	-0.295	-0.175
Q12	0.032	0.121	-0.023	-0.076	0.003
Q13	0.523 +	-0.144	0.257	0.146	-0.264
Q14	0.004	0.298	0.128	-0.250	-0.109
Q15	0.009	0.551 +	-0.022	0.006	-0.172
Q16	-0.159	0.840 +	0.031	0.047	0.023
Q17	0.628 +	-0.109	0.279	0.113	-0.117
Q18	-0.130	0.058	-0.116	0.442 +	-0.283
Q19	0.134	0.614 +	-0.116	-0.099	0.010
Q20	0.089	0.554 +	-0.049	0.086	-0.221
Q21	-0.026	0.693 +	-0.009	0.135	-0.221
Q22	0.097	0.749 +	0.002	0.225	0.168
Q23	0.321 +	0.507 +	-0.146	0.385 +	0.092
Q25	0.035	0.545 +	0.141	-0.068	0.073
Q26	0.100	0.583 +	0.102	0.228 -	0.014
Q27	0.027	0.558 +	0.048	-0.052	0.030
Q30	0.058	-0.182	0.074	0.184	-0.108
Q31	0.090	-0.112	-0.011	-0.026	-0.264
Q32	-0.075	-0.041	0.047	-0.014	-0.018
Q33	-0.015	0.313 +	-0.036	0.156	0.120
Q34	0.001	0.345 +	0.134	0.186	-0.009
Q35	0.216	-0.005	0.088	0.252	0.183
Q37	-0.188	0.812 +	0.084	0.045	-0.026
Q38	0.167	0.299	0.123	-0.199	0.034
Q39	0.199	0.283	-0.051	0.581 +	-0.025
Q40	-0.001	0.008	-0.038	-0.086	-0.618 +
Q41	0.335 +	0.512 +	-0.018	0.134	-0.017
Q42	-0.043	-0.048	0.601 +	0.063	-0.083
Q43	0.195	0.511 +	0.077	0.339 +	0.009
Q45	0.225 -	0.228	-0.035	0.054	-0.326 +
Q46	0.327 +	0.102	-0.067	-0.004	-0.457 +
Q48	0.090	0.380 +	0.192	-0.129	0.073
Q50	0.053	-0.017	0.185	-0.145	-0.281
Q51	-0.056	-0.121	0.041	0.180	-0.081
Q52	0.097	-0.123	-0.005	0.074	-0.067
Q54	0.073	0.057	0.270	0.083	-0.053
Q55	-0.003	0.108	0.260	-0.041	0.205
Q56A	0.015	0.082	-0.024	-0.036	0.000
Q56B	0.003	-0.017	0.016	0.091	0.008
Q56C	-0.044	-0.021	-0.036	0.027	0.012
Q56D	0.097	-0.055	0.161	-0.018	-0.189
Q56E	-0.026	0.081	0.046	-0.023	-0.239
Q56F	-0.022	-0.027	-0.040	0.003	-0.004
Q56G	-0.066	-0.017	0.094	0.087	-0.218

Table C1 continued.

Factor	1	2	3	4	5
Name	ATT	AGG	WD	DEL	TP
Item					
Q57	-0.231	0.746 +	-0.012	0.114	-0.170
Q61	0.609 +	0.000	0.055	0.470 +	0.206
Q62	0.372 +	0.117	0.266	-0.102	-0.046
Q63	-0.019	0.286	0.047	0.101 -	-0.136
Q64	0.204	0.207	0.272	-0.213	-0.056
Q65	0.038	0.214	0.439 +	0.186	-0.097
Q66	0.113	0.264	0.116	0.001	-0.391 +
Q67	-0.005	0.105	0.018	0.586 +	-0.059
Q68	-0.155	0.643 +	0.081	-0.125	-0.163
Q69	0.059	0.054	0.520 +	0.335 +	-0.061
Q70	-0.024	-0.056	-0.018	-0.010	-0.756 +
Q71	0.060	-0.010	0.423 +	-0.103	0.085
Q72	0.083	0.439 +	-0.076	0.257 -	-0.152
Q74	0.238	0.681 +	-0.150	-0.046	-0.013
Q75	-0.014	-0.181	0.644 +	-0.234	-0.021
Q80	0.509 +	-0.046	0.415 +	0.104	-0.231 -
Q81	0.132	0.461 +	0.167	0.424 +	-0.011
Q82	0.099	0.409 +	0.113	0.458 +	-0.121
Q84	0.065	0.104	0.193	0.106	-0.481 +
Q85	0.117	0.171	0.095	0.083	-0.410 +
Q86	0.011	0.679 +	0.249	0.102	0.185
Q87	-0.012	0.363 +	0.283	0.166	-0.067
Q88	0.011	0.488 +	0.366 +	0.073	0.196
Q89	-0.082	0.273	0.218	0.114	-0.130
Q90	-0.050	0.454 +	-0.022	0.443 +	-0.007
Q91	-0.138	0.129	-0.123	0.396 +	-0.104
Q93	0.203	0.602 +	-0.206	-0.238	-0.075
Q94	-0.065	0.823 +	0.018	-0.078	-0.005
Q95	-0.119	0.750 +	0.064	0.086	0.010
Q96	0.055	0.288	-0.019	0.279 -	-0.152
Q97	-0.246	0.733 +	0.018	0.164	-0.151
Q100	0.077	0.113	0.057	0.024	-0.232
Q101	0.089	-0.047	0.064	0.758 +	0.097
Q102	0.186	-0.139	0.669 +	0.119	0.088
Q103	0.015	0.131	0.365 +	0.225	-0.041
Q104	0.154	0.774 +	-0.147	-0.144	-0.044
Q105	0.091	-0.006	-0.014	0.870 +	0.010
Q106	0.044	0.474 +	-0.038	0.348 +	-0.232
Q111	0.003	-0.061	0.700 +	-0.013	-0.095
Q112	0.027	-0.071	0.183	-0.041	-0.143

Table C1 continued.

Factor	6	7	8
Name	AD	SOM	SP
Item			
Q1	0.030	0.000	0.241 -
Q3	0.146	0.062	-0.043
Q7	-0.044	0.053	-0.028
Q8	0.097	-0.016	0.095
Q9	0.234	0.015	-0.070
Q10	0.066	-0.039	-0.035
Q11	0.146	0.122	0.125 -
Q12	0.404 +	0.223	0.094
Q13	0.037	0.040	-0.024
Q14	0.134 -	0.190	0.031
Q15	-0.092	0.007	0.180
Q16	-0.042	0.017	0.144
Q17	0.024	-0.063	-0.100
Q18	0.445 +	0.072	-0.005
Q19	0.203	0.074	0.022
Q20	-0.063	-0.007	0.136
Q21	-0.111	-0.040	0.159
Q22	0.057	0.025	0.000
Q23	-0.017	-0.007	0.083
Q25	0.182	0.017	0.499 +
Q26	-0.110	0.007	0.058
Q27	0.235	0.038	0.024
Q30	0.459 +	0.172	0.177
Q31	0.557 +	-0.043	0.098
Q32	0.669 +	-0.069	0.001
Q33	0.598 +	0.043	0.094
Q34	0.385 +	-0.015	0.159
Q35	0.739 +	-0.033	0.227
Q37	0.025	-0.030	0.143
Q38	0.235	0.040	0.415 +
Q39	0.026	-0.012	-0.036
Q40	0.061	0.117	-0.049
Q41	0.069	-0.038	0.033
Q42	0.052	-0.025	0.108
Q43	-0.105	0.040	0.060
Q45	0.331 +	-0.038	-0.057
Q46	0.161	-0.053	-0.043
Q48	0.236	0.001	0.654 +
Q50	0.488 +	-0.009	0.025
Q51	-0.007	0.765 +	-0.026
Q52	0.796 +	-0.054	0.085
Q54	0.115	0.243 -	-0.094
Q55	-0.002	0.206	0.116 -
Q56A	-0.005	0.684 +	-0.005
Q56B	-0.028	0.776 +	-0.036
Q56C	0.027	0.937 +	0.032
Q56D	0.011	0.082 -	0.047
Q56E	0.002	0.202 -	-0.009
Q56F	0.000	0.908 +	0.028
Q56G	-0.040	0.426 +	-0.085

Table C1 continued.

Factor Name Item	6 AD	7 SOM	8 SP
Q57	0.039	-0.027	0.125
Q61	0.123	0.004	0.154
Q62	-0.002	0.063	0.198 -
Q63	0.072	-0.017	-0.084
Q64	0.017	0.022	0.316 +
Q65	0.074	-0.095	-0.093
Q66	-0.104	-0.021	-0.046
Q67	0.190	0.037	-0.043
Q68	0.060	-0.021	-0.084
Q69	0.073	-0.074	-0.074
Q70	0.056	0.015	-0.080
Q71	0.425 +	-0.065	0.021
Q72	-0.127	0.017	0.154
Q74	-0.078	-0.028	-0.063
Q75	0.179	-0.098	0.074
Q80	-0.048	-0.077	-0.127
Q81	-0.220	-0.024	0.124
Q82	-0.283	-0.035	0.093
Q84	0.016	-0.049	0.042
Q85	0.065	-0.036	0.021
Q86	0.140	-0.009	-0.117
Q87	0.237	0.008	-0.140
Q88	0.186	0.014	-0.124
Q89	0.329 +	-0.047	0.022
Q90	0.122	-0.023	-0.021
Q91	0.584 +	0.056	0.040
Q93	-0.030	0.078	-0.090
Q94	-0.066	-0.047	0.142
Q95	0.146	-0.026	-0.068
Q96	0.124	0.015	-0.046
Q97	0.103	-0.054	0.093
Q100	0.199	0.170	-0.038
Q101	0.108	0.149	-0.056
Q102	-0.079	0.190	0.078
Q103	0.337 +	0.087	0.030
Q104	-0.015	0.008	-0.048
Q105	0.119	0.034	-0.326 +
Q106	-0.149	-0.043	0.103
Q111	0.162	-0.016	0.279
Q112	0.576 +	0.031	-0.032

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 7304.

Table C2

Item Loadings for Nine Factor Solution Based on 90 CBCL Items Extracted from US ACQ Data

Factor	1	2	3	4	5
Name	ATT	AGG	SP	DEL	TP
Item					
Q1	0.448 +	0.289	0.169 -	-0.198	0.018
Q3	0.045	0.700 +	-0.074	0.066	0.240
Q7	0.018	0.511 +	0.039	0.098	0.084
Q8	0.721 +	0.128	0.033	0.102	-0.035
Q9	0.132	-0.012	-0.043	0.104	-0.222 -
Q10	0.417 +	0.357 +	-0.038	-0.086	-0.233
Q11	0.165	0.136	0.082 -	-0.324 +	-0.186
Q12	0.044	0.107	0.078	-0.089	-0.002
Q13	0.529 +	-0.118	-0.067	0.088	-0.283
Q14	0.079	0.333 +	-0.057	-0.341 +	-0.126
Q15	0.051	0.591 +	0.121	-0.063	-0.175
Q16	-0.143	0.839 +	0.120	0.014	0.026
Q17	0.588 +	-0.151	-0.094	0.114	-0.125
Q18	-0.046	0.165	-0.082	0.323 +	-0.297
Q19	0.166	0.581 +	-0.022	-0.148	-0.001
Q20	0.173	0.624 +	0.035	-0.039	-0.231
Q21	0.054	0.778 +	0.062	0.007	-0.230
Q22	0.170	0.777 +	-0.081	0.120	0.160
Q23	0.317 +	0.498 +	0.070	0.343 +	0.088
Q25	0.038	0.563 +	0.462 +	-0.088	0.076
Q26	0.135	0.614 +	0.007	0.153 -	0.005
Q27	0.048	0.534 +	-0.005	-0.087	0.023
Q30	0.061	-0.141	0.166	0.159	-0.110
Q31	0.064	-0.131	0.117	-0.010	-0.266
Q32	-0.098	-0.078	0.034	0.016	-0.013
Q33	0.035	0.337 +	0.047	0.086	0.108
Q34	-0.026	0.331 +	0.173	0.194	-0.001
Q35	0.245	0.032	0.187	0.190	0.174
Q37	-0.189	0.802 +	0.134	0.030	-0.021
Q38	0.108	0.235	0.444 +	-0.132	0.046
Q39	0.127	0.242	0.040	0.613 +	-0.013
Q40	-0.006	0.015	-0.052	-0.097	-0.624 +
Q41	0.311 +	0.461 +	0.035	0.126	-0.020
Q42	-0.070	-0.020	0.119	0.075	-0.075
Q43	0.194	0.521 +	0.043	0.295 -	0.008
Q45	0.204 -	0.189	-0.051	0.046	-0.335 +
Q46	0.289 -	0.058	-0.027	0.004	-0.466 +
Q48	0.053	0.378 +	0.648 +	-0.097	0.082
Q50	0.020	-0.056	0.048	-0.115	-0.281
Q51	-0.069	-0.118	-0.003	0.189	-0.078
Q52	0.078	-0.145	0.104	0.085	-0.068
Q54	0.018	0.001	-0.044	0.132	-0.045
Q55	-0.071	0.043	0.180 -	0.042	0.229
Q56A	0.016	0.058	-0.003	-0.032	0.000
Q56B	-0.001	-0.029	-0.026	0.095	0.009
Q56C	-0.026	-0.016	0.020	0.013	0.012
Q56D	0.053	-0.081	0.080	0.020	-0.186
Q56E	-0.062	0.051	0.026	0.009	-0.237
Q56F	0.003	-0.017	0.008	-0.019	-0.006
Q56G	-0.070	-0.009	-0.077	0.082	-0.217

Table C2 continued.

Factor	1	2	3	4	5
Name	ATT	AGG	SP	DEL	TP
Item					
Q57	-0.196	0.780 +	0.087	0.055	-0.171
Q61	0.609 +	0.031	0.119	0.406 +	0.193
Q62	0.335 +	0.081	0.201 -	-0.080	-0.047
Q63	-0.106	0.200	0.000	0.181 -	-0.125
Q64	0.188	0.201	0.296 -	-0.209	-0.056
Q65	0.058	0.249	-0.125	0.133	-0.103
Q66	0.088	0.246	-0.038	0.000	-0.395 +
Q67	0.024	0.174	-0.067	0.514 +	-0.064
Q68	-0.114	0.637 +	-0.127	-0.176	-0.174
Q69	0.045	0.084	-0.070	0.313 +	-0.058
Q70	-0.029	-0.031	-0.082	-0.029	-0.763 +
Q71	0.030	-0.049	0.042	-0.069	0.094
Q72	0.111	0.488 +	0.110	0.190 -	-0.152
Q74	0.159	0.539 +	0.006	0.032	-0.001
Q75	0.013	-0.135	0.029	-0.263	-0.022
Q80	0.469 +	-0.077	-0.120	0.105	-0.239 -
Q81	0.152	0.521 +	0.084	0.352 +	-0.011
Q82	0.097	0.460 +	0.079	0.406 +	-0.120
Q84	0.061	0.142	0.026	0.072	-0.488 +
Q85	0.088	0.164	0.033	0.082	-0.413 +
Q86	0.035	0.652 +	-0.145	0.059	0.177
Q87	0.018	0.375 +	-0.174	0.108	-0.080
Q88	0.035	0.470 +	-0.151	0.035	0.191
Q89	-0.129	0.239	0.062	0.148	-0.121
Q90	-0.100	0.430 +	0.030	0.459 +	0.006
Q91	-0.069	0.210	-0.017	0.298	-0.114
Q93	0.088	0.401 +	0.016	-0.103	-0.061
Q94	-0.125	0.746 +	0.185	-0.025	0.008
Q95	-0.079	0.744 +	-0.107	0.026	0.000
Q96	-0.032	0.215	0.041	0.340 +	-0.145
Q97	-0.241	0.742 +	0.086	0.136	-0.149
Q100	0.080	0.108	-0.049	0.004	-0.239
Q101	0.071	-0.001	-0.028	0.722 +	0.102
Q102	0.149	-0.133	0.094	0.140	0.096
Q103	0.039	0.174	-0.003	0.168	-0.049
Q104	0.087	0.639 +	0.004	-0.076	-0.036
Q105	0.027	-0.022	-0.236	0.877 +	0.020
Q106	0.042	0.511 +	0.091	0.302 +	-0.232
Q111	0.013	0.015	0.240	-0.048	-0.094
Q112	-0.026	-0.134	0.019	0.018	-0.136

Table C2 continued.

Factor Name Item	6 WD	7 SOM	8 AD	9 SHOW OFF
Q1	0.109	0.009	0.034	0.034
Q3	-0.017	0.067	0.156	-0.097
Q7	-0.115	0.043	-0.044	-0.329 +
Q8	-0.071	-0.007	0.102	-0.003
Q9	0.022	0.012	0.234	-0.091
Q10	-0.296	-0.039	0.063	-0.241
Q11	0.130	0.127	0.149	-0.003
Q12	-0.027	0.223	0.411 +	-0.013
Q13	0.265	0.048	0.034	0.058
Q14	0.122	0.206	0.138 -	0.089
Q15	-0.027	0.013	-0.088	0.049
Q16	0.027	0.018	-0.038	-0.062
Q17	0.286	-0.062	0.024	-0.114
Q18	-0.117	0.086	0.445 +	0.294
Q19	-0.129	0.080	0.210	-0.111
Q20	-0.057	0.008	-0.057	0.134
Q21	-0.013	-0.027	-0.106	0.154
Q22	-0.013	0.040	0.067	0.032
Q23	-0.148	-0.007	-0.014	-0.077
Q25	0.141	0.014	0.189	0.018
Q26	0.097	0.015	-0.105	0.029
Q27	0.040	0.042	0.243	-0.073
Q30	0.076	0.171	0.465 +	0.130
Q31	-0.011	-0.045	0.560 +	-0.012
Q32	0.044	-0.072	0.678 +	-0.039
Q33	-0.046	0.050	0.614 +	0.095
Q34	0.132	-0.020	0.395 +	-0.043
Q35	0.086	-0.028	0.756 +	0.150
Q37	0.081	-0.031	0.029	-0.082
Q38	0.127	0.027	0.240	-0.166
Q39	-0.046	-0.026	0.026	-0.154
Q40	-0.038	0.117	0.055	-0.002
Q41	-0.019	-0.040	0.072	-0.170
Q42	0.612 +	-0.030	0.054	0.070
Q43	0.078	0.041	-0.102	-0.037
Q45	-0.038	-0.038	0.333 +	-0.105
Q46	-0.067	-0.054	0.157	-0.131
Q48	0.196	-0.010	0.241	-0.021
Q50	0.186	-0.011	0.490 +	-0.070
Q51	0.045	0.755 +	-0.008	-0.006
Q52	-0.008	-0.055	0.807 +	0.006
Q54	0.276	0.234 -	0.116	-0.150
Q55	0.269	0.193	0.000	-0.172
Q56A	-0.024	0.677 +	-0.003	-0.073
Q56B	0.018	0.768 +	-0.027	-0.045
Q56C	-0.035	0.929 +	0.030	0.003
Q56D	0.166	0.074 -	0.007	-0.073
Q56E	0.048	0.194 -	-0.002	-0.095
Q56F	-0.039	0.902 +	0.002	0.014
Q56G	0.096	0.422 +	-0.042	0.001

Table C2 continued.

Factor Name Item	6 WD	7 SOM	8 AD	9 SHOW OFF
Q57	-0.019	-0.022	0.043	0.034
Q61	0.059	0.008	0.128	0.062
Q62	0.272	0.057	-0.002	-0.109
Q63	0.054	-0.032	0.069	-0.246
Q64	0.277	0.020	0.019	-0.034
Q65	0.441 +	-0.088	0.078	0.079
Q66	0.118	-0.023	-0.109	-0.089
Q67	0.017	0.042	0.195	0.164
Q68	0.071	-0.014	0.064	-0.043
Q69	0.527 +	-0.074	0.076	0.065
Q70	-0.018	0.017	0.049	0.044
Q71	0.429 +	-0.068	0.432 +	-0.062
Q72	-0.079	0.022	-0.124	0.066
Q74	-0.147	-0.042	-0.079	-0.412 +
Q75	0.653 +	-0.091	0.185	0.153
Q80	0.422 +	-0.077	-0.051	-0.097
Q81	0.168	-0.020	-0.217	0.083
Q82	0.117	-0.035	-0.285	0.052
Q84	0.195	-0.047	0.013	0.066
Q85	0.097	-0.038	0.062	-0.048
Q86	0.241	-0.003	0.151	-0.086
Q87	0.278	0.015	0.245	0.032
Q88	0.361 +	0.021	0.196	-0.045
Q89	0.221	-0.055	0.332 +	-0.095
Q90	-0.020	-0.033	0.127	-0.112
Q91	-0.127	0.066	0.588 +	0.232
Q93	-0.208	0.061	-0.034	-0.548 +
Q94	0.024	-0.059	-0.069	-0.266
Q95	0.052	-0.019	0.154	-0.039
Q96	-0.016	0.000	0.123	-0.218
Q97	0.013	-0.055	0.106	-0.027
Q100	0.056	0.171	0.201	-0.018
Q101	0.070	0.144	0.112	0.093
Q102	0.683 +	0.183	-0.079	0.010
Q103	0.366 +	0.093	0.345 +	0.125
Q104	-0.148	-0.004	-0.014	-0.395 +
Q105	-0.009	0.025	0.123	-0.068
Q106	-0.036	-0.043	-0.151	0.021
Q111	0.710 +	-0.014	0.168	0.201
Q112	0.184	0.024	0.584 +	-0.115

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings.
+ indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 7304.

Table C3.

Item Loadings for Ten Factor Solution Based on 90 CBCL Items Extracted from US ACQ Data

Factor	1	2	3	4	5
Name	ATT	AGG	DEL1	DEL2	AD
Item					
Q1	0.450 +	0.294	-0.001	-0.211	0.010
Q3	0.057	0.676 +	0.176	0.082	0.069
Q7	-0.026	0.538 +	-0.156	0.057	0.090
Q8	0.730 +	0.133	0.031	0.097	0.028
Q9	0.120	-0.011	0.003	0.102	0.235
Q10	0.423 +	0.341 +	0.119	-0.080	0.024
Q11	0.139	0.144	-0.035	-0.344 +	0.205
Q12	0.037	0.093	0.082	-0.078	0.382 +
Q13	0.523 +	-0.099	-0.058	0.069	0.033
Q14	0.063	0.329 +	0.073	-0.345 +	0.149 -
Q15	0.053	0.614 +	-0.061	-0.083	-0.106
Q16	-0.158	0.866 +	-0.076	-0.016	-0.024
Q17	0.567 +	-0.133	-0.100	0.083	0.091
Q18	-0.012	0.160	0.129	0.353 +	0.266
Q19	0.149	0.575 +	0.073	-0.154	0.219
Q20	0.158	0.660 +	-0.114	-0.072	-0.030
Q21	0.031	0.828 +	-0.174	-0.039	-0.056
Q22	0.175	0.780 +	0.074	0.117	0.000
Q23	0.323 +	0.522 +	-0.069	0.325 +	-0.061
Q25	0.058	0.572 +	-0.028	-0.095	0.103
Q26	0.131	0.644 +	-0.086 -	0.125 -	-0.104
Q27	0.009	0.553 +	-0.033	-0.116	0.312 +
Q30	0.060	-0.136	-0.022	0.165	0.403 +
Q31	0.007	-0.105	-0.159	-0.037	0.654 +
Q32	-0.148	-0.074	-0.030	0.013	0.739 +
Q33	0.018	0.336 +	0.060	0.092	0.570 +
Q34	-0.017	0.327 +	0.037	0.201	0.316 +
Q35	0.238	0.030	0.030	0.200	0.678 +
Q37	-0.181	0.808 +	0.017	0.022	-0.026
Q38	0.112	0.233	-0.033	-0.140	0.218
Q39	0.120	0.279	-0.180 -	0.585 +	0.037
Q40	-0.016	0.027	-0.026	-0.104	0.069
Q41	0.313 +	0.463 +	0.018	0.117	0.043
Q42	-0.060	-0.014	-0.034	0.069	0.020
Q43	0.157	0.583 +	-0.308 +	0.230 -	0.052
Q45	0.252 -	0.137	0.313 +	0.101	0.142 -
Q46	0.334 +	0.022	0.245	0.044	-0.014
Q48	0.088	0.378 +	-0.023	-0.093	0.121
Q50	0.024	-0.089	0.160	-0.090	0.426 +
Q51	-0.058	-0.115	0.000	0.197	-0.045
Q52	0.024	-0.130	-0.097	0.073	0.873 +
Q54	0.040	-0.031	0.150	0.157	0.037
Q55	-0.042	0.015	0.102	0.062	-0.071
Q56A	0.007	0.060	-0.001	-0.035	0.015
Q56B	0.003	-0.030	0.016	0.099	-0.041
Q56C	-0.041	-0.005	-0.049	0.009	0.055
Q56D	0.078	-0.097	0.074	0.035	-0.063
Q56E	-0.049	0.043	0.046	0.017	-0.036
Q56F	-0.011	-0.006	-0.046	-0.023	0.030
Q56G	-0.078	0.003	-0.045	0.076	-0.019

Table C3 continued.

Factor Name Item	1 ATT	2 AGG	3 DEL1	4 DEL2	5 AD
Q57	-0.174	0.786 +	0.053	0.056	-0.066
Q61	0.640 +	0.038	-0.004	0.411 +	0.004
Q62	0.362 +	0.067	0.065	-0.077	-0.075
Q63	-0.128	0.212	-0.076 -	0.163 -	0.125
Q64	0.181	0.216	-0.095	-0.234	0.046
Q65	0.045	0.266	-0.034	0.115	0.086
Q66	0.089	0.257	-0.017	-0.013	-0.112
Q67	0.034	0.197	-0.049 -	0.513 +	0.114
Q68	-0.089	0.602 +	0.244	-0.151	-0.043
Q69	0.022	0.118	-0.149	0.284	0.122
Q70	-0.038	-0.011	-0.052	-0.038	0.059
Q71	0.007	-0.063	0.047	-0.067	0.448 +
Q72	0.090	0.541 +	-0.238 -	0.143 -	-0.053
Q74	0.137	0.544 +	-0.040	0.006	0.000
Q75	-0.007	-0.135	-0.007	-0.273	0.217
Q80	0.456 +	-0.063	-0.053	0.081	-0.018
Q81	0.098	0.607 +	-0.438 +	0.259 -	0.001
Q82	0.045	0.542 +	-0.458 +	0.317 +	-0.067
Q84	0.087	0.147	0.029	0.077	-0.079
Q85	0.100	0.169	0.006	0.081	0.013
Q86	0.057	0.616 +	0.237	0.084	0.037
Q87	0.038	0.347 +	0.201	0.134	0.132
Q88	0.031	0.450 +	0.141	0.042	0.161
Q89	-0.136	0.237	0.020	0.149	0.305 +
Q90	-0.076	0.429 +	0.040 -	0.473 +	0.014
Q91	-0.036	0.189	0.180	0.338 +	0.404 +
Q93	0.085	0.371 +	0.114	-0.099	-0.007
Q94	-0.143	0.764 +	-0.084	-0.057	-0.022
Q95	-0.044	0.709 +	0.269	0.059	-0.010
Q96	-0.031	0.223	-0.035 -	0.334 +	0.103
Q97	-0.218	0.742 +	0.066	0.142	-0.007
Q100	0.092	0.090	0.122	0.022	0.131
Q101	0.088	0.024	-0.080 -	0.721 +	0.015
Q102	0.175	-0.138	0.014	0.140	-0.140
Q103	0.042	0.174	0.042	0.173	0.281 -
Q104	0.096	0.611 +	0.149	-0.067	-0.046
Q105	0.041	-0.008	-0.024 -	0.883 +	0.043
Q106	0.011	0.573 +	-0.305 +	0.244 -	-0.040
Q111	0.026	0.023	-0.035	-0.055	0.109
Q112	-0.033	-0.164	0.130	0.041	0.545 +

Table C3 continued.

Factor	6	7	8	9	10
Name	WD	TP	SP	SOM	SHOW OFF
Item					
Q1	0.103	-0.012	0.169 -	0.005	0.030
Q3	-0.006	-0.218	-0.035	0.058	-0.085
Q7	-0.123	-0.126	-0.019	0.072	-0.353 +
Q8	-0.065	0.058	0.055	-0.018	0.004
Q9	0.020	0.222 -	-0.055	0.019	-0.088
Q10	-0.290	0.250	-0.021	-0.047	-0.228
Q11	0.120	0.167	0.042 -	0.143	-0.022
Q12	-0.034	0.003	0.068	0.225	-0.008
Q13	0.263	0.284	-0.068	0.053	0.052
Q14	0.119	0.118	-0.073	0.215	0.073
Q15	-0.026	0.178	0.113	0.013	0.045
Q16	0.030	-0.034	0.099	0.028	-0.067
Q17	0.281	0.108	-0.115	-0.044	-0.128
Q18	-0.103	0.330 +	-0.037	0.066	0.313 +
Q19	-0.131	-0.004	-0.039	0.086	-0.118
Q20	-0.061	0.217	0.006	0.016	0.113
Q21	-0.019	0.210	0.021	-0.016	0.129
Q22	-0.001	-0.146	-0.058	0.036	0.032
Q23	-0.140	-0.074	0.079	-0.010	-0.068
Q25	0.131	-0.055	0.455 +	0.005	0.034
Q26	0.101	-0.010	0.001	0.019	0.020
Q27	0.035	-0.053	-0.056	0.063	-0.094
Q30	0.069	0.118	0.157	0.171	0.137
Q31	-0.031	0.235	0.034	-0.009	-0.036
Q32	0.031	-0.019	-0.031	-0.041	-0.056
Q33	-0.052	-0.112	0.028	0.059	0.094
Q34	0.128	0.016	0.181	-0.026	-0.027
Q35	0.075	-0.171	0.176	-0.026	0.154
Q37	0.087	0.035	0.143	-0.034	-0.072
Q38	0.109	-0.040	0.428 +	0.024	-0.151
Q39	-0.044	0.009	0.027	-0.018	-0.147
Q40	-0.041	0.621 +	-0.072	0.124	-0.005
Q41	-0.017	0.030	0.044	-0.043	-0.163
Q42	0.609 +	0.083	0.130	-0.033	0.075
Q43	0.058	-0.070	-0.028	0.072	-0.075
Q45	-0.026	0.383 +	0.030	-0.072	-0.062
Q46	-0.049	0.507 +	0.047	-0.084	-0.090
Q48	0.180	-0.052	0.660 +	-0.030	0.009
Q50	0.180	0.298	0.060	-0.018	-0.055
Q51	0.047	0.085	0.012	0.752 +	0.009
Q52	-0.028	0.032	0.025	-0.019	-0.013
Q54	0.280	0.073	0.002	0.218 -	-0.126
Q55	0.266	-0.203	0.224 -	0.172	-0.145
Q56A	-0.025	-0.009	-0.012	0.683 +	-0.073
Q56B	0.019	-0.009	-0.017	0.768 +	-0.037
Q56C	-0.036	-0.027	0.000	0.938 +	-0.003
Q56D	0.168	0.213	0.114	0.056 -	-0.052
Q56E	0.048	0.250	0.041	0.186 -	-0.080
Q56F	-0.040	-0.010	-0.011	0.911 +	0.007
Q56G	0.096	0.208	-0.086	0.429 +	-0.003

Table C3 continued.

Factor	6	7	8	9	10
Name	WD	TP	SP	SOM	SHOW OFF
Item					
Q57	-0.006	0.200	0.112	-0.030	0.052
Q61	0.067	-0.162	0.162	-0.013	0.083
Q62	0.269	0.075	0.232 -	0.038	-0.088
Q63	0.052	0.113	-0.027	-0.018	-0.248
Q64	0.262	0.047	0.274 -	0.025	-0.040
Q65	0.445 +	0.094	-0.131	-0.077	0.065
Q66	0.122	0.402 +	-0.036	-0.023	-0.086
Q67	0.026	0.077	-0.051	0.038	0.172
Q68	0.084	0.208	-0.077	-0.031	-0.025
Q69	0.529 +	0.034	-0.093	-0.055	0.047
Q70	-0.020	0.761 +	-0.103	0.024	0.041
Q71	0.421 +	-0.107	0.025	-0.054	-0.071
Q72	-0.090	0.124	0.067	0.036	0.043
Q74	-0.150	-0.012	-0.020	-0.031	-0.416 +
Q75	0.648 +	0.004	0.011	-0.077	0.132
Q80	0.422 +	0.236 -	-0.119	-0.067	-0.103
Q81	0.141	-0.073	-0.007	0.015	0.031
Q82	0.085	0.050	-0.013	-0.001	-0.002
Q84	0.201	0.516 +	0.056	-0.061	0.084
Q85	0.098	0.430 +	0.045	-0.045	-0.035
Q86	0.259	-0.149	-0.086	-0.019	-0.073
Q87	0.291	0.107	-0.124	0.001	0.046
Q88	0.367 +	-0.186	-0.129	0.020	-0.048
Q89	0.218	0.125	0.057	-0.051	-0.086
Q90	-0.007	0.026	0.072	-0.047	-0.086
Q91	-0.120	0.148	0.031	0.044	0.258
Q93	-0.208	0.070	0.021	0.057	-0.528 +
Q94	0.021	-0.016	0.158	-0.049	-0.267
Q95	0.072	0.044	-0.034	-0.042	-0.011
Q96	-0.014	0.153	0.043	0.000	-0.202
Q97	0.025	0.179	0.116	-0.064	-0.006
Q100	0.058	0.258	-0.025	0.161	-0.004
Q101	0.084	-0.079	0.004	0.136	0.111
Q102	0.685 +	-0.074	0.132	0.168	0.026
Q103	0.365 +	0.056	0.008	0.091	0.128
Q104	-0.143	0.056	0.028	-0.014	-0.376 +
Q105	0.011	-0.001	-0.196	0.018	-0.048
Q106	-0.052	0.196	0.031	-0.024	-0.008
Q111	0.702 +	0.104	0.248	-0.019	0.203
Q112	0.177	0.143	0.018	0.026	-0.103

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings.
+ indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 7304.

Table C4.

Item Loadings for Eight Factor Solution Based on 90 CBCL Items Rated in the USA

	1 ATT	2 AGG	3 SHOW OFF	4 SP	5 AD
Q1	0.380 +	0.127	-0.014	0.317 +	0.032
Q3	-0.080	0.595 +	0.181	0.084	0.128
Q7	-0.045	0.220 -	0.532 +	0.085	0.013
Q8	0.647 +	0.005	0.073	0.239	0.072
Q9	0.288	0.004	0.134	0.009	0.312 +
Q10	0.585 +	0.164	0.244	0.091	0.019
Q11	0.419 +	0.198	-0.044	0.132 -	0.179
Q12	0.031	0.119	-0.025	0.237	0.468 +
Q13	0.528 +	-0.138	0.015	0.074	0.182
Q14	0.172	0.408 +	-0.115	0.073	0.259 -
Q15	0.191	0.399 +	0.049	0.133	-0.087
Q16	-0.101	0.654 +	0.179	0.131	0.001
Q17	0.484 +	-0.319 +	0.127	0.056	0.135
Q18	0.122	0.309 +	-0.213	-0.110	0.283
Q19	0.272	0.489 +	0.140	0.111	0.218
Q20	0.400 +	0.596 +	-0.179	0.132	-0.134
Q21	0.310 +	0.710 +	-0.160	0.123	-0.194
Q22	0.088	0.630 +	0.058	0.052	-0.024
Q23	0.174	0.248 -	0.135	0.217	0.038
Q25	-0.011	0.389 +	0.066	0.549 +	0.258
Q26	0.122	0.367 +	0.112	0.074	-0.151
Q27	0.056	0.475 +	0.135	0.048	0.268
Q30	0.155	0.001	-0.235	0.168	0.467 +
Q31	0.166	-0.100	0.103	0.054	0.575 +
Q32	-0.121	-0.062	0.118	-0.040	0.608 +
Q33	-0.045	0.382 +	-0.042	0.151	0.516 +
Q34	-0.024	0.234	0.076	0.272	0.504 +
Q35	0.005	0.086	-0.127	0.304 +	0.683 +
Q37	-0.042	0.470 +	0.178	0.299	0.165
Q38	0.061	0.095	0.128	0.500 +	0.282
Q39	-0.010	0.041	0.169	0.071	0.112
Q40	0.633 +	0.039	0.015	-0.245	0.093
Q41	0.293 -	0.209	0.240	0.108	0.041
Q42	-0.026	-0.102	0.006	0.032	0.060
Q43	0.079	0.299	0.065	0.201	-0.113
Q45	0.361 +	0.137	0.041	-0.010	0.381 +
Q46	0.461 +	-0.037	0.082	0.015	0.134
Q48	-0.061	0.229	0.034	0.674 +	0.341 +
Q50	0.272	0.014	0.004	0.064	0.543 +
Q51	0.050	-0.166	0.068	-0.060	0.207
Q52	0.131	-0.146	0.038	0.122	0.740 +
Q54	0.000	0.006	0.023	-0.007	0.151
Q55	-0.203	-0.021	0.069	0.241 -	0.016
Q56A	-0.072	0.033	0.060	0.028	0.022
Q56B	-0.090	-0.035	0.040	-0.001	0.016
Q56C	-0.017	-0.031	-0.031	0.020	0.037
Q56D	0.028	-0.019	0.020	0.065	-0.020
Q56E	0.018	-0.033	0.114	0.029	-0.027
Q56F	-0.070	0.025	0.024	-0.017	0.058
Q56G	0.103	0.036	-0.017	-0.007	-0.132

Table C4 continued.

	1 ATT	2 AGG	3 SHOW OFF	4 SP	5 AD
Q57	-0.100	0.682 +	0.096	0.115	0.071
Q61	0.291 -	-0.080	-0.061	0.282	0.133
Q62	0.391 +	0.013	0.036	0.248 -	-0.043
Q63	0.010	0.144	0.300 +	-0.051	0.011
Q64	0.229	0.131	0.078	0.301 +	-0.056
Q65	0.039	0.251	-0.121	-0.094	-0.038
Q66	0.469 +	0.208	0.160	-0.057	-0.052
Q67	0.043	0.123	-0.104	-0.075	0.119
Q68	0.058	0.713 +	0.073	-0.131	0.079
Q69	-0.012	0.040	0.014	-0.034	0.054
Q70	0.546 +	0.071	-0.021	-0.200	0.104
Q71	-0.128	0.042	0.058	0.088	0.399 +
Q72	0.135	0.352 +	0.068	0.122	-0.282
Q74	0.190	0.195 -	0.597 +	0.055	-0.058
Q75	-0.043	0.000	-0.209	0.009	0.167
Q80	0.463 +	-0.052	0.085	-0.071	-0.024
Q81	0.039	0.270	-0.066	0.302 +	-0.200
Q82	0.095	0.227	-0.011	0.262	-0.199
Q84	0.442 +	0.180	0.030	-0.121	0.042
Q85	0.368 +	0.040	0.159	-0.116	0.138
Q86	-0.023	0.677 +	0.055	-0.087	-0.010
Q87	0.086	0.480 +	0.016	-0.147	0.179
Q88	-0.034	0.522 +	-0.007	-0.026	0.170
Q89	0.055	0.219	0.158	-0.074	0.273 -
Q90	-0.048	0.388 +	0.157	-0.018	0.092
Q91	-0.024	0.370 +	-0.153	-0.075	0.510 +
Q93	0.293	0.111 -	0.596 +	0.022	-0.038
Q94	-0.025	0.312 +	0.569 +	0.018	-0.085
Q95	0.003	0.748 +	0.114	-0.070	0.061
Q96	0.038	0.101	0.284	-0.123	0.108
Q97	-0.115	0.622 +	0.217	0.051	0.103
Q100	0.213	0.151	-0.034	-0.016	0.192
Q101	-0.020	-0.058	-0.139	-0.084	0.151
Q102	0.082	-0.128	-0.078	0.085	0.012
Q103	-0.009	0.180	-0.195	0.119	0.497 +
Q104	0.240	0.413 +	0.431 +	0.027	-0.006
Q105	-0.046	-0.085	-0.070	-0.247	0.072
Q106	0.040	0.262	0.067	0.072	-0.157
Q111	0.034	0.083	-0.188	0.246	0.235
Q112	0.067	-0.079	0.007	0.040	0.669 +

Table C4 continued.

	6	7	8
	DEL	WD	SOM
Q1	-0.072	0.111	-0.098
Q3	0.026	0.010	-0.021
Q7	0.072	-0.041	-0.021
Q8	0.192	-0.051	-0.125
Q9	0.082	0.114	0.007
Q10	0.040	-0.275	-0.052
Q11	-0.401 +	0.094	0.023
Q12	-0.178	0.036	0.119
Q13	0.193	0.312 +	-0.079
Q14	-0.266	0.057	0.107
Q15	0.034	0.046	0.038
Q16	0.103	0.082	-0.038
Q17	0.115	0.373 +	-0.076
Q18	0.406 +	-0.050	0.092
Q19	-0.186	-0.086	-0.042
Q20	0.084	-0.078	0.041
Q21	0.113	-0.065	0.019
Q22	0.197	0.039	-0.038
Q23	0.438 +	-0.105	-0.077
Q25	-0.009	0.044	-0.042
Q26	0.264 -	0.166	-0.047
Q27	-0.174	0.080	-0.037
Q30	0.149	-0.028	0.152
Q31	-0.016	-0.003	-0.030
Q32	-0.096	0.071	-0.011
Q33	0.036	0.023	-0.019
Q34	0.183	0.012	-0.069
Q35	0.225	0.072	-0.072
Q37	0.212	-0.158	-0.008
Q38	-0.099	0.016	0.066
Q39	0.664 +	-0.020	0.000
Q40	-0.011	-0.028	0.122
Q41	0.253	0.025	-0.035
Q42	0.048	0.519 +	-0.018
Q43	0.457 +	0.123	0.032
Q45	0.087	-0.010	0.061
Q46	0.067	0.001	0.092
Q48	0.031	0.020	0.018
Q50	-0.082	0.070	0.066
Q51	0.208	-0.006	0.566 +
Q52	0.088	-0.012	0.001
Q54	0.113	0.182	0.357 +
Q55	-0.039	0.131	0.262
Q56A	-0.033	0.058	0.724 +
Q56B	0.078	0.039	0.752 +
Q56C	0.044	-0.052	0.881 +
Q56D	0.069	0.022	0.477 +
Q56E	0.019	0.043	0.458 +
Q56F	-0.035	0.008	0.785 +
Q56G	0.041	-0.090	0.772 +

Table C4 continued.

	6 DEL	7 WD	8 SOM
Q57	0.119	-0.058	-0.017
Q61	0.497 +	0.006	-0.025
Q62	-0.127	0.267	0.072
Q63	0.088 -	0.016	0.073
Q64	-0.222	0.171	0.046
Q65	0.207	0.596 +	-0.056
Q66	0.012	0.140	-0.045
Q67	0.665 +	0.056	0.010
Q68	-0.126	-0.017	0.108
Q69	0.349 +	0.581 +	-0.045
Q70	-0.003	-0.052	0.165
Q71	-0.159	0.384 +	0.042
Q72	0.215 -	0.036	0.136
Q74	0.010	-0.137	-0.046
Q75	-0.277	0.591 +	0.041
Q80	0.061	0.474 +	-0.005
Q81	0.557 +	0.086	0.089
Q82	0.580 +	0.036	0.037
Q84	0.151	0.219	-0.096
Q85	0.165	0.200	-0.039
Q86	0.049	0.330 +	-0.060
Q87	0.112	0.294	-0.026
Q88	0.019	0.343 +	0.015
Q89	0.238	0.182	0.039
Q90	0.421 +	-0.068	0.024
Q91	0.312 +	-0.154	0.027
Q93	-0.266	-0.169	0.120
Q94	-0.052	0.012	0.042
Q95	0.012	0.001	0.009
Q96	0.318 +	0.025	0.075
Q97	0.209	-0.017	-0.023
Q100	-0.051	-0.003	0.256
Q101	0.817 +	0.015	0.140
Q102	0.118	0.552 +	0.197
Q103	0.234	0.306 +	0.024
Q104	-0.121	-0.102	0.053
Q105	0.923 +	0.057	0.027
Q106	0.567 +	0.090	-0.017
Q111	0.014	0.602 +	-0.024
Q112	-0.050	0.140	0.073

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior, IMM = Immature Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 4006.

Table C5.

Item Loadings for Nine Factor Solution Based on 90 CBCL Items Rated in the USA

	1 ATT	2 AGG	3 SHOW OFF	4 WD	5 TP
Q1	0.506 +	0.063	0.011	0.112	0.047
Q3	0.039	0.502 +	0.235	-0.016	-0.149
Q7	0.006	0.128 -	0.586 +	-0.047	-0.126
Q8	0.680 +	-0.090	0.129	-0.052	0.142
Q9	0.120	-0.004	0.141	0.117	0.247 -
Q10	0.520 +	0.078	0.308 +	-0.273	0.205
Q11	0.399 +	0.163	-0.013	0.084	0.156
Q12	0.139	0.084	-0.007	0.020	-0.079
Q13	0.367 +	-0.149	0.020	0.317 +	0.321 +
Q14	0.220	0.359 +	-0.077	0.028	0.001
Q15	0.214	0.357 +	0.054	0.060	0.164
Q16	-0.023	0.593 +	0.188	0.099	0.052
Q17	0.307 +	-0.322 +	0.133	0.381 +	0.272
Q18	-0.047	0.328 +	-0.244	-0.045	0.312 +
Q19	0.327 +	0.388 +	0.209	-0.116	-0.012
Q20	0.472 +	0.523 +	-0.145	-0.079	0.168
Q21	0.394 +	0.638 +	-0.136	-0.059	0.173
Q22	0.190	0.533 +	0.114	0.012	-0.074
Q23	0.278	0.168 -	0.160	-0.099	0.028
Q25	0.265	0.332 +	0.055	0.063	-0.008
Q26	0.190	0.292	0.146	0.158	-0.010
Q27	0.100	0.396 +	0.194	0.051	-0.079
Q30	0.172	0.005	-0.243	-0.030	0.103
Q31	0.046	-0.101	0.115	-0.007	0.135
Q32	-0.206	-0.056	0.132	0.054	-0.041
Q33	0.074	0.315 +	-0.002	-0.012	-0.145
Q34	0.079	0.185	0.086	0.007	-0.032
Q35	0.169	0.031	-0.109	0.048	-0.144
Q37	0.098	0.401 +	0.178	-0.136	0.065
Q38	0.285	0.045	0.128	0.028	-0.050
Q39	0.031	-0.015	0.190	-0.021	-0.044
Q40	0.142	0.094	-0.010	0.004	0.695 +
Q41	0.304 +	0.120	0.293	0.017	0.046
Q42	-0.096	-0.065	-0.026	0.531 +	0.098
Q43	0.294	0.189	0.124	0.097	-0.205
Q45	0.210 -	0.113	0.068	-0.017	0.247
Q46	0.276 -	-0.037	0.087	0.015	0.361 +
Q48	0.271	0.180	-0.001	0.041	-0.039
Q50	0.149	0.013	0.016	0.064	0.199
Q51	-0.120	-0.131	0.044	0.004	0.211
Q52	0.069	-0.156	0.053	-0.022	0.065
Q54	-0.066	0.015	0.014	0.181	0.079
Q55	-0.029	-0.035	0.054	0.132	-0.165
Q56A	-0.051	0.027	0.064	0.054	-0.023
Q56B	-0.091	-0.030	0.036	0.037	-0.005
Q56C	0.019	-0.041	-0.020	-0.062	-0.030
Q56D	-0.019	0.006	-0.012	0.041	0.162
Q56E	-0.001	-0.038	0.115	0.047	0.040
Q56F	-0.040	0.009	0.044	-0.008	-0.075
Q56G	0.106	0.023	-0.004	-0.092	0.056

Table C5 continued.

	1 ATT	2 AGG	3 SHOW OFF	4 WD	5 TP
Q57	-0.064	0.644 +	0.072	-0.027	0.181
Q61	0.416 +	-0.140	-0.042	0.008	0.003
Q62	0.434 +	-0.024	0.049	0.273	0.129
Q63	-0.032	0.097	0.335 +	0.011	-0.011
Q64	0.369 +	0.078	0.097	0.173	-0.006
Q65	-0.015	0.245	-0.120	0.584 +	0.067
Q66	0.281	0.175	0.186	0.144	0.327 +
Q67	-0.007	0.104	-0.103	0.050	0.079
Q68	-0.010	0.659 +	0.114	-0.036	0.094
Q69	-0.042	0.024	0.021	0.570 +	-0.011
Q70	0.121	0.121	-0.048	-0.022	0.608 +
Q71	-0.044	0.002	0.096	0.358 +	-0.220
Q72	0.241	0.285	0.091	0.039	0.013
Q74	0.179	0.086 -	0.675 +	-0.141	-0.032
Q75	-0.003	0.014	-0.206	0.573 +	-0.109
Q80	0.203 -	-0.035	0.077	0.489 +	0.407 +
Q81	0.367 +	0.163	-0.018	0.056	-0.282
Q82	0.345 +	0.134	0.030	0.019	-0.165
Q84	0.111	0.218	-0.012	0.246	0.578 +
Q85	0.036	0.061	0.140	0.219	0.474 +
Q86	0.008	0.599 +	0.109	0.296	-0.083
Q87	-0.029	0.443 +	0.046	0.273	0.114
Q88	0.009	0.456 +	0.038	0.309 +	-0.090
Q89	-0.092	0.204	0.166	0.181	0.162
Q90	-0.086	0.346 +	0.162	-0.058	0.104
Q91	-0.125	0.367 +	-0.159	-0.163	0.151
Q93	0.211	0.025 -	0.666 +	-0.173	0.062
Q94	-0.063	0.242 -	0.611 +	0.023	0.022
Q95	-0.029	0.690 +	0.146	-0.006	0.093
Q96	-0.130	0.081	0.292	0.032	0.159
Q97	-0.155	0.580 +	0.207	0.018	0.204
Q100	0.097	0.156	-0.033	-0.001	0.221
Q101	-0.058	-0.065	-0.141	0.010	0.027
Q102	0.047	-0.104	-0.108	0.555 +	0.100
Q103	0.009	0.176	-0.204	0.292 -	0.039
Q104	0.178	0.328 +	0.487 +	-0.105	0.118
Q105	-0.194	-0.078	-0.078	0.054	0.089
Q106	0.103	0.206	0.076	0.097	0.024
Q111	0.066	0.119	-0.239	0.621 +	0.132
Q112	-0.042	-0.065	0.011	0.129	0.092

Table C5 continued.

	6 DEL	7 AD	8 SP	9 SOM
Q1	-0.013	0.062	0.145 -	-0.078
Q3	0.086	0.178	0.054	-0.004
Q7	0.108	0.038	0.064	-0.015
Q8	0.303 +	0.138	-0.023	-0.098
Q9	0.060	0.289	0.014	0.003
Q10	0.116	0.057	-0.078	-0.026
Q11	-0.349 +	0.229	0.000 -	0.031
Q12	-0.144	0.495 +	0.156	0.126
Q13	0.206	0.181	-0.021	-0.075
Q14	-0.191	0.328 +	-0.033	0.126
Q15	0.011	-0.120	0.141	0.021
Q16	0.054	-0.057	0.216	-0.065
Q17	0.127	0.140	-0.037	-0.069
Q18	0.338 +	0.212	0.022	0.072
Q19	-0.088	0.300 +	-0.022	-0.012
Q20	0.142	-0.107	0.015	0.048
Q21	0.145	-0.193	0.059	0.016
Q22	0.284	0.044	-0.034	-0.013
Q23	0.467 +	0.026	0.138	-0.074
Q25	-0.057	0.187	0.501 +	-0.081
Q26	0.318 +	-0.117	0.006	-0.034
Q27	-0.099	0.336 +	-0.022	-0.014
Q30	0.148	0.451 +	0.103	0.146
Q31	-0.029	0.563 +	0.036	-0.033
Q32	-0.097	0.617 +	-0.021	-0.007
Q33	0.105	0.571 +	0.074	0.004
Q34	0.174	0.481 +	0.255	-0.077
Q35	0.285	0.717 +	0.180	-0.054
Q37	0.153	0.079	0.349 +	-0.043
Q38	-0.119	0.247	0.421 +	0.044
Q39	0.691 +	0.105	0.031	0.007
Q40	-0.140	0.001	-0.043	0.087
Q41	0.322 +	0.083	-0.012	-0.015
Q42	-0.009	0.024	0.093	-0.037
Q43	0.575 +	-0.020	0.013	0.061
Q45	0.106	0.390 +	-0.074	0.063
Q46	0.043	0.102	-0.022	0.079
Q48	-0.041	0.247	0.645 +	-0.027
Q50	-0.084	0.543 +	0.014	0.062
Q51	0.139	0.147	0.033	0.541 +
Q52	0.098	0.739 +	0.057	0.004
Q54	0.092	0.136	0.027	0.347 +
Q55	-0.055	0.001	0.246 -	0.250
Q56A	-0.024	0.031	0.015	0.712 +
Q56B	0.075	0.013	0.005	0.738 +
Q56C	0.085	0.067	-0.052	0.872 +
Q56D	-0.005	-0.088	0.147	0.447 +
Q56E	0.010	-0.035	0.035	0.446 +
Q56F	0.014	0.101	-0.078	0.785 +
Q56G	0.074	-0.111	-0.072	0.763 +

Table C5 continued.

	6	7	8	9
	DEL	AD	SP	SOM
Q57	0.011	-0.040	0.272	-0.062
Q61	0.563 +	0.150	0.103	-0.005
Q62	-0.094	-0.023	0.112 -	0.074
Q63	0.112 -	0.028	-0.058	0.079
Q64	-0.184	-0.030	0.174 -	0.048
Q65	0.232	-0.008	-0.107	-0.048
Q66	0.018	-0.049	-0.083	-0.045
Q67	0.680 +	0.111	-0.079	0.015
Q68	-0.103	0.108	-0.089	0.112
Q69	0.381 +	0.084	-0.071	-0.034
Q70	-0.121	0.018	-0.005	0.135
Q71	-0.082	0.474 +	-0.016	0.067
Q72	0.253 -	-0.267	0.059	0.137
Q74	0.072	-0.016	-0.019	-0.027
Q75	-0.218	0.236	-0.088	0.062
Q80	0.026	-0.050	-0.064	-0.017
Q81	0.684 +	-0.092	0.062	0.114
Q82	0.673 +	-0.130	0.066	0.048
Q84	0.031	-0.062	0.035	-0.136
Q85	0.062	0.055	0.038	-0.067
Q86	0.131	0.070	-0.126	-0.033
Q87	0.141	0.211	-0.130	-0.016
Q88	0.097	0.245	-0.081	0.039
Q89	0.208	0.247 -	-0.004	0.028
Q90	0.383 +	0.037	0.078	0.007
Q91	0.271	0.469 +	0.033	0.016
Q93	-0.216	0.004	-0.048	0.133
Q94	-0.076	-0.108	0.088	0.030
Q95	0.008	0.058	-0.003	0.002
Q96	0.279 -	0.068	-0.022	0.064
Q97	0.095	-0.018	0.240	-0.071
Q100	-0.073	0.176	-0.004	0.243
Q101	0.839 +	0.142	-0.105	0.149
Q102	0.095	-0.002	0.089	0.187
Q103	0.232	0.492 +	0.103	0.020
Q104	-0.099	0.009	0.011	0.055
Q105	0.924 +	0.051	-0.198	0.034
Q106	0.582 +	-0.173	0.056	-0.020
Q111	-0.059	0.182	0.275	-0.056
Q112	-0.062	0.665 +	0.030	0.070

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 4006.

Table C6.

Item Loadings for Ten Factor Solution Based on

90 CBCL Items Rated in the USA

	1 ATT	2 SP	3 SHOW OFF	4 DEL1	5 AD
Q1	0.457 +	0.167 -	0.014	-0.082	-0.008
Q3	0.084	0.078	0.268	0.080	0.059
Q7	-0.038	0.061	0.625 +	0.049	0.109
Q8	0.770 +	-0.017	0.124	0.247	-0.013
Q9	0.118	0.013	0.148	0.074	0.291
Q10	0.506 +	-0.079	0.308 +	0.072	0.005
Q11	0.295	0.002 -	-0.026	-0.368 +	0.198
Q12	0.124	0.171	-0.002	-0.137	0.428 +
Q13	0.418 +	-0.018	0.017	0.196	0.125
Q14	0.194	-0.024	-0.081	-0.181	0.221 -
Q15	0.073	0.157	0.082	-0.046	-0.099
Q16	-0.133	0.241	0.237	0.014	-0.052
Q17	0.420 +	-0.041	0.132	0.133	0.092
Q18	-0.054	0.037	-0.228	0.380 +	0.151
Q19	0.234	-0.020	0.221	-0.130	0.256
Q20	0.162	0.012	-0.086	0.020	-0.020
Q21	0.036	0.062	-0.070	0.009	-0.082
Q22	0.174	-0.021	0.136	0.234	-0.057
Q23	0.308 +	0.164	0.186	0.410 +	-0.061
Q25	0.149	0.553 +	0.089	-0.118	0.141
Q26	0.169	0.015	0.169	0.250 -	-0.156
Q27	-0.005	-0.027	0.210	-0.132	0.335 +
Q30	0.142	0.116	-0.247	0.156	0.395 +
Q31	-0.073	0.028	0.114	-0.034	0.657 +
Q32	-0.256	-0.038	0.133	-0.064	0.690 +
Q33	0.052	0.086	0.017	0.100	0.490 +
Q34	0.044	0.280	0.115	0.156	0.445 +
Q35	0.201	0.201	-0.093	0.277	0.613 +
Q37	0.040	0.389 +	0.219	0.121	0.037
Q38	0.190	0.458 +	0.151	-0.177	0.237
Q39	0.090	0.036	0.215	0.643 +	0.085
Q40	0.067	-0.045	-0.018	-0.086	0.044
Q41	0.298 -	-0.008	0.312 +	0.259	0.054
Q42	-0.069	0.098	-0.017	0.001	0.037
Q43	0.154	0.012	0.153	0.420 +	0.024
Q45	0.195 -	-0.078	0.062	0.120	0.353 +
Q46	0.198 -	-0.027	0.077	0.025	0.142
Q48	0.156	0.707 +	0.035	-0.105	0.205
Q50	0.091	0.011	0.008	-0.065	0.542 +
Q51	-0.030	0.034	0.044	0.201	0.112
Q52	0.023	0.054	0.050	0.110	0.765 +
Q54	0.064	0.036	0.024	0.145	0.036
Q55	0.066	0.276 -	0.073	-0.046	-0.086
Q56A	-0.060	0.015	0.062	-0.021	0.015
Q56B	-0.077	0.004	0.033	0.084	-0.004
Q56C	-0.067	-0.059	-0.034	0.057	0.091
Q56D	-0.032	0.162	-0.007	0.006	-0.095
Q56E	-0.009	0.036	0.115	0.003	-0.028
Q56F	-0.070	-0.088	0.031	0.007	0.095
Q56G	-0.007	-0.078	-0.017	0.029	-0.074

Table C6 continued.

	1 ATT	2 SP	3 SHOW OFF	4 DEL1	5 AD
Q57	-0.167	0.307 +	0.116	0.007	-0.059
Q61	0.590 +	0.139	-0.041	0.543 +	-0.042
Q62	0.441 +	0.129 -	0.048	-0.135	-0.100
Q63	-0.038	-0.068	0.348 +	0.092 -	0.062
Q64	0.233	0.189 -	0.104	-0.270	-0.006
Q65	-0.072	-0.116	-0.114	0.191	0.008
Q66	0.167	-0.094	0.195	-0.029	0.008
Q67	0.049	-0.076	-0.092	0.664 +	0.058
Q68	0.050	-0.075	0.124	-0.049	-0.041
Q69	-0.056	-0.081	0.032	0.332 +	0.120
Q70	0.098	0.002	-0.053	-0.054	0.007
Q71	-0.062	-0.027	0.098	-0.095	0.481 +
Q72	0.000	0.060	0.137	0.114 -	-0.149
Q74	0.163	-0.027	0.705 +	0.015	0.033
Q75	-0.090	-0.106	-0.225	-0.242	0.268
Q80	0.187 -	-0.071	0.080	0.018	-0.024
Q81	0.088	0.062	0.022	0.451 +	0.034
Q82	0.036	0.068	0.075	0.445 +	0.044
Q84	0.028	0.042	-0.002	0.045	-0.018
Q85	0.006	0.041	0.154	0.086	0.105
Q86	0.044	-0.119	0.134	0.121	-0.043
Q87	0.002	-0.127	0.063	0.164	0.134
Q88	0.018	-0.075	0.056	0.089	0.158
Q89	-0.101	-0.004	0.187	0.219	0.257 -
Q90	-0.046	0.097	0.197	0.389 +	-0.015
Q91	-0.086	0.049	-0.138	0.338 +	0.372 +
Q93	0.223	-0.055	0.678 +	-0.231	0.023
Q94	-0.087	0.091	0.649 +	-0.098	-0.052
Q95	-0.021	0.020	0.173	0.033	-0.045
Q96	-0.068	-0.024	0.314 +	0.300 +	0.073
Q97	-0.185	0.274	0.254	0.112	-0.045
Q100	0.067	-0.001	-0.034	-0.046	0.143
Q101	0.113	-0.104	-0.132	0.851 +	0.028
Q102	0.189	0.104	-0.100	0.119	-0.115
Q103	0.053	0.122	-0.189	0.257	0.391 +
Q104	0.212	0.024	0.512 +	-0.097	-0.052
Q105	-0.015	-0.209	-0.068	0.943 +	-0.016
Q106	-0.082	0.059	0.124	0.454 +	-0.054
Q111	-0.013	0.301 +	-0.225	-0.079	0.177
Q112	-0.042	0.026	0.006	-0.014	0.658 +

Table C6 continued.

	6 WD	7 AGG	8 TP	9 SOM	10 DEL2
Q1	0.119	0.063	0.033	-0.083	0.112
Q3	-0.016	0.573 +	-0.181	-0.015	-0.048
Q7	-0.045	0.067 -	-0.115	-0.011	0.056
Q8	-0.040	0.017	0.079	-0.112	0.030
Q9	0.116	-0.008	0.248 -	0.002	-0.041
Q10	-0.264	0.095	0.183	-0.028	0.088
Q11	0.082	0.176	0.171	0.032	0.055
Q12	0.018	0.132	-0.080	0.121	-0.067
Q13	0.320 +	-0.101	0.292	-0.085	-0.028
Q14	0.023	0.444 +	0.001	0.117	-0.015
Q15	0.062	0.236	0.185	0.029	0.215
Q16	0.098	0.479 +	0.071	-0.060	0.145
Q17	0.386 +	-0.235	0.225	-0.085	-0.154
Q18	-0.048	0.295	0.319 +	0.068	0.063
Q19	-0.117	0.400 +	0.005	-0.015	0.109
Q20	-0.077	0.301 +	0.211	0.065	0.542 +
Q21	-0.058	0.379 +	0.237	0.034	0.589 +
Q22	0.014	0.556 +	-0.092	-0.011	0.163
Q23	-0.088	0.149 -	-0.011	-0.071	0.128
Q25	0.067	0.218	0.003	-0.078	0.124
Q26	0.161	0.269	-0.021	-0.032	0.175 -
Q27	0.046	0.397 +	-0.047	-0.011	0.093
Q30	-0.029	0.005	0.097	0.154	0.067
Q31	-0.011	-0.183	0.185	-0.013	0.073
Q32	0.045	-0.059	-0.006	0.007	-0.068
Q33	-0.016	0.362 +	-0.138	-0.002	0.020
Q34	0.006	0.149	-0.025	-0.078	0.036
Q35	0.047	0.090	-0.166	-0.059	-0.007
Q37	-0.131	0.297 -	0.064	-0.040	0.095
Q38	0.032	-0.040	-0.042	0.048	0.071
Q39	-0.015	-0.038	-0.069	0.012	0.123 -
Q40	0.003	0.008	0.716 +	0.092	0.000
Q41	0.022	0.114	0.032	-0.016	0.121
Q42	0.527 +	-0.067	0.087	-0.036	-0.078
Q43	0.097	0.082	-0.165	0.068	0.439 +
Q45	-0.019	0.137	0.247	0.065	0.020
Q46	0.015	-0.106	0.377 +	0.091	0.112
Q48	0.046	0.043	-0.028	-0.024	0.112
Q50	0.062	0.015	0.216	0.072	-0.007
Q51	0.005	-0.092	0.179	0.544 +	-0.149
Q52	-0.025	-0.170	0.086	0.017	0.003
Q54	0.180	0.122	0.030	0.337 +	-0.201
Q55	0.135	0.033	-0.212	0.237	-0.174
Q56A	0.055	0.048	-0.034	0.725 +	0.003
Q56B	0.039	-0.008	-0.022	0.751 +	-0.001
Q56C	-0.059	-0.066	-0.016	0.898 +	0.166
Q56D	0.044	-0.036	0.154	0.454 +	-0.003
Q56E	0.049	-0.045	0.034	0.455 +	0.006
Q56F	-0.007	0.039	-0.074	0.802 +	0.057
Q56G	-0.086	-0.035	0.077	0.784 +	0.222

Table C6continued.

	6 WD	7 AGG	8 TP	9 SOM	10 DEL2
Q57	-0.028	0.518 +	0.201	-0.058	0.104
Q61	0.022	-0.025	-0.105	-0.013	-0.023
Q62	0.279	0.018	0.097	0.066	-0.008
Q63	0.010	0.084	-0.011	0.087	0.028 -
Q64	0.175	0.001	0.013	0.057	0.176
Q65	0.575 +	0.221	0.081	-0.034	0.179
Q66	0.144	0.094	0.357 +	-0.040	0.167
Q67	0.051	0.106	0.063	0.017	0.137 -
Q68	-0.042	0.768 +	0.075	0.097	-0.126
Q69	0.565 +	0.004	-0.005	-0.021	0.139
Q70	-0.022	0.082	0.610 +	0.132	-0.066
Q71	0.351 +	0.060	-0.219	0.081	-0.027
Q72	0.043	0.078	0.068	0.155	0.452 +
Q74	-0.137	0.056 -	-0.037	-0.028	0.030
Q75	0.566 +	0.037	-0.089	0.084	0.083
Q80	0.487 +	-0.055	0.405 +	-0.017	0.009
Q81	0.054	-0.047	-0.175	0.119	0.655 +
Q82	0.012	-0.130	-0.032	0.049	0.662 +
Q84	0.243	0.106	0.604 +	-0.134	0.075
Q85	0.218	-0.016	0.485 +	-0.066	-0.019
Q86	0.296	0.688 +	-0.103	-0.043	0.012
Q87	0.266	0.509 +	0.108	-0.024	-0.031
Q88	0.302 +	0.532 +	-0.096	0.033	0.015
Q89	0.178	0.186	0.173	0.031	0.001
Q90	-0.055	0.318 +	0.086	0.004	0.025 -
Q91	-0.167	0.396 +	0.148	0.005	-0.054
Q93	-0.169	0.055 -	0.054	0.123	-0.117
Q94	0.025	0.187 -	0.022	0.032	-0.042
Q95	-0.009	0.717 +	0.086	-0.007	-0.025
Q96	0.032	0.078	0.149	0.060	-0.069 -
Q97	0.018	0.488 +	0.208	-0.073	-0.001
Q100	-0.003	0.162	0.222	0.245	-0.008
Q101	0.017	0.019	-0.040	0.148	0.025 -
Q102	0.566 +	0.009	0.042	0.167	-0.192
Q103	0.289 -	0.234	0.022	0.012	-0.046
Q104	-0.101	0.366 +	0.097	0.040	-0.106
Q105	0.059	-0.016	0.041	0.030	0.025 -
Q106	0.096	0.005	0.087	-0.009	0.425 +
Q111	0.617 +	0.052	0.141	-0.047	0.066
Q112	0.124	-0.025	0.101	0.076	-0.117

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 4006.

Table C7.

Item Loadings for Seven Factor Solution Based on 90 CBCL Items Rated in Australia

Factor	1	2	3	4	5
Name	TP	AGG	WD	SP	AD
Item					
Q1	0.249	0.305 +	0.206	0.377 +	-0.057
Q3	-0.060	0.786 +	0.026	0.036	0.019
Q7	-0.039	0.640 +	-0.185	0.150	-0.019
Q8	0.438 +	0.337 +	0.032	0.363 +	-0.105
Q9	0.383 +	0.157	0.062	0.020	0.288
Q10	0.406 +	0.532 +	-0.164	0.152	-0.049
Q11	0.247	0.160	0.170	0.131 -	0.173
Q12	-0.010	0.191	0.060	0.227	0.370 +
Q13	0.445 +	0.053	0.279	0.173	0.108
Q14	0.095	0.350 +	0.223	-0.002	0.129 -
Q15	0.194	0.656 +	0.045	0.047	-0.053
Q16	-0.070	0.868 +	0.068	0.042	0.097
Q17	0.473 +	-0.010	0.241	0.235	-0.029
Q18	0.216	0.226	0.012	-0.140	0.462 +
Q19	0.131	0.652 +	-0.033	0.096	0.135
Q20	0.321 +	0.749 +	0.090	-0.033	-0.025
Q21	0.271	0.820 +	0.104	-0.063	-0.019
Q22	0.003	0.843 +	0.078	0.026	-0.075
Q23	0.066	0.592 +	-0.092	0.308 +	0.006
Q25	-0.051	0.405 +	0.213	0.533 +	0.327 +
Q26	0.043	0.726 +	0.167	0.086	-0.114
Q27	-0.090	0.654 +	0.106	0.047	0.143
Q30	0.013	-0.045	0.145	0.163	0.419 +
Q31	0.244	0.018	-0.005	0.122	0.538 +
Q32	-0.004	-0.096	0.017	0.048	0.611 +
Q33	-0.118	0.432 +	0.099	0.084	0.404 +
Q34	-0.042	0.382 +	0.053	0.237	0.437 +
Q35	0.022	0.083	0.141	0.262	0.586 +
Q37	-0.031	0.669 +	-0.112	0.270	0.238
Q38	-0.071	0.254	0.112	0.567 +	0.341 +
Q39	0.008	0.480 +	-0.104	0.226	0.053
Q40	0.553 +	-0.037	-0.069	-0.052	0.230
Q41	0.216	0.618 +	-0.026	0.204	-0.036
Q42	0.123	0.030	0.503 +	0.157	0.135
Q43	-0.019	0.698 +	0.157	0.135	-0.159
Q45	0.233	0.203	0.101	0.037	0.370 +
Q46	0.422 +	0.067	0.024	0.088	0.153
Q48	-0.092	0.361 +	0.133	0.625 +	0.345 +
Q50	0.272	-0.090	0.153	0.081	0.516 +
Q51	0.147	-0.194	0.067	-0.060	0.198
Q52	0.157	-0.159	0.043	0.078	0.649 +
Q54	0.091	0.005	0.186	-0.006	0.120
Q55	-0.193	0.045	0.150	0.215 -	0.064
Q56A	-0.047	-0.001	0.022	-0.026	0.025
Q56B	-0.040	-0.015	0.020	-0.068	0.023
Q56C	-0.008	-0.060	-0.020	-0.107	-0.004
Q56D	0.161	-0.015	0.028	0.048	0.090
Q56E	0.071	-0.020	0.056	-0.064	-0.012
Q56F	-0.050	-0.057	0.001	-0.101	0.006
Q56G	0.025	-0.053	-0.022	-0.059	-0.010

Table C7 continued.

Factor	1	2	3	4	5
Name	TP	AGG	WD	SP	AD
Item					
Q57	-0.039	0.843 +	0.004	-0.008	0.244
Q61	0.202	0.286	0.102	0.438 +	-0.035
Q62	0.311 +	0.177	0.159	0.390 +	-0.074
Q63	-0.017	0.363 +	-0.100	0.059	0.037
Q64	0.080	0.264	0.191	0.359 +	-0.011
Q65	0.056	0.312 +	0.519 +	-0.045	-0.013
Q66	0.507 +	0.275	0.041	0.000	0.104
Q67	0.001	0.505 +	0.028	-0.076	0.139
Q68	0.036	0.789 +	0.081	-0.164	0.050
Q69	0.044	0.239	0.433 +	0.005	0.052
Q70	0.616 +	-0.045	-0.103	-0.044	0.197
Q71	-0.063	-0.001	0.381 +	0.069	0.323 +
Q72	0.149	0.497 +	-0.034	0.101	0.023
Q74	0.025	0.687 +	-0.272	0.201	-0.080
Q75	0.006	-0.264	0.636 +	0.019	0.154
Q80	0.487 +	0.037	0.323 +	0.124	-0.044
Q81	-0.028	0.661 +	0.189	0.100	-0.227
Q82	0.034	0.619 +	0.146	0.123	-0.188
Q84	0.558 +	0.251	0.104	-0.106	0.154
Q85	0.582 +	0.164	0.021	-0.118	0.212
Q86	-0.040	0.721 +	0.305 +	-0.116	0.002
Q87	0.075	0.597 +	0.241	-0.111	0.141
Q88	-0.099	0.621 +	0.371 +	-0.054	-0.013
Q89	0.109	0.391 +	0.159	-0.079	0.241 -
Q90	0.009	0.678 +	-0.082	-0.027	0.142
Q91	0.092	0.218	-0.055	-0.057	0.604 +
Q93	0.163	0.532 +	-0.310 +	0.101	-0.055
Q94	-0.090	0.769 +	-0.059	0.090	0.038
Q95	-0.010	0.850 +	0.045	-0.102	0.121
Q96	0.138	0.392 +	-0.158	0.025	0.138
Q97	-0.093	0.866 +	-0.039	-0.043	0.232
Q100	0.198	0.056	0.092	-0.088	0.241
Q101	-0.057	0.149	0.078	0.014	0.139
Q102	0.058	-0.209	0.492 +	0.205	0.030
Q103	0.036	0.168	0.300 +	0.079	0.408 +
Q104	0.147	0.718 +	-0.178	0.053	-0.016
Q105	0.067	0.074	-0.073	-0.140	0.087
Q106	0.139	0.743 +	0.013	-0.062	-0.013
Q111	0.121	-0.028	0.644 +	0.241	0.246
Q112	0.142	-0.103	0.156	0.044	0.535 +

Table C7 continued.

Factor	6	7
Name	DEL	SOM
Item		
Q1	0.163	-0.086
Q3	0.059	0.146
Q7	-0.063	0.148
Q8	-0.034	0.045
Q9	-0.018	0.057
Q10	0.130	0.057
Q11	0.371 +	0.119
Q12	0.114	0.152
Q13	-0.051	0.093
Q14	0.267	0.207
Q15	0.014	-0.176
Q16	-0.045	-0.113
Q17	-0.027	0.064
Q18	-0.286	-0.026
Q19	0.184	0.097
Q20	-0.037	-0.253
Q21	-0.054	-0.278
Q22	-0.026	0.068
Q23	-0.267	-0.060
Q25	0.060	-0.186
Q26	-0.117 -	-0.009
Q27	0.110	0.136
Q30	-0.151	0.218
Q31	-0.048	0.016
Q32	0.017	0.128
Q33	-0.028	0.137
Q34	-0.096	0.042
Q35	-0.161	0.056
Q37	-0.117	-0.076
Q38	0.078	-0.026
Q39	-0.441 +	0.055
Q40	-0.114	0.150
Q41	-0.064	0.021
Q42	-0.059	-0.005
Q43	-0.280 -	0.091
Q45	0.017	0.186
Q46	0.040	0.117
Q48	0.026	-0.168
Q50	0.149	0.173
Q51	-0.121	0.594 +
Q52	-0.029	0.156
Q54	-0.077	0.437 +
Q55	0.002	0.249
Q56A	-0.050	0.729 +
Q56B	-0.133	0.743 +
Q56C	-0.093	0.941 +
Q56D	-0.072	0.382 +
Q56E	-0.017	0.393 +
Q56F	-0.041	0.852 +
Q56G	-0.105	0.718 +

Table C7 continued.

Factor Name Item	6 DEL	7 SOM
Q57	-0.054	-0.172
Q61	-0.228	-0.013
Q62	0.094	0.042
Q63	-0.094 -	0.215
Q64	0.174	0.029
Q65	-0.207	0.071
Q66	0.109	-0.041
Q67	-0.406 +	0.076
Q68	0.167	0.107
Q69	-0.314 +	0.139
Q70	-0.071	0.136
Q71	0.056	0.198
Q72	-0.241 -	-0.060
Q74	0.007	0.133
Q75	0.163	0.081
Q80	-0.047	0.075
Q81	-0.394 +	0.030
Q82	-0.422 +	-0.058
Q84	-0.046	-0.069
Q85	-0.075	-0.007
Q86	0.004	0.170
Q87	-0.040	0.141
Q88	0.099	0.164
Q89	-0.120	0.141
Q90	-0.268 -	0.040
Q91	-0.274	0.024
Q93	0.267	0.290
Q94	-0.014	0.068
Q95	0.063	0.057
Q96	-0.228 -	0.122
Q97	-0.116	-0.083
Q100	0.054	0.300 +
Q101	-0.631 +	0.194
Q102	-0.186	0.302 +
Q103	-0.152	0.172
Q104	0.173	0.164
Q105	-0.732 +	0.161
Q106	-0.222 -	-0.124
Q111	0.025	-0.064
Q112	0.095	0.256

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 7112.

Table C8.

Item Loadings for Eight Factor Solution Based on 90 CBCL Items Rated in Australia

Factor	1	2	3	4	5
Name	TP	AGG	DEL	SHOW OFF	AD
Item					
Q1	0.213	0.303 +	0.149	0.129	-0.023
Q3	-0.071	0.775 +	0.028	0.096	0.083
Q7	-0.075	0.597 +	-0.149	0.282	0.102
Q8	0.388 +	0.325 +	-0.071	0.243	-0.085
Q9	0.394 +	0.143	-0.027	-0.012	0.333 +
Q10	0.380 +	0.519 +	0.090	0.247	-0.016
Q11	0.223	0.148	0.336 +	0.127	0.270
Q12	-0.025	0.181	0.100	0.051	0.440 +
Q13	0.421 +	0.029	-0.091	0.077	0.184
Q14	0.089	0.347 +	0.251	0.032	0.215 -
Q15	0.212	0.686 +	0.070	-0.110	-0.177
Q16	-0.049	0.892 +	0.003	-0.150	-0.008
Q17	0.435 +	-0.043	-0.087	0.176	0.057
Q18	0.263	0.239	-0.219	-0.305 +	0.391 +
Q19	0.120	0.638 +	0.153	0.130	0.210
Q20	0.322 +	0.782 +	0.035	-0.196	-0.213
Q21	0.278	0.857 +	0.024	-0.237	-0.222
Q22	-0.004	0.839 +	-0.042	0.045	-0.053
Q23	0.046	0.592 +	-0.268	0.076	-0.045
Q25	-0.025	0.455 +	0.149	-0.170	0.189
Q26	0.039	0.721 +	-0.128 -	0.010	-0.102
Q27	-0.108	0.624 +	0.052	0.104	0.281
Q30	0.020	-0.023	-0.104	-0.147	0.380 +
Q31	0.240	-0.017	-0.087	0.016	0.623 +
Q32	-0.012	-0.146	-0.048	0.032	0.752 +
Q33	-0.123	0.408 +	-0.056	-0.020	0.507 +
Q34	-0.040	0.378 +	-0.085	-0.065	0.459 +
Q35	0.008	0.053	-0.183	-0.055	0.666 +
Q37	-0.022	0.692 +	-0.071	-0.059	0.122
Q38	-0.082	0.284	0.128	-0.022	0.282
Q39	-0.020	0.452 +	-0.483 +	0.117	0.073
Q40	0.578 +	-0.011	-0.057	-0.094	0.161
Q41	0.191	0.602 +	-0.099	0.161	0.002
Q42	0.141	0.058	-0.006	-0.227	0.093
Q43	-0.041	0.666 +	-0.333 +	0.115	-0.062
Q45	0.232	0.189	-0.002	0.005	0.428 +
Q46	0.413 +	0.056	0.019	0.097	0.189
Q48	-0.072	0.413 +	0.114	-0.133	0.196
Q50	0.266	-0.107	0.126	-0.002	0.600 +
Q51	0.156	-0.163	-0.081	-0.040	0.170
Q52	0.148	-0.207	-0.091	0.034	0.771 +
Q54	0.075	0.007	-0.093	0.041	0.148
Q55	-0.213	0.071	0.025	0.005	0.038
Q56A	-0.053	0.047	-0.006	0.040	-0.020
Q56B	-0.040	0.034	-0.086	0.006	-0.036
Q56C	-0.006	0.000	-0.034	0.045	-0.055
Q56D	0.167	0.020	-0.028	-0.015	0.028
Q56E	0.064	-0.008	-0.018	0.055	-0.010
Q56F	-0.048	0.001	0.017	0.027	-0.041
Q56G	0.026	-0.008	-0.064	0.047	-0.061

Table C8 continued.

Factor	1	2	3	4	5
Name	TP	AGG	DEL	SHOW OFF	AD
Item					
Q57	0.006	0.881 +	0.036	-0.266	0.061
Q61	0.160	0.291	-0.231	0.100	-0.085
Q62	0.278	0.192	0.099	0.136	-0.100
Q63	-0.046	0.334 +	-0.158 -	0.195	0.104
Q64	0.047	0.269	0.165	0.119	0.020
Q65	0.059	0.300 +	-0.222	-0.139	0.034
Q66	0.518 +	0.266	0.098	0.040	0.141
Q67	0.021	0.500 +	-0.397 +	-0.126	0.113
Q68	0.058	0.802 +	0.183	-0.058	0.050
Q69	0.033	0.200	-0.371 +	-0.037	0.152
Q70	0.635 +	-0.021	-0.021	-0.052	0.135
Q71	-0.113	-0.057	-0.045	0.090	0.501 +
Q72	0.146	0.500 +	-0.229 -	-0.024	-0.039
Q74	-0.023	0.641 +	-0.091	0.379 +	0.047
Q75	-0.027	-0.302 +	0.094	-0.024	0.300 +
Q80	0.469 +	0.021	-0.078	0.067	0.010
Q81	-0.037	0.629 +	-0.437 +	0.058	-0.149
Q82	0.031	0.584 +	-0.463 +	0.049	-0.115
Q84	0.595 +	0.255	-0.020	-0.119	0.142
Q85	0.614 +	0.163	-0.057	-0.088	0.210
Q86	-0.035	0.709 +	-0.022	-0.038	0.075
Q87	0.093	0.598 +	-0.037	-0.108	0.164
Q88	-0.110	0.596 +	0.048	0.023	0.122
Q89	0.118	0.364 +	-0.156	-0.030	0.326 +
Q90	0.023	0.684 +	-0.250 -	-0.080	0.074
Q91	0.131	0.228	-0.214	-0.276	0.555 +
Q93	0.126	0.500 +	0.182	0.412 +	0.060
Q94	-0.102	0.764 +	-0.034	0.083	0.055
Q95	0.011	0.863 +	0.085	-0.085	0.088
Q96	0.136	0.358 +	-0.279 -	0.126	0.202
Q97	-0.056	0.893 +	-0.050	-0.215	0.087
Q100	0.207	0.068	0.072	-0.046	0.248
Q101	-0.059	0.138	-0.637 +	-0.096	0.103
Q102	0.033	-0.198	-0.184	-0.048	0.036
Q103	0.046	0.166	-0.138	-0.157	0.438 +
Q104	0.133	0.708 +	0.134	0.218	0.033
Q105	0.073	0.032	-0.784 +	-0.015	0.093
Q106	0.156	0.755 +	-0.191 -	-0.131	-0.114
Q111	0.144	0.006	0.099	-0.299	0.209
Q112	0.131	-0.136	0.045	0.033	0.654 +

Table C8 continued.

Factor Name Item	6 WD	7 SOM	8 SP
Q1	0.185	-0.097	0.336 +
Q3	0.047	0.064	-0.003
Q7	-0.134	-0.010	0.011
Q8	0.034	0.020	0.271
Q9	0.056	0.001	-0.006
Q10	-0.144	0.007	0.067
Q11	0.168	0.047	0.094 -
Q12	0.034	0.082	0.206
Q13	0.279	0.021	0.111
Q14	0.223	0.137	-0.001
Q15	0.011	-0.047	0.116
Q16	0.039	-0.014	0.108
Q17	0.254	-0.015	0.138
Q18	-0.029	0.016	-0.047
Q19	-0.023	0.010	0.048
Q20	0.035	-0.031	0.093
Q21	0.051	-0.043	0.074
Q22	0.095	0.030	0.006
Q23	-0.105	-0.039	0.265
Q25	0.103	-0.027	0.594 +
Q26	0.178	-0.034	0.064
Q27	0.135	-0.014	-0.018
Q30	0.090	0.247	0.221
Q31	-0.014	-0.085	0.063
Q32	0.021	-0.021	-0.024
Q33	0.094	0.017	0.059
Q34	0.014	0.002	0.238
Q35	0.107	-0.038	0.238
Q37	-0.167	0.023	0.302 +
Q38	0.024	0.045	0.590 +
Q39	-0.089	-0.011	0.134
Q40	-0.101	0.195	-0.001
Q41	-0.011	-0.039	0.129
Q42	0.451 +	0.059	0.226
Q43	0.194	-0.038	0.045
Q45	0.096	0.118	0.014
Q46	0.025	0.074	0.040
Q48	0.011	-0.003	0.679 +
Q50	0.135	0.095	0.062
Q51	0.044	0.591 +	-0.005
Q52	0.041	0.022	0.005
Q54	0.190	0.398 +	-0.016
Q55	0.117	0.279	0.244 -
Q56A	0.005	0.738 +	0.035
Q56B	0.005	0.759 +	0.000
Q56C	-0.034	0.936 +	-0.027
Q56D	-0.001	0.420 +	0.095
Q56E	0.062	0.379 +	-0.060
Q56F	-0.014	0.854 +	-0.020
Q56G	-0.034	0.726 +	-0.007

Table C8 continued.

Factor	6	7	8
Name	WD	SOM	SP
Item			
Q57	-0.053	0.007	0.115
Q61	0.075	0.028	0.395 +
Q62	0.126	0.084	0.362 +
Q63	-0.062	0.121	-0.036
Q64	0.166	0.018	0.330 +
Q65	0.529 +	0.028	-0.041
Q66	0.046	-0.081	-0.033
Q67	0.032	0.059	-0.068
Q68	0.089	0.101	-0.127
Q69	0.464 +	0.027	-0.054
Q70	-0.128	0.175	-0.007
Q71	0.412 +	0.038	-0.016
Q72	-0.045	-0.021	0.101
Q74	-0.215	-0.030	0.036
Q75	0.657 +	-0.020	-0.015
Q80	0.328 +	0.032	0.071
Q81	0.221	-0.078	0.021
Q82	0.175	-0.167	0.035
Q84	0.095	-0.069	-0.089
Q85	0.015	-0.023	-0.113
Q86	0.333 +	0.090	-0.125
Q87	0.245	0.109	-0.087
Q88	0.406 +	0.034	-0.090
Q89	0.177	0.035	-0.118
Q90	-0.086	0.070	-0.010
Q91	-0.104	0.041	0.025
Q93	-0.258	0.152	-0.042
Q94	-0.045	0.028	0.054
Q95	0.042	0.080	-0.061
Q96	-0.125	0.014	-0.074
Q97	-0.076	0.044	0.051
Q100	0.080	0.287	-0.055
Q101	0.084	0.182	-0.002
Q102	0.467 +	0.307 +	0.216
Q103	0.269 -	0.135	0.107
Q104	-0.149	0.092	-0.018
Q105	-0.028	0.090	-0.228
Q106	0.003	-0.042	-0.015
Q111	0.576 +	0.010	0.333 +
Q112	0.154	0.137	-0.003

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 7112.

Table C9.

Item Loadings for Nine Factor Solution Based on 90 CBCL Items Rated in Australia

	1	2	3	4	5
	TP	AGG	SP	DEL1	AD
Q1	0.215	0.308 +	0.320 +	0.132	-0.052
Q3	-0.077	0.770 +	-0.007	0.033	0.066
Q7	-0.069	0.570 +	0.010	-0.078	0.134
Q8	0.379 +	0.348 +	0.249	-0.101	-0.120
Q9	0.406 +	0.142	-0.008	-0.021	0.308 +
Q10	0.365 +	0.538 +	0.061	0.034	-0.050
Q11	0.216	0.155	0.094 -	0.279	0.216
Q12	0.000	0.141	0.199	0.177	0.465 +
Q13	0.455 +	0.007	0.093	-0.025	0.171
Q14	0.124	0.306 +	-0.014	0.321 +	0.214 -
Q15	0.217	0.679 +	0.116	0.087	-0.165
Q16	-0.057	0.899 +	0.106	-0.011	-0.023
Q17	0.471 +	-0.073	0.117	-0.011	0.056
Q18	0.287	0.218	-0.048	-0.131	0.418 +
Q19	0.124	0.625 +	0.047	0.165	0.201
Q20	0.325 +	0.749 +	0.103	0.111	-0.154
Q21	0.278	0.830 +	0.087	0.106	-0.162
Q22	-0.009	0.840 +	0.001	-0.034	-0.072
Q23	0.016	0.636 +	0.244	-0.317 +	-0.076
Q25	-0.027	0.461 +	0.580 +	0.134	0.183
Q26	0.045	0.719 +	0.056	-0.097 -	-0.117
Q27	-0.090	0.593 +	-0.021	0.120	0.282
Q30	-0.011	0.025	0.228	-0.178	0.322 +
Q31	0.251	-0.028	0.062	-0.052	0.617 +
Q32	0.000	-0.167	-0.023	-0.003	0.751 +
Q33	-0.093	0.366 +	0.048	0.056	0.532 +
Q34	-0.030	0.367 +	0.231	-0.038	0.465 +
Q35	0.026	0.038	0.229	-0.118	0.663 +
Q37	-0.044	0.712 +	0.296	-0.106	0.116
Q38	-0.078	0.276	0.575 +	0.139	0.292
Q39	-0.036	0.476 +	0.121	-0.468 +	0.065
Q40	0.599 +	-0.034	-0.007	0.001	0.191
Q41	0.192	0.600 +	0.121	-0.081	-0.004
Q42	0.151	0.067	0.214	-0.011	0.052
Q43	-0.004	0.620 +	0.050	-0.171 -	-0.014
Q45	0.208	0.221	0.023	-0.077	0.360 +
Q46	0.401 +	0.087	0.042	-0.057	0.126
Q48	-0.062	0.401 +	0.668 +	0.146	0.222
Q50	0.245	-0.072	0.075	0.034	0.520 +
Q51	0.160	-0.162	-0.006	-0.083	0.154
Q52	0.161	-0.221	0.005	-0.055	0.757 +
Q54	0.066	0.024	-0.018	-0.122	0.099
Q55	-0.217	0.070	0.237 -	0.025	0.033
Q56A	-0.052	0.036	0.035	0.003	-0.014
Q56B	-0.039	0.025	0.001	-0.071	-0.029
Q56C	0.003	-0.021	-0.025	-0.007	-0.034
Q56D	0.161	0.032	0.094	-0.059	0.008
Q56E	0.066	-0.011	-0.058	-0.018	-0.021
Q56F	-0.040	-0.021	-0.018	0.040	-0.023
Q56G	0.026	-0.013	-0.007	-0.062	-0.058

Table C9 continued.

	1 TP	2 AGG	3 SP	4 DEL1	5 AD
Q57	-0.016	0.911 +	0.118	-0.044	0.019
Q61	0.124	0.345 +	0.379 +	-0.308 +	-0.148
Q62	0.278	0.200	0.346 +	0.075	-0.124
Q63	-0.060	0.344 +	-0.038	-0.166 -	0.086
Q64	0.056	0.255	0.319 +	0.180	0.015
Q65	0.072	0.304 +	-0.050	-0.190	-0.014
Q66	0.525 +	0.271	-0.036	0.071	0.103
Q67	0.026	0.502 +	-0.068	-0.342 +	0.115
Q68	0.044	0.813 +	-0.125	0.126	-0.001
Q69	0.053	0.191	-0.060	-0.296	0.126
Q70	0.657 +	-0.050	-0.013	0.044	0.173
Q71	-0.140	-0.028	-0.007	-0.098	0.419 +
Q72	0.149	0.491 +	0.110	-0.175 -	-0.010
Q74	-0.035	0.634 +	0.033	-0.076	0.055
Q75	-0.044	-0.260	-0.009	0.011	0.181
Q80	0.506 +	-0.005	0.053	-0.004	0.001
Q81	0.017	0.556 +	0.041	-0.190 -	-0.051
Q82	0.087	0.513 +	0.056	-0.233 -	-0.012
Q84	0.606 +	0.268	-0.089	-0.045	0.096
Q85	0.625 +	0.173	-0.112	-0.073	0.175
Q86	-0.040	0.712 +	-0.128	-0.030	0.024
Q87	0.097	0.598 +	-0.090	-0.032	0.126
Q88	-0.082	0.562 +	-0.104	0.134	0.107
Q89	0.124	0.361 +	-0.115	-0.130	0.297 -
Q90	-0.003	0.717 +	-0.012	-0.304 +	0.038
Q91	0.140	0.221	0.025	-0.159	0.568 +
Q93	0.120	0.486 +	-0.044	0.170	0.060
Q94	-0.122	0.774 +	0.053	-0.060	0.034
Q95	-0.013	0.884 +	-0.059	0.019	0.038
Q96	0.140	0.352 +	-0.073	-0.237 -	0.208
Q97	-0.080	0.920 +	0.052	-0.126	0.047
Q100	0.202	0.078	-0.050	0.034	0.210
Q101	-0.092	0.207	-0.009	-0.682 +	0.038
Q102	0.042	-0.188	0.199	-0.169	-0.007
Q103	0.062	0.159	0.100	-0.094	0.415 +
Q104	0.115	0.715 +	-0.020	0.085	0.005
Q105	0.069	0.073	-0.231	-0.755 +	0.065
Q106	0.160	0.745 +	-0.004	-0.133 -	-0.087
Q111	0.152	0.021	0.323 +	0.074	0.149
Q112	0.115	-0.116	0.007	-0.010	0.590 +

Table C9 continued.

	6 WD	7 SOM	8 SHOW OFF	9 DEL2
Q1	0.201	-0.106	0.145	0.025
Q3	0.059	0.056	0.120	0.038
Q7	-0.177	0.011	0.275	0.174
Q8	0.068	-0.010	0.268	0.029
Q9	0.065	0.006	-0.011	-0.020
Q10	-0.113	-0.017	0.284	-0.078
Q11	0.206	0.042	0.151	-0.134
Q12	0.000	0.128	0.031	0.087
Q13	0.260	0.037	0.053	0.155
Q14	0.195	0.173	0.011	0.082
Q15	-0.020	-0.039	-0.099	0.037
Q16	0.056	-0.030	-0.113	-0.007
Q17	0.223	0.002	0.148	0.206
Q18	-0.069	0.057	-0.328 +	0.081
Q19	-0.032	0.026	0.144	0.003
Q20	-0.063	0.018	-0.196	0.128
Q21	-0.052	0.009	-0.245	0.130
Q22	0.103	0.017	0.067	0.070
Q23	-0.036	-0.099	0.130	-0.004
Q25	0.116	-0.021	-0.139	-0.036
Q26	0.172	-0.042	0.019	0.133 -
Q27	0.108	0.015	0.094	0.123
Q30	0.154	0.224	-0.108	-0.176
Q31	-0.010	-0.064	0.009	0.006
Q32	0.029	0.005	0.020	0.008
Q33	0.052	0.067	-0.046	0.164
Q34	0.008	0.025	-0.062	0.055
Q35	0.108	-0.010	-0.064	0.088
Q37	-0.132	-0.001	-0.009	-0.058
Q38	0.020	0.067	-0.005	0.008
Q39	-0.062	-0.044	0.142	0.123 -
Q40	-0.142	0.225	-0.117	0.042
Q41	-0.018	-0.043	0.175	0.091
Q42	0.474 +	0.047	-0.217	0.023
Q43	0.083	0.017	0.066	0.373 +
Q45	0.159	0.093	0.044	-0.161
Q46	0.074	0.049	0.129	-0.139
Q48	-0.017	0.031	-0.123	0.038
Q50	0.206	0.077	0.034	-0.237
Q51	0.050	0.595 +	-0.041	-0.044
Q52	0.056	0.044	0.023	-0.008
Q54	0.223	0.383 +	0.059	-0.036
Q55	0.123	0.282	0.015	0.019
Q56A	-0.010	0.747 +	0.038	-0.003
Q56B	-0.012	0.767 +	0.003	0.012
Q56C	-0.066	0.951 +	0.032	0.016
Q56D	0.012	0.414 +	0.000	-0.070
Q56E	0.059	0.380 +	0.053	-0.001
Q56F	-0.042	0.869 +	0.015	0.005
Q56G	-0.047	0.730 +	0.046	-0.010

Table C9 continued.

	6	7	8	9
	WD	SOM	SHOW OFF	DEL2
Q57	0.013	-0.036	-0.199	-0.163
Q61	0.163	-0.036	0.154	-0.027
Q62	0.136	0.075	0.153	0.013
Q63	-0.043	0.107	0.216	0.026 -
Q64	0.154	0.030	0.121	0.063
Q65	0.548 +	0.008	-0.140	0.145
Q66	0.063	-0.089	0.053	-0.064
Q67	0.020	0.059	-0.127	0.128 -
Q68	0.135	0.074	-0.011	-0.112
Q69	0.457 +	0.024	-0.057	0.229
Q70	-0.177	0.209	-0.079	0.050
Q71	0.480 +	0.012	0.118	-0.064
Q72	-0.093	-0.004	-0.030	0.126 -
Q74	-0.222	-0.034	0.398 +	0.088
Q75	0.748 +	-0.059	0.000	-0.113
Q80	0.297 -	0.047	0.035	0.188
Q81	0.036	0.019	-0.035	0.497 +
Q82	-0.002	-0.088	-0.035	0.471 +
Q84	0.116	-0.082	-0.108	-0.068
Q85	0.030	-0.029	-0.080	-0.066
Q86	0.368 +	0.064	-0.011	0.041
Q87	0.266	0.096	-0.090	0.021
Q88	0.387 +	0.053	0.004	0.196
Q89	0.186	0.035	-0.028	0.051
Q90	-0.031	0.025	-0.027	-0.060 -
Q91	-0.113	0.071	-0.277	0.009
Q93	-0.264	0.158	0.430 +	-0.022
Q94	-0.016	0.006	0.125	-0.008
Q95	0.103	0.040	-0.026	-0.119
Q96	-0.140	0.020	0.123	0.094 -
Q97	-0.007	-0.004	-0.144	-0.134
Q100	0.107	0.282	-0.029	-0.116
Q101	0.157	0.127	-0.060	-0.001 -
Q102	0.488 +	0.295	-0.050	0.101
Q103	0.277 -	0.148	-0.162	0.063
Q104	-0.119	0.072	0.261	-0.076
Q105	-0.002	0.053	-0.011	0.121 -
Q106	-0.052	-0.023	-0.133	0.123 -
Q111	0.617 +	-0.004	-0.284	-0.029
Q112	0.212	0.129	0.056	-0.154

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 7112.

Table C10.

Item Loadings for Ten Factor Solution Based on 90 CBCL Items Rated in Australia

	1 ATT	2 AGG	3 DESTRUCT	4 DEL1	5 TP
Q1	0.491 +	0.307 +	0.020	0.103	0.006
Q3	0.057	0.778 +	-0.001	0.012	-0.134
Q7	0.006	0.586 +	-0.231	-0.016	0.005
Q8	0.703 +	0.335 +	0.055	-0.184	0.030
Q9	0.107	0.139	0.036	-0.013	0.345 +
Q10	0.478 +	0.529 +	0.025	-0.038	0.102
Q11	0.315 +	0.144	0.033	0.221	0.024
Q12	0.112	0.140	0.077	0.135	-0.098
Q13	0.391 +	-0.005	0.088	-0.055	0.247
Q14	0.131	0.291	0.177	0.258	-0.049
Q15	0.125	0.678 +	0.170	0.088	0.162
Q16	-0.114	0.912 +	0.043	0.049	0.066
Q17	0.464 +	-0.084	-0.001	-0.023	0.258
Q18	-0.091	0.209	0.349 +	-0.193	0.224
Q19	0.166	0.625 +	0.035	0.128	0.000
Q20	0.259	0.731 +	0.411 +	-0.013	0.045
Q21	0.153	0.818 +	0.394 +	0.006	0.063
Q22	0.140	0.846 +	0.080	-0.079	-0.130
Q23	0.318 +	0.651 +	-0.028	-0.339 +	-0.086
Q25	0.145	0.478 +	0.022	0.181	0.036
Q26	0.123	0.726 +	0.025	-0.088 -	0.004
Q27	-0.048	0.601 +	-0.036	0.125	-0.094
Q30	0.153	0.027	0.136	-0.247	-0.105
Q31	0.073	-0.028	0.023	-0.073	0.189
Q32	-0.178	-0.161	-0.094	0.012	0.068
Q33	-0.061	0.372 +	0.120	0.008	-0.158
Q34	-0.034	0.382 +	0.011	-0.020	0.012
Q35	0.104	0.043	0.091	-0.166	-0.062
Q37	0.044	0.730 +	-0.031	-0.069	0.036
Q38	0.199	0.294	-0.040	0.169	-0.064
Q39	0.189	0.491 +	-0.094	-0.477 +	-0.078
Q40	-0.002	-0.028	0.056	0.062	0.603 +
Q41	0.295 -	0.605 +	-0.037	-0.087	0.081
Q42	0.036	0.073	0.019	0.047	0.206
Q43	0.072	0.632 +	-0.037	-0.134 -	-0.002
Q45	0.109 -	0.222	-0.017	-0.094	0.157
Q46	0.267 -	0.084	-0.066	-0.054	0.312 +
Q48	0.130	0.421 +	-0.010	0.214	0.035
Q50	0.131	-0.074	-0.019	0.010	0.179
Q51	0.007	-0.167	0.029	-0.087	0.152
Q52	-0.039	-0.218	-0.047	-0.061	0.154
Q54	0.106	0.021	-0.030	-0.142	0.013
Q55	0.045	0.080	-0.054	0.037	-0.188
Q56A	-0.033	0.037	-0.040	0.014	-0.018
Q56B	-0.070	0.026	-0.030	-0.056	0.011
Q56C	-0.028	-0.027	0.011	-0.017	0.002
Q56D	0.079	0.033	-0.021	-0.041	0.165
Q56E	-0.018	-0.011	-0.074	0.006	0.094
Q56F	-0.054	-0.026	0.017	0.031	-0.030
Q56G	0.010	-0.016	-0.023	-0.063	0.030

Table C10 continued.

	1	2	3	4	5
	ATT	AGG	DESTRUCT	DEL1	TP
Q57	-0.140	0.921 +	0.111	-0.008	0.107
Q61	0.586 +	0.354 +	0.015	-0.364 +	-0.115
Q62	0.508 +	0.199	-0.019	0.065	0.101
Q63	0.057	0.354 +	-0.163	-0.159 -	-0.056
Q64	0.308 +	0.260	-0.049	0.187	-0.036
Q65	-0.009	0.308 +	0.021	-0.160	0.088
Q66	0.172	0.269	-0.013	0.108	0.463 +
Q67	-0.067	0.508 +	0.126	-0.362 +	0.020
Q68	-0.036	0.813 +	0.098	0.099	0.005
Q69	-0.055	0.200	-0.104	-0.239	0.124
Q70	0.030	-0.042	0.038	0.111	0.647 +
Q71	0.008	-0.018	-0.198	-0.094	-0.125
Q72	0.106	0.497 +	0.058	-0.170 -	0.123
Q74	0.146	0.650 +	-0.288	-0.032	-0.011
Q75	0.082	-0.261	-0.113	0.007	-0.076
Q80	0.336 +	-0.015	0.027	0.014	0.362 +
Q81	0.011	0.567 +	0.042	-0.149 -	0.031
Q82	0.039	0.523 +	0.035	-0.189 -	0.100
Q84	0.029	0.272	0.024	0.025	0.614 +
Q85	-0.007	0.176	-0.012	0.002	0.648 +
Q86	-0.065	0.718 +	0.003	-0.018	-0.027
Q87	-0.043	0.598 +	0.099	-0.039	0.078
Q88	-0.043	0.563 +	0.041	0.129	-0.121
Q89	-0.143	0.371 +	-0.066	-0.078	0.205
Q90	-0.035	0.731 +	0.015	-0.306 +	0.034
Q91	-0.101	0.219	0.304 +	-0.235	0.087
Q93	0.157	0.493 +	-0.256	0.209	0.101
Q94	-0.079	0.795 +	-0.179	0.015	0.017
Q95	-0.044	0.891 +	0.080	-0.005	-0.027
Q96	-0.048	0.366 +	-0.149	-0.182 -	0.218
Q97	-0.217	0.937 +	0.024	-0.068	0.098
Q100	0.036	0.071	0.068	0.007	0.148
Q101	0.115	0.214	0.075	-0.751 +	-0.167
Q102	0.239	-0.188	0.008	-0.174	-0.036
Q103	-0.003	0.162	0.126	-0.114	0.032
Q104	0.125	0.724 +	-0.131	0.108	0.099
Q105	0.005	0.073	0.007	-0.789 +	0.046
Q106	0.008	0.748 +	0.172	-0.141 -	0.133
Q111	0.096	0.025	0.081	0.113	0.167
Q112	-0.013	-0.113	-0.104	-0.005	0.127

Table C10 continued.

	6 WD	7 AD	8 SP	9 DEL2	10 SOM
Q1	0.155	0.002	0.140 -	0.004	-0.105
Q3	0.016	0.113	-0.027	0.025	0.058
Q7	-0.133	0.086	0.042	0.205	0.012
Q8	-0.028	-0.016	-0.009	-0.009	-0.007
Q9	0.057	0.316 +	-0.018	-0.013	0.005
Q10	-0.195	0.039	-0.099	-0.116	-0.019
Q11	0.120	0.312 +	-0.024 -	-0.170	0.039
Q12	-0.053	0.546 +	0.134	0.063	0.131
Q13	0.201	0.221	-0.042	0.137	0.039
Q14	0.096	0.319 +	-0.079	0.043	0.178
Q15	-0.015	-0.176	0.079	0.038	-0.036
Q16	0.104	-0.084	0.152	0.028	-0.024
Q17	0.180	0.086	-0.030	0.194	0.004
Q18	-0.099	0.458 +	-0.044	0.053	0.055
Q19	-0.086	0.269	-0.006	-0.018	0.025
Q20	-0.138	-0.029	-0.015	0.065	0.000
Q21	-0.099	-0.065	0.014	0.077	-0.011
Q22	0.047	-0.011	-0.056	0.047	0.018
Q23	-0.046	-0.053	0.120	-0.010	-0.098
Q25	0.179	0.146	0.497 +	-0.008	-0.021
Q26	0.164	-0.120	0.019	0.135 -	-0.041
Q27	0.079	0.320 +	0.001	0.121	0.014
Q30	0.102	0.400 +	0.123	-0.211	0.225
Q31	-0.035	0.664 +	0.038	-0.003	-0.070
Q32	0.024	0.784 +	0.045	0.016	-0.003
Q33	-0.007	0.622 +	0.041	0.139	0.067
Q34	0.025	0.476 +	0.232	0.067	0.024
Q35	0.065	0.745 +	0.157	0.063	-0.016
Q37	-0.073	0.071	0.278	-0.033	0.000
Q38	0.063	0.288	0.477 +	0.022	0.068
Q39	-0.057	0.070	0.047	0.125 -	-0.047
Q40	-0.068	0.122	0.059	0.075	0.226
Q41	-0.030	0.009	0.032	0.086	-0.044
Q42	0.513 +	0.009	0.206	0.049	0.045
Q43	0.098	-0.045	0.036	0.386 +	0.022
Q45	0.128	0.398 +	-0.011	-0.168	0.088
Q46	0.067	0.126	-0.022	-0.138	0.046
Q48	0.074	0.164	0.593 +	0.078	0.034
Q50	0.165	0.576 +	0.029	-0.248	0.071
Q51	0.044	0.163	-0.007	-0.042	0.599 +
Q52	0.034	0.802 +	0.022	-0.009	0.038
Q54	0.186	0.132	-0.063	-0.047	0.384 +
Q55	0.132	0.037	0.196 -	0.023	0.286
Q56A	-0.002	-0.016	0.045	0.004	0.752 +
Q56B	0.003	-0.040	0.027	0.022	0.772 +
Q56C	-0.075	-0.020	-0.020	0.014	0.958 +
Q56D	0.034	-0.013	0.078	-0.058	0.417 +
Q56E	0.072	-0.041	-0.032	0.010	0.381 +
Q56F	-0.052	-0.007	-0.008	0.003	0.876 +
Q56G	-0.045	-0.059	-0.010	-0.007	0.736 +

Table C10 continued.

	6	7	8	9	10
	WD	AD	SP	DEL2	SOM
Q57	0.057	-0.028	0.167	-0.136	-0.034
Q61	0.114	-0.084	0.143	-0.054	-0.032
Q62	0.119	-0.105	0.168 -	0.003	0.078
Q63	-0.045	0.088	-0.046	0.030 -	0.104
Q64	0.146	0.034	0.205 -	0.059	0.032
Q65	0.538 +	-0.025	-0.041	0.154	0.006
Q66	0.077	0.073	-0.039	-0.046	-0.089
Q67	0.008	0.127	-0.058	0.124 -	0.059
Q68	0.089	0.039	-0.104	-0.128	0.074
Q69	0.480 +	0.087	-0.021	0.258	0.020
Q70	-0.096	0.096	0.051	0.083	0.211
Q71	0.442 +	0.465 +	-0.014	-0.069	0.002
Q72	-0.071	-0.027	0.081	0.128 -	-0.008
Q74	-0.187	0.014	0.021	0.107	-0.036
Q75	0.694 +	0.230	-0.048	-0.126	-0.069
Q80	0.279 -	-0.005	-0.037	0.192	0.050
Q81	0.062	-0.094	0.047	0.509 +	0.026
Q82	0.032	-0.064	0.057	0.488 +	-0.082
Q84	0.172	0.016	-0.026	-0.027	-0.076
Q85	0.093	0.095	-0.026	-0.019	-0.023
Q86	0.338 +	0.039	-0.097	0.042	0.063
Q87	0.234	0.151	-0.072	0.016	0.095
Q88	0.330 +	0.156	-0.092	0.185	0.054
Q89	0.208	0.272 -	-0.032	0.078	0.032
Q90	-0.016	0.025	0.005	-0.057 -	0.021
Q91	-0.154	0.632 +	0.018	-0.029	0.068
Q93	-0.251	0.038	-0.048	-0.008	0.161
Q94	0.048	-0.039	0.109	0.030	0.007
Q95	0.073	0.072	-0.041	-0.134	0.036
Q96	-0.088	0.149	-0.011	0.124 -	0.020
Q97	0.056	-0.024	0.139	-0.097	0.000
Q100	0.071	0.249	-0.062	-0.129	0.280
Q101	0.111	0.084	-0.107	-0.020 -	0.127
Q102	0.461 +	0.014	0.086	0.095	0.299
Q103	0.247 -	0.458 +	0.075	0.051	0.148
Q104	-0.111	-0.013	-0.028	-0.067	0.074
Q105	-0.023	0.069	-0.245	0.116 -	0.051
Q106	-0.046	-0.093	-0.001	0.120 -	-0.028
Q111	0.632 +	0.141	0.273	-0.013	-0.008
Q112	0.189	0.628 +	0.019	-0.152	0.123

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior, DESTRUCT = Destructive Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 7112.

Table C11.

Item Loadings for Eight Factor Solution Based on 90 CBCL Items Rated in Israel

	1 WD	2 AGG	3 DEL	4 ATT	5 AD
Q1	0.207	0.089	0.070	0.291 -	0.213
Q3	-0.048	0.676 +	-0.148	-0.007	0.104
Q7	-0.179	0.362 +	0.100	-0.007	-0.009
Q8	-0.108	0.101	0.085	0.644 +	0.080
Q9	-0.016	0.035	0.002	0.318 +	-0.297
Q10	-0.193	0.279	0.236	0.331 +	0.090
Q11	0.183	0.006	-0.022	0.116	-0.070
Q12	0.005	0.020	-0.093	0.017	-0.450 +
Q13	0.179	-0.056	-0.026	0.757 +	-0.133
Q14	0.050	0.323 +	-0.155	0.092	-0.148 -
Q15	0.211	-0.037	0.654 +	-0.036	0.089
Q16	0.174	0.366 +	0.476 +	-0.134	-0.032
Q17	0.136	-0.053	-0.116	0.758 +	-0.224
Q18	-0.210	0.009	0.187	0.091	-0.777 +
Q19	-0.067	0.282 -	-0.087	0.075	-0.206
Q20	-0.070	-0.014 -	0.704 +	0.091	-0.012
Q21	-0.033	0.040 -	0.759 +	0.047	-0.018
Q22	-0.142	0.582 +	0.242	0.113	0.015
Q23	-0.293	0.361 +	0.394 +	0.190	0.036
Q25	0.193	0.109	0.264	-0.136	-0.133
Q26	-0.046	0.342 +	0.297 -	0.068	-0.048
Q27	0.016	0.360 +	-0.027	-0.097	-0.205
Q30	0.041	-0.197	0.073	0.041	-0.220
Q31	0.099	-0.195	0.047	0.004	-0.476 +
Q32	0.072	0.024	-0.166	-0.093	-0.512 +
Q33	-0.150	0.254	-0.076	-0.070	-0.644 +
Q34	-0.034	0.278	0.084	-0.055	-0.518 +
Q35	0.059	0.007	-0.022	0.123	-0.523 +
Q37	0.007	0.508 +	0.337 +	-0.166	0.013
Q38	0.116	0.139	0.249	-0.035	-0.053
Q39	-0.187	0.157	0.546 +	0.076	-0.125
Q40	0.041	-0.136	0.452 +	0.095	-0.277
Q41	-0.046	0.325 +	0.337 +	0.185 -	-0.027
Q42	0.429 +	0.006	0.007	0.152	-0.270
Q43	-0.053	0.185	0.467 +	0.088	0.055
Q45	0.105	0.532 +	-0.047	0.149 -	-0.179 -
Q46	0.183	0.241	0.159	0.226 -	-0.028
Q48	0.200	0.009	0.268	-0.136	-0.150
Q50	0.496 +	0.015	-0.101	0.035	0.014 -
Q51	0.043	0.126	-0.210	0.114	-0.127
Q52	0.108	-0.030	-0.003	0.045	-0.524 +
Q54	0.093	0.159	-0.066	0.170	-0.099
Q55	-0.032	0.004	0.078	-0.115	-0.044
Q56A	-0.002	0.033	0.051	-0.110	-0.021
Q56B	-0.008	0.112	-0.115	-0.022	-0.020
Q56C	-0.009	-0.054	-0.013	-0.032	0.032
Q56D	0.044	0.008	-0.005	0.030	-0.016
Q56E	0.089	0.038	0.144	-0.074	-0.015
Q56F	0.013	0.042	0.017	-0.074	0.028
Q56G	0.064	-0.132	0.139	-0.117	0.125

Table C11 continued.

	1 WD	2 AGG	3 DEL	4 ATT	5 AD
Q57	0.071	0.458 +	0.529 +	-0.222	-0.111
Q61	-0.063	0.032	0.135	0.528 +	0.105
Q62	0.313 +	-0.198	0.121	0.229 -	0.029
Q63	0.006	0.088	0.146 -	-0.004	-0.029
Q64	0.219	0.036	0.065	0.098	0.142
Q65	0.402 +	0.144	0.168	0.207	-0.047
Q66	0.221	0.115	0.183	0.168	-0.026
Q67	-0.178	0.315 +	0.341 +	0.096	-0.209
Q68	0.134	0.715 +	0.058	-0.049	0.105
Q69	0.390 +	0.220	0.102	0.089	-0.087
Q70	0.151	-0.231	0.391 +	0.163	-0.310 +
Q71	0.694 +	0.122	-0.053	0.009	0.127 -
Q72	0.137	0.069	0.659 +	0.044	0.193
Q74	-0.075	0.149 -	0.223	0.010	0.095
Q75	0.853 +	0.022	-0.117	0.005	0.259
Q80	0.294 -	-0.076	-0.019	0.790 +	-0.008
Q81	-0.049	-0.012	0.727 +	-0.056	0.048
Q82	-0.089	-0.166	0.866 +	-0.039	0.036
Q84	0.350 +	0.138	0.292	0.163	-0.156
Q85	0.225	0.046	0.420 +	0.162	-0.145
Q86	0.211	0.713 +	-0.008	0.073	0.011
Q87	0.128	0.503 +	-0.049	0.124	-0.262
Q88	0.124 -	0.790 +	-0.003	0.009	-0.067
Q89	0.262	0.364 +	0.038	-0.054	-0.205 -
Q90	0.052	0.532 +	0.337 +	-0.037	0.000
Q91	-0.192	0.153	0.117	-0.041	-0.802 +
Q93	-0.047	0.243 -	0.151	-0.017	0.040
Q94	0.083	0.515 +	0.345 +	-0.062	0.027
Q95	0.048	0.717 +	0.195	-0.107	-0.087
Q96	0.062	0.089	0.369 +	0.006	-0.163
Q97	0.107	0.450 +	0.536 +	-0.241	-0.045
Q100	0.190	0.067	0.078	0.043	-0.034
Q101	-0.115	0.188	0.258 -	0.120	-0.051
Q102	0.401 +	-0.077	-0.017	0.317 +	0.058
Q103	0.180 -	0.186	-0.067	0.147	-0.437 +
Q104	0.029	0.490 +	0.336 +	0.003	0.055
Q105	-0.138	-0.111	0.627 +	-0.081	-0.275
Q106	-0.020	0.130	0.663 +	0.009	-0.031
Q111	0.521 +	0.007	0.038	0.057	-0.129
Q112	0.361 +	0.077	-0.189	0.008	-0.180 -

Table C11 continued.

	6	7	8
	SOM	IMM	SP
Q1	-0.058	0.177	0.335 +
Q3	0.075	0.187	-0.012
Q7	-0.016	0.313 +	-0.090
Q8	0.003	0.217	0.181
Q9	0.047	0.224	0.002
Q10	0.016	0.370 +	0.013
Q11	0.037	0.407 +	0.319 +
Q12	0.028	0.203	0.391 +
Q13	-0.085	0.070	0.031
Q14	0.060	0.312 +	0.169
Q15	-0.118	0.086	0.049
Q16	-0.110	0.029	0.045
Q17	-0.035	0.086	-0.124
Q18	0.061	-0.083	-0.011
Q19	0.021	0.452 +	0.279
Q20	-0.102	0.252	0.089
Q21	-0.142	0.207	0.103
Q22	-0.023	0.052	0.115
Q23	-0.013	-0.026	0.121
Q25	-0.084	0.022	0.620 +
Q26	-0.081	0.040	0.127
Q27	-0.054	0.314 +	0.302 +
Q30	0.331 +	0.159	0.250
Q31	0.048	0.263	0.182
Q32	-0.004	0.208	-0.040
Q33	-0.059	0.110	0.425 +
Q34	-0.035	0.085	0.295
Q35	-0.012	-0.001	0.401 +
Q37	-0.084	0.146	0.210
Q38	-0.033	0.157	0.393 +
Q39	0.022	0.014	0.082
Q40	0.041	0.265	-0.077
Q41	0.015	0.089	0.006
Q42	-0.065	-0.246	0.150
Q43	0.070	0.048	0.152
Q45	0.135	-0.016	-0.023
Q46	0.054	0.089	-0.070
Q48	-0.053	0.024	0.652 +
Q50	0.195	0.329 +	0.157
Q51	0.727 +	0.010	-0.118
Q52	0.112	0.195	0.180
Q54	0.458 +	-0.104	-0.025
Q55	0.340 +	-0.105	0.332 +
Q56A	0.790 +	0.086	0.037
Q56B	0.841 +	-0.041	-0.029
Q56C	0.928 +	0.109	-0.034
Q56D	0.415 +	-0.032	0.103
Q56E	0.301 +	0.040	-0.027
Q56F	0.736 +	0.155	-0.029
Q56G	0.767 +	0.166	0.009

Table C11 continued.

	6 SOM	7 IMM	8 SP
Q57	-0.106	0.030	0.035
Q61	0.078	-0.021	0.236
Q62	0.077	-0.040	0.434 +
Q63	0.053	0.261	-0.041
Q64	0.015	0.277	0.346 +
Q65	-0.064	-0.203	0.063
Q66	-0.038	0.149	0.046
Q67	0.099	-0.168	-0.034
Q68	0.084	0.136	-0.038
Q69	-0.014	-0.154	0.021
Q70	0.074	0.279	-0.099
Q71	-0.002	0.047	0.131
Q72	0.068	0.004	-0.022
Q74	-0.003	0.374 +	-0.084
Q75	0.017	0.091	0.123
Q80	-0.045	0.071	-0.107
Q81	0.187	-0.126	0.162
Q82	0.073	-0.062	0.138
Q84	-0.028	-0.037	-0.006
Q85	-0.042	0.077	-0.169
Q86	0.011	-0.026	-0.013
Q87	0.088	-0.014	-0.090
Q88	0.092	-0.026	-0.039
Q89	0.091	0.082	0.049
Q90	-0.014	0.006	-0.022
Q91	0.054	-0.126	0.042
Q93	0.139	0.446 +	-0.025
Q94	-0.058	0.179	0.055
Q95	0.056	0.002	-0.063
Q96	0.114	0.066	-0.011
Q97	-0.033	0.020	-0.003
Q100	0.259	0.174	-0.034
Q101	0.356 +	-0.272	0.022
Q102	0.108	-0.149	0.357 +
Q103	0.117	-0.147	0.207
Q104	0.025	0.208	-0.026
Q105	0.373 +	-0.093	-0.126
Q106	-0.108	0.188	0.028
Q111	-0.057	-0.219	0.388 +
Q112	0.119	0.295	-0.079

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior, IMM = Immature Behavior. Underlined are cross-informan model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 3772.

Table C12.

Item Loadings for Nine Factor Solution Based on 90 CBCL Items Rated in Israel

	1 SP	2 AGG	3 WD	4 ATT	5 TP
Q1	0.255 -	0.088	0.170	0.266 -	0.035
Q3	-0.052	0.714 +	-0.024	-0.035	0.070
Q7	-0.094	0.404 +	-0.168	-0.005	0.297
Q8	0.017	0.072	-0.102	0.616 +	0.052
Q9	-0.049	0.032	-0.065	0.360 +	0.229 -
Q10	-0.118	0.289	-0.141	0.296 -	0.260
Q11	0.198 -	0.012	0.173	0.098	0.289
Q12	0.243	0.009	-0.001	-0.003	0.103
Q13	0.065	-0.061	0.016	0.841 +	0.089
Q14	-0.011	0.322 +	0.112	0.044	0.153
Q15	0.096	-0.008	0.171	-0.021	0.191
Q16	0.098	0.407 +	0.117	-0.111	0.110
Q17	-0.025	-0.046	-0.062	0.882 +	0.172
Q18	-0.107	-0.014	-0.201	0.112	0.002
Q19	0.022	0.276 -	0.040	-0.009	0.242
Q20	-0.174	0.027 -	0.157	-0.059	0.114
Q21	-0.155	0.092 -	0.209	-0.121	0.067
Q22	-0.028	0.598 +	-0.057	0.027	-0.091
Q23	0.074	0.368 +	-0.292	0.159	-0.082
Q25	0.680 +	0.161	-0.015	-0.066	0.037
Q26	0.050	0.353 +	-0.022	0.028	-0.014
Q27	0.056	0.359 +	0.141	-0.203	0.118
Q30	0.053	-0.246	0.123	-0.022	0.058
Q31	0.069	-0.212	0.094	0.017	0.272
Q32	-0.070	0.025	0.043	-0.044	0.276
Q33	0.166	0.226	-0.063	-0.157	-0.052
Q34	0.174	0.276	-0.040	-0.074	0.039
Q35	0.217	-0.039	0.067	0.089	-0.099
Q37	0.252	0.565 +	-0.076	-0.144	0.147
Q38	0.485 +	0.192	-0.069	0.038	0.193
Q39	0.104	0.169	-0.243	0.096	0.080
Q40	-0.028	-0.114	-0.041	0.167	0.418 +
Q41	0.005	0.346 +	-0.084	0.198 -	0.099
Q42	0.252	0.013	0.256 -	0.238	-0.139
Q43	0.016	0.182	0.036	0.003	-0.037
Q45	-0.089	0.530 +	0.096	0.154 -	-0.056
Q46	-0.039	0.257	0.105	0.280 -	0.137
Q48	0.760 +	0.065	-0.058	-0.040	0.074
Q50	0.068	0.008	0.479 +	0.041	0.266
Q51	-0.089	0.118	0.008	0.146	0.020
Q52	0.096	-0.043	0.063	0.076	0.212
Q54	0.022	0.157	0.025	0.202	-0.085
Q55	0.462 +	0.038	-0.170	-0.088	-0.086
Q56A	0.040	0.038	0.009	-0.126	0.072
Q56B	-0.003	0.110	-0.015	-0.024	-0.058
Q56C	-0.067	-0.069	0.036	-0.056	0.075
Q56D	0.131	0.009	-0.001	0.040	-0.039
Q56E	0.059	0.062	0.031	-0.041	0.112
Q56F	-0.063	0.040	0.058	-0.100	0.122
Q56G	-0.013	-0.132	0.110	-0.145	0.148

Table C12continued.

	1	2	3	4	5
	SP	AGG	WD	ATT	TP
Q57	0.163	0.513 +	-0.057	-0.148	0.174
Q61	0.087	-0.019	-0.047	0.481 +	-0.174
Q62	0.621 +	-0.159	0.043	0.331 +	0.033
Q63	0.012	0.126	-0.044	0.036	0.314 +
Q64	0.248 -	0.040	0.213	0.062	0.145
Q65	0.009	0.115	0.376 +	0.212	-0.202
Q66	0.157	0.153	0.060	0.265	0.242 -
Q67	-0.088	0.314 +	-0.141	0.068	-0.155
Q68	-0.027	0.764 +	0.116	-0.049	0.093
Q69	0.005	0.209	0.349 +	0.106	-0.125
Q70	-0.073	-0.220	0.078	0.237	0.431 +
Q71	-0.002	0.086	0.708 +	-0.016	-0.036
Q72	0.034	0.096	0.110	0.048	0.087
Q74	-0.074	0.186 -	-0.070	0.019	0.385 +
Q75	-0.029	-0.025	0.911 +	-0.034	-0.008
Q80	0.041	-0.060	0.070 -	0.917 +	0.169 -
Q81	0.030	-0.020	0.079	-0.172	-0.166
Q82	0.086	-0.157	-0.025	-0.103	-0.014
Q84	0.104	0.162	0.193	0.255	0.105 -
Q85	-0.051	0.076	0.103	0.255	0.263 -
Q86	-0.026	0.734 +	0.179	0.078	-0.068
Q87	-0.104	0.512 +	0.084	0.160	0.005
Q88	-0.080	0.815 +	0.131 -	-0.007	-0.080
Q89	0.039	0.382 +	0.218	-0.033	0.101
Q90	0.017	0.568 +	0.009	-0.022	0.043
Q91	-0.071	0.130	-0.170	-0.035	-0.065
Q93	0.044	0.301 -	-0.118	0.033	0.484 +
Q94	0.125	0.571 +	-0.009	-0.017	0.222
Q95	0.014	0.772 +	-0.029	-0.063	0.053
Q96	0.092	0.119	-0.047	0.073	0.197
Q97	0.164	0.507 +	-0.032	-0.159	0.183
Q100	-0.054	0.072	0.180	0.060	0.188
Q101	-0.055	0.155	-0.058	0.066	-0.309 +
Q102	0.463 +	-0.063	0.205 -	0.377 +	-0.146
Q103	0.145	0.163	0.117 -	0.169	-0.159
Q104	0.033	0.542 +	-0.041	0.043	0.245
Q105	0.084	-0.085	-0.277	0.024	0.166
Q106	-0.095	0.178	0.102	-0.076	0.160
Q111	0.536 +	0.039	0.290 -	0.146	-0.137
Q112	-0.069	0.091	0.304 +	0.071	0.346 +

Table C12 continued.

	6 DEL	7 IMM	8 DEP	9 SOM
Q1	0.114	0.341 +	-0.167	-0.059
Q3	-0.179	0.165	-0.087	0.082
Q7	0.007	0.115	-0.017	-0.017
Q8	0.178	0.477 +	-0.035	-0.003
Q9	-0.028	0.158	0.278	0.043
Q10	0.251	0.360 +	-0.070	0.012
Q11	-0.014	0.334 +	0.105	0.036
Q12	-0.074	0.248	0.495 +	0.027
Q13	-0.059	0.199	0.082	-0.085
Q14	-0.094	0.310 +	0.204 -	0.065
Q15	0.592 +	-0.060	-0.111	-0.123
Q16	0.385 +	-0.092	0.017	-0.111
Q17	-0.211	0.099	0.135	-0.037
Q18	0.194	-0.063	0.762 +	0.061
Q19	-0.007	0.445 +	0.282	0.027
Q20	0.810 +	0.278	0.078	-0.084
Q21	0.872 +	0.241	0.089	-0.129
Q22	0.307 +	0.238	0.041	-0.015
Q23	0.390 +	0.178	-0.016	-0.017
Q25	0.097	0.089	0.139	-0.095
Q26	0.314 +	0.134	0.078	-0.080
Q27	0.070	0.338 +	0.297	-0.045
Q30	0.205	0.225	0.293	0.331 +
Q31	0.050	0.111	0.490 +	0.043
Q32	-0.228	-0.050	0.493 +	-0.008
Q33	0.026	0.279	0.735 +	-0.054
Q34	0.083	0.128	0.555 +	-0.034
Q35	0.082	0.213	0.594 +	-0.012
Q37	0.196	0.064	-0.016	-0.089
Q38	0.064	0.096	0.025	-0.042
Q39	0.472 +	0.025	0.106	0.014
Q40	0.328 +	-0.042	0.211	0.033
Q41	0.288	0.090	0.013	0.013
Q42	-0.048	-0.161	0.238	-0.064
Q43	0.553 +	0.189	0.002	0.072
Q45	-0.018	0.057	0.201 -	0.139
Q46	0.109	0.019	0.002	0.051
Q48	0.056	0.058	0.137	-0.065
Q50	-0.058	0.164	0.024 -	0.197
Q51	-0.216	-0.038	0.103	0.728 +
Q52	-0.022	0.086	0.532 +	0.107
Q54	-0.077	-0.042	0.078	0.460 +
Q55	-0.042	-0.033	0.014	0.340 +
Q56A	0.044	-0.004	0.017	0.792 +
Q56B	-0.109	-0.041	0.012	0.843 +
Q56C	0.031	0.030	-0.026	0.930 +
Q56D	-0.018	0.009	0.010	0.414 +
Q56E	0.066	-0.102	-0.023	0.300 +
Q56F	0.040	0.036	-0.023	0.738 +
Q56G	0.162	0.022	-0.120	0.767 +

Table C12continued.

	6 DEL	7 IMM	8 DEP	9 SOM
Q57	0.341 +	-0.168	0.065	-0.114
Q61	0.279	0.367 +	-0.041	0.077
Q62	-0.044	0.038	-0.094	0.072
Q63	0.032 -	0.023	-0.018	0.049
Q64	0.100	0.311 +	-0.092	0.015
Q65	0.271	-0.021	0.089	-0.062
Q66	0.036	-0.001	-0.032	-0.047
Q67	0.371 +	-0.018	0.217	0.102
Q68	-0.005	0.048	-0.105	0.090
Q69	0.152	-0.079	0.109	-0.009
Q70	0.301 +	-0.036	0.247	0.067
Q71	0.105	0.075	-0.029 -	0.006
Q72	0.618 +	-0.059	-0.215	0.066
Q74	0.132	0.112	-0.128	-0.007
Q75	0.087	0.090	-0.163	0.028
Q80	-0.120	0.085	-0.095	-0.043
Q81	0.840 +	0.054	0.026	0.188
Q82	0.887 +	0.006	-0.008	0.062
Q84	0.190	-0.133	0.104	-0.030
Q85	0.296	-0.157	0.065	-0.045
Q86	-0.014	0.031	0.007	0.018
Q87	-0.070	-0.028	0.255	0.091
Q88	0.003	0.021	0.090	0.101
Q89	0.004	-0.025	0.208 -	0.094
Q90	0.264 -	-0.041	-0.011	-0.013
Q91	0.137	-0.082	0.809 +	0.055
Q93	-0.028	0.112	-0.102	0.136
Q94	0.198	0.020	-0.054	-0.062
Q95	0.066	-0.100	0.063	0.056
Q96	0.237 -	-0.108	0.104	0.109
Q97	0.333 +	-0.210	-0.015	-0.037
Q100	0.072	0.027	0.029	0.258
Q101	0.373 +	0.003	0.093	0.361
Q102	-0.064	0.062	-0.082	0.110
Q103	-0.027	0.024	0.461 +	0.119
Q104	0.206	0.036	-0.089	0.022
Q105	0.433 +	-0.332 +	0.156	0.366
Q106	0.682 +	0.112	0.048	-0.100
Q111	-0.071	-0.115	0.100	-0.059
Q112	-0.249	-0.016	0.152 -	0.118

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior, IMM = Immature Behavior. Underlined are cross-informan model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 3772.

Table C13.

Item Loadings for Ten Factor Solution Based on 90 CBCL Items Rated in Israel

	1 SP	2 AGG	3 DEL	4 ATT1	5 AD
Q1	0.266 -	0.074	0.079	0.377 +	-0.133
Q3	-0.066	0.623 +	-0.103	0.020	-0.093
Q7	-0.130	0.243 -	0.121	-0.065	-0.023
Q8	0.037	0.083	0.096	0.640 +	-0.009
Q9	-0.048	0.027	-0.045	0.189	0.280
Q10	-0.095	0.270	0.163	0.489 +	-0.039
Q11	0.212 -	-0.012	-0.053	0.299	0.150
Q12	0.252	0.006	-0.085	0.162	0.518 +
Q13	0.055	-0.082	-0.014	0.259 -	0.072
Q14	-0.007	0.282	-0.084	0.214	0.229 -
Q15	0.105	-0.001	0.511 +	0.048	-0.106
Q16	0.094	0.379 +	0.366 +	-0.086	0.010
Q17	-0.045	-0.080	-0.139	0.139 -	0.116
Q18	-0.105	0.038	0.166	-0.035	0.726 +
Q19	0.021	0.191 -	0.019	0.284	0.317 +
Q20	-0.148	0.026 -	0.707 +	0.337 +	0.097
Q21	-0.131	0.091 -	0.775 +	0.282	0.104
Q22	-0.030	0.554 +	0.306 +	0.218	0.040
Q23	0.070	0.325 +	0.379 +	0.237	-0.023
Q25	0.685 +	0.136	0.087	0.059	0.162
Q26	0.035	0.290	0.345 +	0.069	0.071
Q27	0.040	0.256 -	0.141	0.089	0.321 +
Q30	0.061	-0.221	0.162	0.211	0.315 +
Q31	0.066	-0.225	0.047	0.019	0.503 +
Q32	-0.090	-0.025	-0.162	-0.230	0.493 +
Q33	0.161	0.192	0.064	0.080	0.746 +
Q34	0.164	0.236	0.121	-0.020	0.554 +
Q35	0.226	0.005	0.049	0.178	0.605 +
Q37	0.248	0.484 +	0.214	0.001	-0.008
Q38	0.484 +	0.121	0.087	0.047	0.043
Q39	0.092	0.118	0.470 +	0.056	0.093
Q40	-0.032	-0.137	0.292	0.010	0.205
Q41	0.002	0.311 +	0.278	0.138 -	0.006
Q42	0.241	0.046	-0.012	-0.186	0.212
Q43	-0.015	0.089	0.607 +	0.094	-0.006
Q45	-0.071	0.589 +	-0.081	0.147 -	0.199 -
Q46	-0.018	0.308 +	0.017	0.188 -	0.002
Q48	0.768 +	0.048	0.038	0.052	0.161
Q50	0.079	0.027	-0.108	0.145	0.055 -
Q51	-0.089	0.145	-0.200	-0.016	0.089
Q52	0.099	-0.031	-0.042	0.039	0.540 +
Q54	0.020	0.183	-0.061	-0.007	0.060
Q55	0.461 +	0.014	-0.007	-0.062	0.016
Q56A	0.037	0.023	0.067	-0.039	0.022
Q56B	-0.008	0.113	-0.070	-0.063	0.003
Q56C	-0.064	-0.058	0.029	0.046	-0.020
Q56D	0.135	0.026	-0.022	0.036	0.010
Q56E	0.056	0.052	0.070	-0.095	-0.028
Q56F	-0.072	0.006	0.077	-0.022	-0.017
Q56G	-0.004	-0.121	0.130	0.058	-0.104

Table C13continued.

	1	2	3	4	5
	SP	AGG	DEL	ATT1	AD
Q57	0.163	0.477 +	0.320 +	-0.143	0.054
Q61	0.097	0.006	0.227	0.491 +	-0.030
Q62	0.622 +	-0.168	-0.036	0.087 -	-0.084
Q63	0.002	0.049	0.066 -	-0.032	-0.013
Q64	0.251 -	-0.004	0.089	0.259	-0.052
Q65	-0.005	0.138	0.283	-0.033	0.067
Q66	0.174	0.177	-0.037	0.130	-0.024
Q67	-0.095	0.320 +	0.364 +	0.023	0.188
Q68	-0.016	0.736 +	-0.017	0.049	-0.098
Q69	-0.026	0.190	0.225	-0.193	0.081
Q70	-0.082	-0.238	0.276	-0.005	0.239
Q71	-0.014	0.083	0.131	-0.052	-0.020 -
Q72	0.033	0.081	0.574 +	0.042	-0.223
Q74	-0.084	0.083 -	0.160	0.058	-0.117
Q75	-0.035	-0.003	0.082	-0.013	-0.141
Q80	0.025	-0.095	-0.051	0.152 -	-0.115
Q81	-0.003	-0.084	0.867 +	-0.047	0.012
Q82	0.056	-0.230	0.885 +	-0.049	-0.022
Q84	0.116	0.226	0.110	0.023	0.088
Q85	-0.051	0.095	0.243	-0.033	0.045
Q86	-0.026	0.727 +	-0.008	0.018	-0.005
Q87	-0.095	0.548 +	-0.099	0.019	0.239
Q88	-0.067	0.828 +	-0.020	0.040	0.082
Q89	0.028	0.358 +	0.033	-0.123	0.199 -
Q90	0.022	0.556 +	0.234 -	0.012	-0.019
Q91	-0.067	0.193	0.103	-0.075	0.778 +
Q93	0.047	0.215 -	-0.027	0.096	-0.079
Q94	0.120	0.501 +	0.205	-0.002	-0.054
Q95	0.028	0.769 +	0.037	-0.051	0.053
Q96	0.091	0.111	0.213 -	-0.050	0.092
Q97	0.159	0.464 +	0.324 +	-0.190	-0.029
Q100	-0.037	0.118	-0.008	0.130	0.039
Q101	-0.062	0.185	0.364 +	0.063	0.066
Q102	0.459 +	-0.062	-0.025	0.067	-0.083
Q103	0.155	0.237	-0.063	0.060	0.446 +
Q104	0.058	0.528 +	0.135	0.146	-0.077
Q105	0.095	-0.033	0.357 +	-0.110	0.123
Q106	-0.065	0.186	0.575 +	0.209	0.058
Q111	0.535 +	0.079	-0.068	-0.112	0.092
Q112	-0.068	0.093	-0.257	-0.064	0.162 -

Table C13 continued.

	6 ATT2	7 SHOW OFF	8 TP	9 SOM	10 WD
Q1	0.163 -	0.025	0.036	-0.063	0.161
Q3	0.055	0.335 +	0.251	0.092	0.004
Q7	0.167	0.555 +	0.164	0.000	-0.120
Q8	0.406 +	0.012	-0.041	-0.022	-0.126
Q9	0.293	0.168	-0.136 -	0.037	-0.069
Q10	0.118 -	0.219	-0.136	-0.002	-0.159
Q11	0.020	0.212	-0.050	0.030	0.168
Q12	-0.042	0.071	0.039	0.025	-0.008
Q13	0.766 +	0.096	-0.044	-0.073	0.029
Q14	0.018	0.212	0.104	0.065	0.122
Q15	-0.071	0.017	-0.323 +	-0.123	0.154
Q16	-0.084	0.097	-0.167	-0.108	0.112
Q17	0.848 +	0.196	-0.078	-0.025	-0.045
Q18	0.080	-0.097	-0.176	0.059	-0.215
Q19	0.001	0.346 +	0.181	0.032	0.064
Q20	-0.149	0.006	-0.118	-0.078	0.151
Q21	-0.189	-0.027	-0.105	-0.120	0.204
Q22	0.011	0.068	0.141	-0.013	-0.053
Q23	0.121	0.043	0.059	-0.019	-0.292
Q25	-0.087	0.026	-0.027	-0.093	-0.032
Q26	0.085	0.121	0.100	-0.072	-0.005
Q27	-0.094	0.302 +	0.290	-0.031	0.183
Q30	-0.075	-0.049	-0.032	0.323 +	0.116
Q31	0.037	0.167	-0.112	0.043	0.100
Q32	0.080	0.295	-0.031	-0.004	0.064
Q33	-0.109	0.057	0.235	-0.045	-0.052
Q34	-0.011	0.119	0.087	-0.027	-0.031
Q35	0.022	-0.166	0.019	-0.019	0.046
Q37	-0.102	0.261	0.008	-0.083	-0.067
Q38	0.054	0.231	-0.031	-0.036	-0.063
Q39	0.118	0.127	-0.089	0.015	-0.234
Q40	0.156	0.260	-0.354 +	0.031	-0.037
Q41	0.169 -	0.137	-0.085	0.013	-0.083
Q42	0.283	-0.170	-0.070	-0.057	0.243 -
Q43	0.118	0.135	0.172	0.085	0.074
Q45	0.031 -	-0.102	-0.124	0.120	0.059
Q46	0.130 -	-0.022	-0.315 +	0.032	0.064
Q48	-0.078	0.023	-0.082	-0.064	-0.080
Q50	-0.018	0.110	-0.163	0.186	0.468 +
Q51	0.133	0.017	-0.056	0.713 +	0.001
Q52	0.053	0.100	-0.150	0.100	0.052
Q54	0.190	-0.068	-0.034	0.452 +	0.015
Q55	-0.053	-0.017	0.074	0.340 +	-0.173
Q56A	-0.085	0.091	-0.007	0.780 +	0.020
Q56B	0.015	0.005	0.052	0.832 +	-0.010
Q56C	-0.062	0.042	-0.046	0.914 +	0.039
Q56D	0.018	-0.053	-0.021	0.407 +	-0.010
Q56E	-0.015	0.083	-0.118	0.296 -	0.031
Q56F	-0.043	0.160	0.021	0.732 +	0.080
Q56G	-0.167	0.052	-0.122	0.754 +	0.109

Table C13 continued.

	6 ATT2	7 SHOW OFF	8 TP	9 SOM	10 WD
Q57	-0.128	0.162	-0.228	-0.111	-0.065
Q61	0.330 +	-0.171	0.051	0.065	-0.065
Q62	0.291 -	-0.020	-0.089	0.073	0.029
Q63	0.092	0.344 +	-0.074	0.054	-0.023
Q64	0.031	0.146	0.056	0.014	0.218
Q65	0.249	-0.193	-0.008	-0.057	0.369 +
Q66	0.148	0.086	-0.320 +	-0.061	0.028
Q67	0.067	-0.093	-0.018	0.101	-0.145
Q68	-0.083	0.166	-0.038	0.085	0.106
Q69	0.238	-0.037	0.065	0.001	0.370 +
Q70	0.242	0.252	-0.359 +	0.066	0.086
Q71	0.063	-0.043	0.054	0.013	0.716 +
Q72	0.036	0.018	-0.222	0.066	0.107
Q74	0.069	0.442 +	-0.052	-0.001	-0.039
Q75	0.018	-0.089	0.002	0.029	0.908 +
Q80	0.869 +	0.175	-0.110 -	-0.028	0.094 -
Q81	-0.003	-0.018	0.142	0.194	0.116
Q82	0.055	0.080	-0.002	0.061	0.005
Q84	0.153	-0.098	-0.388 +	-0.043	0.153
Q85	0.211	0.090	-0.404 +	-0.049	0.086
Q86	0.069	0.033	0.015	0.014	0.166
Q87	0.097	-0.017	-0.138	0.079	0.057
Q88	-0.059	-0.010	-0.023	0.091	0.108 -
Q89	0.034	0.139	-0.039	0.095	0.223
Q90	-0.052	0.062	-0.132	-0.018	-0.005
Q91	-0.068	-0.149	-0.140	0.051	-0.192
Q93	0.024	0.488 +	-0.146	0.133	-0.105
Q94	0.008	0.289	-0.099	-0.060	-0.003
Q95	-0.105	0.086	-0.149	0.048	-0.055
Q96	0.065	0.115	-0.254	0.106	-0.055
Q97	-0.115	0.182	-0.233	-0.035	-0.036
Q100	-0.047	0.014	-0.262	0.245	0.152
Q101	0.062	-0.246	0.050	0.355 +	-0.069
Q102	0.370 +	-0.125	0.048	0.115	0.198 -
Q103	0.095	-0.238	-0.085	0.109	0.083 -
Q104	-0.068	0.187	-0.250	0.012	-0.067
Q105	-0.054	-0.068	-0.490 +	0.360 +	-0.311 +
Q106	-0.176	0.023	-0.238	-0.097	0.081
Q111	0.145	-0.203	-0.090	-0.057	0.263 -
Q112	0.073	0.231	-0.203	0.110	0.299

Note. WD = Withdrawn, SOM = Somatic Complaints, AD = Anxious/ Depressed, SP = Social Problems, TP = Thought Problems, ATT = Attention Problems, Del = Delinquent Behavior, AGG = Aggressive Behavior. Underlined are cross-informant model loadings. + indicates loading ≧ ±.3, - indicates cross-informant model loading < ±.3. Loadings after WLSMV estimation and PROMAX rotation. *N* = 3772.

APPENDIX D

Evaluation of Individual Items Against Factors

Table D1.

Predicted and Unpredicted Loadings for Item 1 (Acts too young for his/her age) After Exploratory Factor Analyses (WLSMV)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8				0.24		0.41				
ACQ-9				0.17		0.45				
ACQ-10				0.17		0.45				
US-8				0.32		0.38				
US-9				0.15		0.51				
US-10				0.17		0.46				
AUS-7				0.38		NA		0.31		
AUS-8				0.34		NA		0.30		
AUS-9				0.32		NA		0.31		
AUS-10				0.14		0.49		0.31		
IS-8				0.34		0.29				
IS-9				0.26		0.27				0.34
IS-10				0.27		0.38				
						0.16				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D2.

Predicted and Unpredicted Loadings for Item 3 (Argues a lot) After Exploratory Factor Analyses (WLSMV)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.73		
ACQ-9								0.70		
ACQ-10								0.68		
US-8								0.60		
US-9								0.50		
US-10								0.57		
AUS-7								0.79		
AUS-8								0.78		
AUS-9								0.77		
AUS-10								0.78		
IS-8								0.68		
IS-9								0.71		
IS-10								0.62	0.34	

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D3.

Predicted and Unpredicted Loadings for Item 7 (Bragging, boasting) After Exploratory Factor Analyses (WLSMV)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.62		
ACQ-9								0.51	0.33	
ACQ-10								0.54	0.35	
US-8								0.22	0.53	
US-9								0.13	0.59	
US-10								0.07	0.63	
AUS-7								0.64		
AUS-8								0.60		
AUS-9								0.57		
AUS-10								0.59		
IS-8								0.36		0.31
IS-9								0.40		
IS-10								0.24	0.55	

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D4.

Predicted and Unpredicted Loadings for Item 8 (Can't concentrate, can't pay attention for long) After Exploratory Factor Analyses (WLSMV)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8						0.70				
ACQ-9						0.72				
ACQ-10						0.73				
US-8						0.65				
US-9						0.68	0.30			
US-10						0.77				
AUS-7				0.36	0.44	NA		0.34		
AUS-8					0.39	NA		0.33		
AUS-9					0.38	NA		0.35		
AUS-10						0.48		0.53		
IS-8						0.64				
IS-9						0.62				0.48
IS-10						0.64				
						0.41				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D5.

Predicted and Unpredicted Loadings for Item 9 (Can't get his/her mind of certain thoughts, obsessions)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8					0.22					
ACQ-9					0.22					
ACQ-10					0.22					
US-8			0.31		NA					
US-9					0.25					
US-10					0.25					
AUS-7					0.38					
AUS-8			0.33		0.39					
AUS-9			0.31		0.41					
AUS-10			0.32		0.35					
IS-8					NA	0.32				
IS-9					0.23	0.36				
IS-10					0.14					

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D6.

Predicted and Unpredicted Loadings for Item 10 (Can't sit still, restless, or hyperactive)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8						0.44		0.44		
ACQ-9						0.42		0.36		
ACQ-10						0.42		0.34		
US-8						0.59				
US-9						0.52			0.31	
US-10						0.51			0.31	
AUS-7					0.41	NA		0.53		
AUS-8					0.38	NA		0.52		
AUS-9					0.37	NA		0.54		
AUS-10						0.48		0.53		
IS-8						0.33				0.37
IS-9						0.30				0.36
IS-10						0.49				
						0.12				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D7.

Predicted and Unpredicted Loadings for Item 11 (Clings to adults or too dependent)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8				0.13						
ACQ-9				0.08			-0.32			
ACQ-10				0.04			-0.34			
US-8				0.13		0.42	-0.40			
US-9				0.00		0.40	-0.35			
US-10				0.00			-0.37			
AUS-7				0.13			0.37			
AUS-8				0.09			0.34			
AUS-9				0.09						
AUS-10			0.31	0.02		0.32				
IS-8				0.32						0.41
IS-9				0.20						0.33
IS-10				0.21						

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D8.

Predicted and Unpredicted Loadings for Item 12 (Complains of loneliness)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.40							
ACQ-9			0.41							
ACQ-10			0.38							
US-8			0.47							
US-9			0.50							
US-10			0.43							
AUS-7			0.37							
AUS-8			0.44							
AUS-9			0.47							
AUS-10			0.55							
IS-8			0.45	0.39						
IS-9			0.50							
IS-10			0.52							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D9.
Predicted and Unpredicted Loadings for Item 13 (Confused or seems to be in a fog)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	<u>Attent.</u>	Delinq.	Agg.	Show Off	Immat.
ACQ-8						0.52				
ACQ-9						0.53				
ACQ-10						0.52				
US-8	0.31					0.53				
US-9	0.32				0.32	0.37				
US-10	0.32					0.42				
AUS-7					0.44	NA				
AUS-8					0.42	NA				
AUS-9					0.46	NA				
AUS-10						0.39				
IS-8						0.76				
IS-9						0.84				
IS-10						0.26				
						0.77				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D10.

Predicted and Unpredicted Loadings for Item 14 (Cries a lot)

Sample-N factors	Withdr.	Somatic	<u>Anx/Dep.</u>	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.13							
ACQ-9			0.14				-0.34	0.33		
ACQ-10			0.15				-0.35	0.33		
US-8			0.26					0.41		
US-9			0.33					0.36		
US-10			0.22					0.44		
AUS-7			0.13					0.35		
AUS-8			0.22					0.35		
AUS-9			0.21				0.32	0.31		
AUS-10			0.32							
IS-8			0.15					0.32		0.31
IS-9			0.20					0.32		0.31
IS-10			0.23							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D11.

Predicted and Unpredicted Loadings for Item 15 (Cruel to animals)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.55		
ACQ-9								0.59		
ACQ-10								0.61		
US-8								0.40		
US-9								0.36		
US-10								0.24		
AUS-7								0.66		
AUS-8								0.69		
AUS-9								0.68		
AUS-10								0.68		
IS-8							0.65			
IS-9							0.59			
IS-10					-0.32		0.51			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D12.

Predicted and Unpredicted Loadings for Item 16 (Cruelty, bullying, or meaness to others)

Sample- N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.84		
ACQ-9								0.84		
ACQ-10								0.87		
US-8								0.65		
US-9								0.59		
US-10								0.48		
AUS-7								0.87		
AUS-8								0.89		
AUS-9								0.90		
AUS-10								0.91		
IS-8							0.48	0.37		
IS-9							0.39	0.41		
IS-10							0.37	0.38		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D13.

Predicted and Unpredicted Loadings for Item 17 (Daydreams or gets lost in his/her thoughts)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8						0.63				
ACQ-9						0.59				
ACQ-10						0.57				
US-8	0.37					0.48		-0.32		
US-9	0.38					0.31		-0.32		
US-10	0.39					0.42				
AUS-7					0.47	NA				
AUS-8					0.44	NA				
AUS-9					0.47	NA				
AUS-10						0.46				
IS-8						0.76				
IS-9						0.88				
IS-10						0.14				
						0.85				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D14.

Predicted and Unpredicted Loadings for Item 18 (Deliberately harms self or attempts suicide)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Destruct.
ACQ-8			0.45				0.44			
ACQ-9			0.45				0.32			
ACQ-10					0.33		0.35		0.31	
US-8							0.41	0.31		
US-9					0.31		0.34	0.33		
US-10					0.32		0.38			
AUS-7			0.46							
AUS-8			0.39						-0.31	
AUS-9			0.42						-0.33	
AUS-10			0.46							0.35
IS-8			0.78							
IS-9			0.76							
IS-10			0.73							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D15.

Predicted and Unpredicted Loadings for Item 19 (Demands a lot of attention)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.61		
ACQ-9								0.58		
ACQ-10								0.58		
US-8								0.49		
US-9			0.30			0.33		0.39		
US-10								0.40		
AUS-7								0.65		
AUS-8								0.64		
AUS-9								0.63		
AUS-10								0.63		
IS-8								0.28		0.45
IS-9								0.28		0.45
IS-10			0.32					0.19	0.35	

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D16.

Predicted and Unpredicted Loadings for Item 20 (Destroys his/her own things)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Destruct.
ACQ-8								0.55		
ACQ-9								0.62		
ACQ-10								0.66		
US-8						0.40		0.60		
US-9						0.47		0.52		
US-10							0.54	0.30		
AUS-7					0.32			0.75		
AUS-8					0.32			0.78		
AUS-9					0.33			0.75		
AUS-10								0.73		0.41
IS-8							0.70	-0.01		
IS-9							0.81	0.03		
IS-10						0.34	0.71	0.03		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D17.

Predicted and Unpredicted Loadings for Item 21 (Destroys things belonging to his/her family or others)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Destruct.
ACQ-8								0.69		
ACQ-9								0.78		
ACQ-10								0.83		
US-8						0.31		0.71		
US-9						0.39		0.64		
US-10							0.59	0.38		
AUS-7								0.82		
AUS-8								0.86		
AUS-9								0.83		
AUS-10								0.82		0.39
IS-8							0.76	0.04		
IS-9							0.87	0.09		
IS-10							0.78	0.09		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D18.

Predicted and Unpredicted Loadings for Item 22 (Disobedient at home)

Sample- N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Destruct.
ACQ-8								0.75		
ACQ-9								0.77		
ACQ-10								0.78		
US-8								0.63		
US-9								0.53		
US-10								0.56		
AUS-7								0.84		
AUS-8								0.84		
AUS-9								0.84		
AUS-10								0.85		
IS-8								0.58		
IS-9							0.31	0.60		
IS-10							0.31	0.55		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D19.

Predicted and Unpredicted Loadings for Item 23 (Disobedient at school)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Destruct.
ACQ-8						0.32	0.39	0.51		
ACQ-9						0.32	0.34	0.50		
ACQ-10						0.32	0.33	0.52		
US-8							0.44	0.25		
US-9							0.47	0.17		
US-10						0.31	0.41	0.15		
AUS-7				0.31				0.59		
AUS-8								0.59		
AUS-9							0.32	0.64		
AUS-10						0.32	0.34	0.65		
IS-8							0.39	0.36		
IS-9							0.36	0.37		
IS-10							0.38	0.33		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D20.

Predicted and Unpredicted Loadings for Item 25 (Doesn't get along with other kids)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Destruct.
ACQ-8				0.50				0.55		
ACQ-9				0.46				0.56		
ACQ-10				0.46				0.57		
US-8				0.55				0.39		
US-9				0.50				0.33		
US-10				0.55						
AUS-7			0.33	0.53				0.41		
AUS-8				0.59				0.46		
AUS-9				0.58				0.46		
AUS-10				0.50				0.48		
IS-8				0.62						
IS-9				0.68						
IS-10				0.69						

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D21.

Predicted and Unpredicted Loadings for Item 26 (Doesn't seem to feel guilty after misbehaving)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Destruct.
ACQ-8							0.23	0.58		
ACQ-9							0.15	0.61		
ACQ-10							0.13	0.64		
US-8							0.26	0.37		
US-9							0.32			
US-10							0.25			
AUS-7							-0.12	0.73		
AUS-8							-0.13	0.72		
AUS-9							-0.13	0.72		
AUS-10							-0.14	0.73		
IS-8							0.30	0.34		
IS-9							0.31	0.35		
IS-10							0.35			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D22.

Predicted and Unpredicted Loadings for Item 27 (Easily jealous)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.56		
ACQ-9								0.53		
ACQ-10			0.31					0.55		
US-8								0.48		
US-9			0.34					0.40		
US-10			0.34					0.40		
AUS-7								0.65		
AUS-8								0.62		
AUS-9								0.59		
AUS-10			0.32					0.60		
IS-8				0.30				0.36		0.31
IS-9								0.36		0.34
IS-10			0.32					0.26	0.30	

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D23.

Predicted and Unpredicted Loadings for Item 30 (Fears going to school)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.46							
ACQ-9			0.47							
ACQ-10			0.40							
US-8			0.47							
US-9			0.45							
US-10			0.40							
AUS-7			0.42							
AUS-8			0.38							
AUS-9			0.32							
AUS-10			0.40							
IS-8		0.33								
IS-9		0.33								
IS-10		0.32	0.32							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D24.

Predicted and Unpredicted Loadings for Item 31 (Fears he/she might think or do something bad)

Sample- N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.56							
ACQ-9			0.56							
ACQ-10			0.65							
US-8			0.58							
US-9			0.56							
US-10			0.66							
AUS-7			0.54							
AUS-8			0.62							
AUS-9			0.62							
AUS-10			0.66							
IS-8			0.48							
IS-9			0.49							
IS-10			0.50							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D25.

Predicted and Unpredicted Loadings for Item 32 (Feels he/she has to be perfect)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.67							
ACQ-9			0.68							
ACQ-10			0.74							
US-8			0.61							
US-9			0.62							
US-10			0.69							
AUS-7			0.61							
AUS-8			0.75							
AUS-9			0.75							
AUS-10			0.78							
IS-8			0.51							
IS-9			0.49							
IS-10			0.49							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D26.

Predicted and Unpredicted Loadings for Item 33 (Feels or complains that no one loves him/her)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.60					0.31		
ACQ-9			0.61					0.34		
ACQ-10			0.57					0.34		
US-8			0.52					0.38		
US-9			0.57					0.32		
US-10			0.49					0.36		
AUS-7			0.40					0.43		
AUS-8			0.51					0.41		
AUS-9			0.53					0.37		
AUS-10			0.62					0.37		
IS-8			0.64	0.43						
IS-9			0.74							
IS-10			0.75							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D27.

Predicted and Unpredicted Loadings for Item 34 (Feels others are out to get him/her)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.39					0.35		
ACQ-9			0.40					0.33		
ACQ-10			0.32					0.33		
US-8			0.50							
US-9			0.48							
US-10			0.45							
AUS-7			0.44					0.38		
AUS-8			0.46					0.38		
AUS-9			0.47					0.37		
AUS-10			0.48					0.38		
IS-8			0.52							
IS-9			0.56							
IS-10			0.55							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D28.

Predicted and Unpredicted Loadings for Item 35(Feels worthless or inferior)

Sample-N factors	Withdr.	Somatic	<u>Anx/Dep.</u>	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.74							
ACQ-9			0.76							
ACQ-10			0.68							
US-8			0.68	0.30						
US-9			0.72							
US-10			0.61							
AUS-7			0.59							
AUS-8			0.67							
AUS-9			0.66							
AUS-10			0.75							
IS-8			-0.52	0.40						
IS-9			0.59							
IS-10			0.61							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D29.

Predicted and Unpredicted Loadings for Item 37 (Gets in many fights)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.81		
ACQ-9								0.80		
ACQ-10								0.81		
US-8								0.47		
US-9				0.35				0.40		
US-10				0.39				0.30		
AUS-7								0.67		
AUS-8				0.30				0.69		
AUS-9								0.71		
AUS-10								0.73		
IS-8							0.34	0.51		
IS-9								0.57		
IS-10								0.48		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D30.

Predicted and Unpredicted Loadings for Item 38 (Gets teased a lot)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8				0.42						
ACQ-9				0.44						
ACQ-10				0.43						
US-8				0.50						
US-9				0.42						
US-10				0.46						
AUS-7			0.34	0.57						
AUS-8				0.59						
AUS-9				0.58						
AUS-10				0.48						
IS-8				0.39						
IS-9				0.49						
IS-10				0.48						

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D31.

Predicted and Unpredicted Loadings for Item 39 (Hangs around with others who get in trouble)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.58			
ACQ-9							0.61			
ACQ-10							0.18			
							0.59			
US-8							0.66			
US-9							0.69			
US-10							0.12			
							0.64			
AUS-7							-0.44	0.48		
AUS-8							-0.48	0.45		
AUS-9							0.12	0.48		
							-0.47			
AUS-10							0.12	0.49		
							-0.48			
IS-8							0.55			
IS-9							0.47			
IS-10							0.47			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D32.

Predicted and Unpredicted Loadings for Item 40 (Hears sounds or voices that aren't there)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8					-0.62					
ACQ-9					-0.62					
ACQ-10					0.62					
US-8					NA	0.63				
US-9					0.70					
US-10					0.72					
AUS-7					0.55					
AUS-8					0.58					
AUS-9					0.60					
AUS-10					0.60					
IS-8					NA		0.45			
IS-9					0.42		0.33			
IS-10					0.35					

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D33.

Predicted and Unpredicted Loadings for Item 41 (Impulsive or acts without thinking)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8						0.34		0.51		
ACQ-9						0.31		0.46		
ACQ-10						0.31		0.46		
US-8						0.29				
US-9						0.30	0.32			
US-10						0.30			0.31	
AUS-7						NA		0.62		
AUS-8						NA		0.60		
AUS-9						NA		0.60		
AUS-10						0.30		0.61		
IS-8						0.19	0.34	0.33		
IS-9						0.20		0.35		
IS-10						0.14		0.31		
						0.17				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D34.

Predicted and Unpredicted Loadings for Item 42 (Would rather be alone than with others)

Sample-N factors	<u>Withdr.</u>	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.60									
ACQ-9	0.61									
ACQ-10	0.61									
US-8	0.52									
US-9	0.53									
US-10	0.53									
AUS-7	0.50									
AUS-8	0.45									
AUS-9	0.47									
AUS-10	0.51									
IS-8	0.43									
IS-9	0.26									
IS-10	0.24									

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D35.

Predicted and Unpredicted Loadings for Item 43 (Lying or cheating)

Sample- N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	<u>Delinq.</u>	Agg.	Show Off	Immat.
ACQ-8							0.34	0.51		
ACQ-9							0.30	0.52		
ACQ-10							0.31	0.58		
							0.23			
US-8							0.46			
US-9							0.58			
US-10							0.42			
							0.44			
AUS-7							0.28	0.70		
AUS-8							0.33	0.67		
AUS-9							0.17	0.62		
							0.37			
AUS-10							-0.13	0.63		
							0.39			
IS-8							0.47			
IS-9							0.55			
IS-10							0.61			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D36.

Predicted and Unpredicted Loadings for Item 45 (Nervous, highstrung, or tense)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.33		-0.33	0.23				
ACQ-9			0.33		-0.34	0.20				
ACQ-10			0.14		0.38	0.25	0.31			
US-8			0.38			0.36				
US-9			0.39			0.21				
US-10			0.35			0.20				
AUS-7			0.37			NA				
AUS-8			0.43			NA				
AUS-9			0.36			NA				
AUS-10			0.40			0.11				
IS-8			-0.18			0.15		0.53		
IS-9			0.20			0.15		0.53		
IS-10			0.20			0.15		0.59		
						0.03				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D37.

Predicted and Unpredicted Loadings for Item 46 (Nervous movements or twitching)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8					0.46	0.33				
ACQ-9					-0.47	0.29				
ACQ-10					0.51	0.33				
US-8						0.46				
US-9					0.36	0.28				
US-10					0.38	0.20				
AUS-7					0.42	NA				
AUS-8					0.41	NA				
AUS-9					0.40	NA				
AUS-10					0.31	0.27				
IS-8						0.23				
IS-9						0.28				
IS-10					-0.32	0.19		0.31		
						0.13				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D38.

Predicted and Unpredicted Loadings for Item 48 (Not liked by other kids)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8				0.65				0.38		
ACQ-9				0.65				0.38		
ACQ-10				0.66				0.38		
US-8			0.34	0.67						
US-9				0.65						
US-10				0.71						
AUS-7			0.35	0.63				0.36		
AUS-8				0.68				0.41		
AUS-9				0.67				0.40		
AUS-10				0.59				0.42		
IS-8				0.65						
IS-9				0.76						
IS-10				0.77						

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D39.

Predicted and Unpredicted Loadings for Item 50 (Too fearful or anxious)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.49							
ACQ-9			0.49							
ACQ-10			0.43							
US-8			0.54							
US-9			0.54							
US-10			0.54							
AUS-7			0.52							
AUS-8			0.60							
AUS-9			0.52							
AUS-10			0.58							
IS-8	0.50		0.01							0.33
IS-9	0.48		0.02							
IS-10	0.47		0.06							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D40.

Predicted and Unpredicted Loadings for Item 51 (Feels dizzy)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.77								
ACQ-9		0.76								
ACQ-10		0.75								
US-8		0.57								
US-9		0.54								
US-10		0.54								
AUS-7		0.59								
AUS-8		0.59								
AUS-9		0.60								
AUS-10		0.60								
IS-8		0.73								
IS-9		0.73								
IS-10		0.71								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D41.

Predicted and Unpredicted Loadings for Item 52 (Feels too guilty)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.80							
ACQ-9			0.81							
ACQ-10			0.87							
US-8			0.74							
US-9			0.74							
US-10			0.77							
AUS-7			0.65							
AUS-8			0.77							
AUS-9			0.76							
AUS-10			0.80							
IS-8			-0.52							
IS-9			0.53							
IS-10			0.54							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D42.

Predicted and Unpredicted Loadings for Item 54 (Overtired)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.24								
ACQ-9		0.23								
ACQ-10		0.22								
US-8		0.36								
US-9		0.35								
US-10		0.34								
AUS-7		0.44								
AUS-8		0.40								
AUS-9		0.38								
AUS-10		0.38								
IS-8		0.46								
IS-9		0.46								
IS-10		0.45								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D43.

Predicted and Unpredicted Loadings for Item 55 (Overweight)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	<u>SocProb</u>	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8				0.12						
ACQ-9				0.18						
ACQ-10				0.22						
US-8				0.24						
US-9				0.25						
US-10				0.28						
AUS-7				0.22						
AUS-8				0.24						
AUS-9				0.24						
AUS-10				0.20						
IS-8		0.34		0.33						
IS-9		0.34		0.46						
IS-10		0.34		0.46						

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D44.

Predicted and Unpredicted Loadings for Item 56a (Aches or pains not headaches without known medical cause)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.68								
ACQ-9		0.68								
ACQ-10		0.68								
US-8		0.72								
US-9		0.71								
US-10		0.73								
AUS-7		0.73								
AUS-8		0.74								
AUS-9		0.75								
AUS-10		0.75								
IS-8		0.79								
IS-9		0.79								
IS-10		0.78								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D45.

Predicted and Unpredicted Loadings for Item 56b (Headaches)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.78								
ACQ-9		0.77								
ACQ-10		0.77								
US-8		0.75								
US-9		0.74								
US-10		0.75								
AUS-7		0.74								
AUS-8		0.76								
AUS-9		0.77								
AUS-10		0.77								
IS-8		0.84								
IS-9		0.84								
IS-10		0.83								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D46.

Predicted and Unpredicted Loadings for Item 56c (Nausea, feels sick)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.94								
ACQ-9		0.93								
ACQ-10		0.94								
US-8		0.88								
US-9		0.87								
US-10		0.90								
AUS-7		0.94								
AUS-8		0.94								
AUS-9		0.95								
AUS-10		0.96								
IS-8		0.93								
IS-9		0.93								
IS-10		0.91								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D47.
Predicted and Unpredicted Loadings for Item 56d (Problems with eyes)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.08								
ACQ-9		0.07								
ACQ-10		0.06								
US-8		0.48								
US-9		0.45								
US-10		0.45								
AUS-7		0.38								
AUS-8		0.42								
AUS-9		0.41								
AUS-10		0.42								
IS-8		0.42								
IS-9		0.41								
IS-10		0.41								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D48.

Predicted and Unpredicted Loadings for Item 56e (Rashes or other skin problems)

Sample-N factors	Withdr.	<u>Somatic</u>	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.20								
ACQ-9		0.19								
ACQ-10		0.19								
US-8		0.46								
US-9		0.45								
US-10		0.46								
AUS-7		0.40								
AUS-8		0.38								
AUS-9		0.38								
AUS-10		0.38								
IS-8		0.30								
IS-9		0.30								
IS-10		0.30								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D49.

Predicted and Unpredicted Loadings for Item 56f (Stomachaches or cramps)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.91								
ACQ-9		0.90								
ACQ-10		0.91								
US-8		0.79								
US-9		0.79								
US-10		0.80								
AUS-7		0.85								
AUS-8		0.85								
AUS-9		0.87								
AUS-10		0.88								
IS-8		0.74								
IS-9		0.74								
IS-10		0.73								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D50.

Predicted and Unpredicted Loadings for Item 56g (Vomiting, throwing up)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8		0.43								
ACQ-9		0.42								
ACQ-10		0.43								
US-8		0.77								
US-9		0.76								
US-10		0.78								
AUS-7		0.72								
AUS-8		0.73								
AUS-9		0.73								
AUS-10		0.74								
IS-8		0.77								
IS-9		0.77								
IS-10		0.75								

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D51.

Predicted and Unpredicted Loadings for Item 57 (Physically attacks people)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.75		
ACQ-9								0.78		
ACQ-10								0.79		
US-8								0.68		
US-9								0.64		
US-10				0.31				0.52		
AUS-7								0.84		
AUS-8								0.88		
AUS-9								0.91		
AUS-10								0.92		
IS-8							0.53	0.46		
IS-9							0.34	0.51		
IS-10							0.32	0.48		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D52.

Predicted and Unpredicted Loadings for Item 61 (Poor school work)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8						0.61	0.47			
ACQ-9						0.61	0.41			
ACQ-10						0.64	0.41			
US-8						0.29	0.50			
US-9						0.42	0.56			
US-10						0.59	0.54			
AUS-7				0.44		NA				
AUS-8				0.39		NA				
AUS-9				0.38		NA	0.31	0.35		
AUS-10						0.59	-0.36	0.35		
IS-8						0.53				
IS-9						0.48				0.37
IS-10						0.49				
						0.33				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D53.

Predicted and Unpredicted Loadings for Item 62 (Poorly coordinated or clumsy)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8				0.20		0.37				
ACQ-9				0.20		0.34				
ACQ-10				0.23		0.36				
US-8				0.25		0.39				
US-9				0.11		0.43				
US-10				0.13		0.44				
AUS-7				0.39	0.31	NA				
AUS-8				0.36		NA				
AUS-9				0.35		NA				
AUS-10				0.17		0.51				
IS-8	0.31			0.43		0.23				
IS-9				0.62		0.33				
IS-10				0.62		0.09				
						0.29				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D54.
Predicted and Unpredicted Loadings for Item 63 (Prefers being with older kids)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.10			
ACQ-9							0.18			
ACQ-10							-0.08			
							0.16			
US-8							0.09		0.30	
US-9							0.11		0.34	
US-10							0.09		0.35	
AUS-7							-0.09	0.36		
AUS-8							-0.16	0.33		
AUS-9							-0.17	0.34		
AUS-10							-0.16	0.35		
IS-8							0.15			
IS-9					0.31		0.03			
IS-10							0.07		0.34	

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geq .3$ on other factors.

Table D55.

Predicted and Unpredicted Loadings for Item 64 (Prefers being with younger kids)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8				0.32						
ACQ-9				0.30						
ACQ-10				0.27						
US-8				0.30						
US-9				0.17		0.37				
US-10				0.19						
AUS-7				0.36						
AUS-8				0.33						
AUS-9				0.32						
AUS-10				0.21		0.31				
IS-8				0.35						
IS-9				0.25						0.31
IS-10				0.25						

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D56.

Predicted and Unpredicted Loadings for Item 65 (Refuses to talk)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.44									
ACQ-9	0.44									
ACQ-10	0.45									
US-8	0.60									
US-9	0.58									
US-10	0.58									
AUS-7	0.52							0.31		
AUS-8	0.53							0.30		
AUS-9	0.55							0.30		
AUS-10	0.54							0.30		
IS-8	0.40									
IS-9	0.38									
IS-10	0.37									

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D57.

Predicted and Unpredicted Loadings for Item 66 (Repeats certain acts over and over, compulsions)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8					-0.39					
ACQ-9					-0.40					
ACQ-10					0.40					
US-8					NA	0.47				
US-9					0.33					
US-10					0.36					
AUS-7					0.51					
AUS-8					0.52					
AUS-9					0.53					
AUS-10					0.46					
IS-8					NA					
IS-9					0.24					
IS-10					-0.32					

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D58.

Predicted and Unpredicted Loadings for Item 67 (Runs away from home)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.59			
ACQ-9							0.51			
ACQ-10							-0.05			
							0.51			
US-8							0.67			
US-9							0.68			
US-10					0.36		0.66			
AUS-7							-0.41	0.50		
AUS-8							-0.40	0.50		
AUS-9							-0.34	0.50		
AUS-10							-0.36	0.51		
IS-8							0.34	0.32		
IS-9							0.37	0.31		
IS-10							0.36	0.32		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D59.

Predicted and Unpredicted Loadings for Item 68 (Screams a lot)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.64		
ACQ-9								0.64		
ACQ-10								0.60		
US-8								0.71		
US-9								0.66		
US-10								0.77		
AUS-7								0.79		
AUS-8								0.80		
AUS-9								0.81		
AUS-10								0.81		
IS-8								0.72		
IS-9								0.76		
IS-10								0.74		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D60.

Predicted and Unpredicted Loadings for Item 69 (Secretive, keeps things to self)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.52						0.34			
ACQ-9	0.53						0.31			
ACQ-10	0.53									
US-8	0.58						0.35			
US-9	0.57						0.38			
US-10	0.57						0.33			
AUS-7	0.43						-0.31			
AUS-8	0.46						-0.37			
AUS-9	0.46									
AUS-10	0.48									
IS-8	0.39									
IS-9	0.35									
IS-10	0.37									

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D61.

Predicted and Unpredicted Loadings for Item 70 (Sees things that aren't there)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	<u>Thought</u>	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8					0.76					
ACQ-9					0.76					
ACQ-10					0.76					
US-8					NA	0.55				
US-9					0.61					
US-10					0.61					
AUS-7					0.62					
AUS-8					0.64					
AUS-9					0.66					
AUS-10					0.65					
IS-8			-0.31				0.39			
IS-9					0.43		0.30			
IS-10					-0.36					

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geq .3$ on other factors.

Table D62.

Predicted and Unpredicted Loadings for Item 71 (Self-conscious or easily embarrassed)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.42		0.43							
ACQ-9	0.43		0.43							
ACQ-10	0.42		0.45							
US-8	0.38		0.40							
US-9	0.36		0.47							
US-10	0.35		0.48							
AUS-7	0.38		0.32							
AUS-8	0.41		0.50							
AUS-9	0.48		0.42							
AUS-10	0.44		0.47							
IS-8	0.69		0.13							
IS-9	0.71		-0.03							
IS-10	0.72		-0.02							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D63.

Predicted and Unpredicted Loadings for Item 72 (Sets fires)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.26	0.44		
ACQ-9							0.19	0.49		
ACQ-10							-0.24	0.54		
							0.14			
US-8							0.22	0.35		
US-9							0.25			
US-10							0.11			
							0.45			
AUS-7							-0.24	0.50		
AUS-8							-0.23	0.50		
AUS-9							-0.18	0.49		
							0.13			
AUS-10							-0.17	0.50		
							0.13			
IS-8							0.66			
IS-9							0.62			
IS-10							0.57			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D64.

Predicted and Unpredicted Loadings for Item 74 (Showing off or clowning)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.68		
ACQ-9								0.54	-0.41	
ACQ-10								0.54	-0.42	
US-8								0.20	0.60	
US-9								0.09	0.68	
US-10								0.06	0.71	
AUS-7								0.69		
AUS-8								0.64	0.38	
AUS-9								0.63	0.40	
AUS-10								0.65		
IS-8								0.15		0.37
IS-9					0.39			0.19		
IS-10								0.08	0.44	

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D65.

Predicted and Unpredicted Loadings for Item 75 (Shy or timid)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.64									
ACQ-9	0.65									
ACQ-10	0.65									
US-8	0.59									
US-9	0.57									
US-10	0.57									
AUS-7	0.64									
AUS-8	0.66		0.30					-0.30		
AUS-9	0.75									
AUS-10	0.69									
IS-8	0.85									
IS-9	0.91									
IS-10	0.91									

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D66.

Predicted and Unpredicted Loadings for Item 80 (Stares blankly)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.42				-0.23	0.51				
ACQ-9	0.42				-0.24	0.47				
ACQ-10	0.42				0.24	0.46				
US-8	0.47				NA	0.46				
US-9	0.49				0.41	0.20				
US-10	0.49				0.41	0.19				
AUS-7	0.32				0.49	NA				
AUS-8	0.33				0.47	NA				
AUS-9	0.30				0.51	NA				
AUS-10	0.28				0.36	0.34				
IS-8	0.29				NA	0.79				
IS-9	0.07				0.17	0.92				
IS-10	0.09				0.11	0.15				
						0.87				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D67.

Predicted and Unpredicted Loadings for Item 81 (Steals at home)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.42	0.46		
ACQ-9							0.35	0.52		
ACQ-10							-0.44	0.61		
							0.26			
US-8				0.30			0.58			
US-9						0.37	0.68			
US-10							0.45			
							0.66			
AUS-7							-0.39	0.66		
AUS-8							-0.44	0.63		
AUS-9							-0.19	0.56		
							0.50			
AUS-10							-0.15	0.57		
							0.51			
IS-8							0.73			
IS-9							0.84			
IS-10							0.87			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D68.

Predicted and Unpredicted Loadings for Item 82 (Steals outside the home)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.46	0.41		
ACQ-9							0.41	0.46		
ACQ-10							-0.46 0.32	0.54		
US-8							0.58			
US-9						0.35	0.67			
US-10							0.45 0.66			
AUS-7							-0.42	0.62		
AUS-8							-0.46	0.58		
AUS-9							-0.23 0.47	0.51		
AUS-10							-0.19 0.49	0.52		
IS-8							0.87			
IS-9							0.89			
IS-10							0.89			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D69.

Predicted and Unpredicted Loadings for Item 84 (Strange behavior)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8					-0.48					
ACQ-9					-0.49					
ACQ-10					0.52					
US-8					NA	0.44				
US-9					0.58					
US-10					0.60					
AUS-7					0.56					
AUS-8					0.60					
AUS-9					0.61					
AUS-10					0.61					
IS-8	0.35				NA					
IS-9					0.11					
IS-10					-0.39					

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D70.

Predicted and Unpredicted Loadings for Item 85 (Strange ideas)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8					-0.41					
ACQ-9					-0.41					
ACQ-10					0.43					
US-8					NA	0.37				
US-9					0.47					
US-10					0.49					
AUS-7					0.58					
AUS-8					0.61					
AUS-9					0.63					
AUS-10					0.65					
IS-8					NA		0.42			
IS-9					0.26					
IS-10					-0.40					

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D71.

Predicted and Unpredicted Loadings for Item 86 (Stubborn, sullen, or irritable)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.68		
ACQ-9								0.65		
ACQ-10								0.62		
US-8	0.33							0.68		
US-9								0.60		
US-10								0.69		
AUS-7	0.30							0.72		
AUS-8	0.33							0.71		
AUS-9	0.37							0.71		
AUS-10	0.34							0.72		
IS-8								0.71		
IS-9								0.73		
IS-10								0.73		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D72.

Predicted and Unpredicted Loadings for Item 87 (Sudden changes in mood or feelings)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.36		
ACQ-9								0.38		
ACQ-10								0.35		
US-8								0.48		
US-9								0.44		
US-10								0.51		
AUS-7								0.60		
AUS-8								0.60		
AUS-9								0.60		
AUS-10								0.60		
IS-8								0.50		
IS-9								0.51		
IS-10								0.55		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D73.

Predicted and Unpredicted Loadings for Item 88 (Sulks a lot)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.37							0.49		
ACQ-9	0.36							0.47		
ACQ-10	0.37							0.45		
US-8	0.34							0.52		
US-9	0.31							0.46		
US-10	0.30							0.53		
AUS-7	0.37							0.62		
AUS-8	0.41							0.60		
AUS-9	0.39							0.56		
AUS-10	0.33							0.56		
IS-8	0.12							0.79		
IS-9	0.13							0.82		
IS-10	0.11							0.83		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D74.
Predicted and Unpredicted Loadings for Item 89 (Suspicious)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.33							
ACQ-9			0.33							
ACQ-10			0.31							
US-8			0.27							
US-9			0.25							
US-10			0.26							
AUS-7			0.24					0.39		
AUS-8			0.33					0.36		
AUS-9			0.30					0.36		
AUS-10			0.27					0.37		
IS-8			-0.21					0.36		
IS-9			0.21					0.38		
IS-10			0.20					0.36		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D75.

Predicted and Unpredicted Loadings for Item 90 (Swearing or obscene language)

Sample- N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	<u>Delinq.</u>	Agg.	Show Off	Immat.
ACQ-8							0.44	0.45		
ACQ-9							0.46	0.43		
ACQ-10							0.04	0.43		
							0.47			
US-8							0.42	0.39		
US-9							0.38	0.35		
US-10							0.39	0.32		
							0.03			
AUS-7							-0.27	0.68		
AUS-8							-0.25	0.68		
AUS-9							-0.30	0.72		
							-0.06			
AUS-10							-0.31	0.73		
							-0.06			
IS-8							0.34	0.53		
IS-9							0.26	0.57		
IS-10							0.23	0.56		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D76.

Predicted and Unpredicted Loadings for Item 91 (Talks about killing self)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Destruct.
ACQ-8			0.58				0.40			
ACQ-9			0.59							
ACQ-10			0.40				0.34			
US-8			0.51				0.31	0.37		
US-9			0.47					0.37		
US-10			0.37				0.34	0.40		
AUS-7			0.60							
AUS-8			0.56							
AUS-9			0.57							
AUS-10			0.63							0.30
IS-8			-0.80							
IS-9			0.81							
IS-10			0.78							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D77.

Predicted and Unpredicted Loadings for Item 93 (Talks too much)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.60		
ACQ-9								0.40	-0.55	
ACQ-10								0.37	-0.53	
US-8							0.42	0.11	0.60	
US-9								0.03	0.67	
US-10								0.06	0.68	
AUS-7	-0.31							0.53		
AUS-8								0.50	0.41	
AUS-9								0.49	0.43	
AUS-10								0.49		
IS-8								0.24		0.45
IS-9					0.48			0.30		
IS-10								0.21	0.49	

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings $\geqq .3$ on other factors.

Table D78.

Predicted and Unpredicted Loadings for Item 94 (Teases a lot)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.82		
ACQ-9								0.75		
ACQ-10								0.76		
US-8								0.31	0.57	
US-9								0.24	0.61	
US-10								0.19	0.65	
AUS-7								0.77		
AUS-8								0.76		
AUS-9								0.77		
AUS-10								0.80		
IS-8							0.35	0.52		
IS-9								0.57		
IS-10								0.50		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D79.

Predicted and Unpredicted Loadings for Item 95 (Temper tantrums or hot temper)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.75		
ACQ-9								0.74		
ACQ-10								0.71		
US-8								0.75		
US-9								0.69		
US-10								0.72		
AUS-7								0.85		
AUS-8								0.86		
AUS-9								0.88		
AUS-10								0.89		
IS-8								0.72		
IS-9								0.77		
IS-10								0.77		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D80.

Predicted and Unpredicted Loadings for Item 96 (Thinks about sex too much)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.28			
ACQ-9							0.34			
ACQ-10							-0.04			
							0.33			
US-8							0.32			
US-9							0.28			
US-10							0.30		0.31	
							-0.07			
AUS-7							-0.23	0.39		
AUS-8							-0.28	0.36		
AUS-9							-0.24	0.35		
							0.09			
AUS-10							-0.18	0.37		
							0.12			
IS-8							0.37			
IS-9							0.24			
IS-10							0.21			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D81.

Predicted and Unpredicted Loadings for Item 97 (Threatens people)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.73		
ACQ-9								0.74		
ACQ-10								0.74		
US-8								0.62		
US-9								0.58		
US-10								0.49		
AUS-7								0.87		
AUS-8								0.89		
AUS-9								0.92		
AUS-10								0.94		
IS-8							0.54	0.45		
IS-9							0.33	0.51		
IS-10							0.32	0.46		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D82.
Loadings for Item 100 (Trouble sleeping)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8					-0.23					
ACQ-9					-0.24					
ACQ-10					0.26					
US-8		0.26								
US-9		0.24								
US-10		0.25								
AUS-7		0.30								
AUS-8		0.29								
AUS-9		0.28								
AUS-10		0.28								
IS-8		0.26								
IS-9		0.26								
IS-10					-0.26					

Note. This item is not part of the cross-informant model. The table shows the highest loading for each model.

Table D83.

Predicted and Unpredicted Loadings for Item 101 (Truency, skips school)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.76			
ACQ-9							0.72			
ACQ-10							-0.08			
							0.72			
US-8							0.82			
US-9							0.84			
US-10							0.85			
							0.03			
AUS-7							-0.63			
AUS-8							-0.64			
AUS-9							-0.68			
							-0.00			
AUS-10							-0.75			
							-0.02			
IS-8		0.36					0.26			
IS-9		0.36			-0.31		0.37			
IS-10		0.36					0.36			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D84.

Predicted and Unpredicted Loadings for Item 102 (Underactive, slow moving, or lacks energy)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.67									
ACQ-9	0.68									
ACQ-10	0.69									
US-8	0.55									
US-9	0.56									
US-10	0.57									
AUS-7	0.49	0.30								
AUS-8	0.47	0.31								
AUS-9	0.49									
AUS-10	0.46	0.30								
IS-8	0.40			0.36		0.32				
IS-9	0.21			0.46		0.38				
IS-10	0.20			0.46		0.37				

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D85.

Predicted and Unpredicted Loadings for Item 103 (Unhappy, sad, or depressed)

Sample- N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.37		0.34							
ACQ-9	0.37		0.35							
ACQ-10	0.37		0.28							
US-8	0.31		0.50							
US-9	0.29		0.49							
US-10	0.29		0.39							
AUS-7	0.30		0.41							
AUS-8	0.27		0.44							
AUS-9	0.28		0.42							
AUS-10	0.25		0.46							
IS-8	0.18		-0.44							
IS-9	0.12		0.46							
IS-10	0.08		0.45							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D86.

Predicted and Unpredicted Loadings for Item 104 (Unusually loud)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8								0.77		
ACQ-9								0.64	-0.40	
ACQ-10								0.61	-0.38	
US-8								0.41	0.43	
US-9								0.33	0.49	
US-10								0.37	0.51	
AUS-7								0.72		
AUS-8								0.71		
AUS-9								0.72		
AUS-10								0.72		
IS-8							0.34	0.49		
IS-9								0.54		
IS-10								0.53		

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D87.

Predicted and Unpredicted Loadings for Item 105 (Uses alcohol or drugs for nonmedical purposes)

Sample- N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8				-0.33			0.87			
ACQ-9							0.88			
ACQ-10							-0.02			
							0.88			
US-8							0.92			
US-9							0.92			
US-10							0.94			
							0.03			
AUS-7							-0.73			
AUS-8							-0.78			
AUS-9							-0.76			
							0.12			
AUS-10							-0.79			
							0.12			
IS-8		0.37					0.63			
IS-9		0.37					0.43	-0.33		
IS-10	-0.31	0.36			-0.49		0.36			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D88.

Predicted and Unpredicted Loadings for Item 106 (Vandalism)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8							0.35	0.47		
ACQ-9							0.30	0.51		
ACQ-10							-0.31	0.57		
							0.24			
US-8							0.57			
US-9							0.58			
US-10							0.45			
							0.43			
AUS-7							-0.22	0.74		
AUS-8							-0.19	0.76		
AUS-9							-0.13	0.75		
							0.12			
AUS-10							-0.14	0.75		
							0.12			
IS-8							0.66			
IS-9							0.68			
IS-10							0.58			

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D89.

Predicted and Unpredicted Loadings for Item 111 (Withdrawn, doesn't get involved with others)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8	0.70									
ACQ-9	0.71									
ACQ-10	0.70									
US-8	0.60									
US-9	0.62									
US-10	0.62			0.30						
AUS-7	0.64									
AUS-8	0.58			0.33						
AUS-9	0.62			0.32						
AUS-10	0.63									
IS-8	0.52			0.39						
IS-9	0.29			0.54						
IS-10	0.26			0.54						

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

Table D90.
Predicted and Unpredicted Loadings for Item 112 (Worries)

Sample-N factors	Withdr.	Somatic	Anx/Dep.	SocProb	Thought	Attent.	Delinq.	Agg.	Show Off	Immat.
ACQ-8			0.58							
ACQ-9			0.58							
ACQ-10			0.55							
US-8			0.67							
US-9			0.67							
US-10			0.66							
AUS-7			0.54							
AUS-8			0.65							
AUS-9			0.59							
AUS-10			0.63							
IS-8	0.36		-0.18							
IS-9	0.30		0.15		0.35					
IS-10	0.30		0.16							

Note. The predicted cross-informant factor(s) for this item is(are) underlined. All loadings predicted by the cross-informant model are listed as well as all loadings ≧ .3 on other factors.

APPENDIX E

Final Models

Table E1.

Factor Loadings in Seven Factor Solution for 78 CBCL Items in ACQ Sample.

	1	2	3	4	5
	ATT	AGG	AD	DEL	TP
Q1	0.461 +	0.258	0.028	-0.095	0.007
Q3	0.035	0.726 +	0.157	0.032	0.254
Q7	0.084	0.585 +	-0.023	-0.008	0.053
Q8	0.744 +	0.115	0.088	0.111	0.004
Q9	0.154	0.036	0.250	0.032	-0.186 -
Q10	0.466 +	0.429 +	0.096	-0.169	-0.175
Q12	0.066	0.110	0.400 +	-0.068	-0.021
Q13	0.519 +	-0.114	0.050	0.067	-0.223
Q15	0.069	0.573 +	-0.120	-0.011	-0.191
Q16	-0.102	0.853 +	-0.075	0.006	-0.032
Q17	0.598 +	-0.093	0.036	0.005	-0.074
Q18	-0.139	0.065	0.451 +	0.433 +	-0.295
Q19	0.176	0.599 +	0.232	-0.136	0.031
Q20	0.146	0.565 +	-0.064	0.063	-0.222
Q21	0.035	0.712 +	-0.122	0.110	-0.241
Q22	0.130	0.745 +	0.076	0.166	0.195
Q23	0.339 +	0.463 +	-0.017	0.370 +	0.071
Q26	0.125	0.582 +	-0.097	0.204 -	0.024
Q27	0.059	0.555 +	0.256	-0.082	0.041
Q30	0.086	-0.176	0.424 +	0.225	-0.127
Q31	0.106	-0.115	0.550 +	-0.012	-0.281
Q32	-0.079	-0.038	0.655 +	-0.032	-0.023
Q33	0.014	0.290	0.594 +	0.157	0.074
Q34	0.016	0.334 +	0.366 +	0.201	-0.062
Q35	0.249	-0.022	0.681 +	0.261	0.103
Q37	-0.147	0.822 +	-0.002	0.020	-0.080
Q39	0.160	0.247	0.044	0.576 +	-0.019
Q40	0.000	0.037	0.099	-0.109	-0.582 +
Q41	0.350 +	0.497 +	0.083	0.075	-0.015
Q42	-0.049	-0.011	0.023	0.065	-0.083
Q43	0.202	0.488 +	-0.078	0.339 +	0.001
Q45	0.225 -	0.265	0.338 +	-0.062	-0.286
Q46	0.330 +	0.136	0.177	-0.112	-0.426 +
Q50	0.055	0.018	0.490 +	-0.178	-0.252
Q51	-0.063	-0.100	-0.014	0.158	-0.097
Q52	0.104	-0.140	0.782 +	0.082	-0.105
Q54	0.049	0.067	0.148	0.046	-0.033
Q56A	0.037	0.098	-0.006	-0.074	-0.003
Q56B	0.006	-0.004	-0.029	0.056	0.002
Q56C	-0.008	0.006	0.014	-0.001	0.018
Q56D	0.093	-0.045	0.014	-0.016	-0.190
Q56E	-0.027	0.089	0.021	-0.030	-0.232
Q56F	0.016	0.000	-0.010	-0.025	0.007
Q56G	-0.081	0.002	-0.006	0.080	-0.174

Table E1 continued.

	1 ATT	2 AGG	3 AD	4 DEL	5 TP
Q57	-0.183	0.768 +	0.016	0.081	-0.208
Q61	0.628 +	-0.028	0.097	0.455 +	0.176
Q62	0.409 +	0.115	-0.006	-0.087	-0.078
Q65	0.014	0.247	0.103	0.136	-0.026
Q66	0.111	0.274	-0.059	-0.033	-0.349 +
Q67	-0.035	0.101	0.197	0.580 +	-0.045
Q68	-0.135	0.664 +	0.107	-0.184	-0.114
Q69	0.014	0.083	0.085	0.293	-0.016
Q70	-0.040	-0.026	0.111	-0.029	-0.712 +
Q71	0.053	0.015	0.410 +	-0.136	0.104
Q72	0.115	0.439 +	-0.139	0.259 -	-0.184
Q75	-0.006	-0.118	0.156	-0.241	0.026
Q80	0.475 +	-0.019	-0.021	-0.006	-0.173 -
Q81	0.143	0.446 +	-0.198	0.447 +	-0.040
Q82	0.099	0.394 +	-0.261	0.489 +	-0.129
Q84	0.066	0.132	0.040	0.089	-0.460 +
Q85	0.113	0.180	0.087	0.061	-0.391 +
Q86	0.002	0.693 +	0.174	0.010	0.237
Q87	-0.034	0.394 +	0.271	0.083	-0.001
Q88	-0.010	0.501 +	0.219	-0.001	0.240
Q89	-0.096	0.286	0.332 +	0.093	-0.137
Q90	-0.078	0.442 +	0.125	0.418 +	-0.011
Q91	-0.141	0.122	0.578 +	0.396 +	-0.144
Q94	-0.038	0.807 +	-0.085	-0.087	-0.064
Q95	-0.108	0.764 +	0.174	0.012	0.047
Q97	-0.218	0.753 +	0.082	0.127	-0.188
Q101	0.042	-0.060	0.107	0.764 -	0.117
Q102	0.180	-0.120	-0.075	0.119	0.062
Q103	0.011	0.149	0.337 +	0.204	-0.033
Q104	0.162	0.723 +	0.045	-0.173	-0.033
Q105	-0.017	-0.013	0.157	0.786 +	0.082
Q106	0.059	0.470 +	-0.148	0.349 +	-0.255
Q111	0.044	-0.014	0.119	0.027	-0.106
Q112	0.008	-0.049	0.575 +	-0.082	-0.126

Table E1 continued.

	6 WD	7 SOM
Q1	0.084	-0.004
Q3	-0.014	0.085
Q7	-0.104	0.069
Q8	-0.058	-0.004
Q9	0.037	0.031
Q10	-0.272	-0.006
Q12	-0.029	0.213
Q13	0.268	0.059
Q15	-0.022	0.012
Q16	0.025	0.025
Q17	0.305 +	-0.022
Q18	-0.124	0.044
Q19	-0.120	0.082
Q20	-0.052	-0.010
Q21	-0.016	-0.046
Q22	-0.015	0.037
Q23	-0.149	-0.013
Q26	0.083	0.012
Q27	0.038	0.045
Q30	0.083	0.141
Q31	0.003	-0.056
Q32	0.067	-0.063
Q33	-0.052	0.023
Q34	0.123	-0.025
Q35	0.089	-0.057
Q37	0.080	-0.020
Q39	-0.050	-0.023
Q40	-0.030	0.113
Q41	-0.015	-0.020
Q42	0.615 +	-0.016
Q43	0.058	0.023
Q45	-0.009	0.002
Q46	-0.048	-0.015
Q50	0.207	0.008
Q51	0.049	0.750 +
Q52	0.006	-0.071
Q54	0.270	0.235 -
Q56A	-0.016	0.683 +
Q56B	0.027	0.768 +
Q56C	-0.021	0.925 +
Q56D	0.167	0.084 -
Q56E	0.053	0.197 -
Q56F	-0.027	0.897 +
Q56G	0.093	0.418 +

Table E1 continued.

	6 WD	7 SOM
Q57	-0.018	-0.021
Q61	0.055	-0.016
Q62	0.254	0.049
Q65	0.438 +	-0.070
Q66	0.119	-0.008
Q67	0.014	0.018
Q68	0.071	0.002
Q69	0.526 +	-0.056
Q70	-0.017	0.011
Q71	0.444 +	-0.043
Q72	-0.082	0.000
Q75	0.657 +	-0.073
Q80	0.434 +	-0.033
Q81	0.130	-0.058
Q82	0.089	-0.070
Q84	0.190	-0.048
Q85	0.109	-0.029
Q86	0.249	0.026
Q87	0.287	0.037
Q88	0.361	0.045
Q89	0.222	-0.040
Q90	-0.016	-0.024
Q91	-0.132	0.027
Q94	0.030	-0.034
Q95	0.058	0.002
Q97	0.017	-0.048
Q101	0.065	0.123
Q102	0.644 +	0.170
Q103	0.363 +	0.085
Q104	-0.136	0.019
Q105	0.007	0.037
Q106	-0.043	-0.063
Q111	0.689 +	-0.014
Q112	0.208	0.046

Note. WD = Withdrawn factor, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, ATT = Attention Problems, DEL = Delinquent Behaviour, AGG = Aggressive Behaviour factor. *N* = 7304.

Table E2.

Factor Loadings in Seven Factor Solution for 78 CBCL Items in US CBCL Sample.

	1 ATT	2 AGG	3 WD	4 DEL	5 TP
Q1	0.443 +	0.167	0.103	-0.108	0.110
Q3	0.015	0.698 +	-0.019	-0.019	-0.065
Q7	0.080	0.506 +	-0.108	0.007	0.091
Q8	0.688 +	0.078	-0.064	0.081	0.238
Q9	0.130	0.097	0.093	0.023	0.299 -
Q10	0.505 +	0.312 +	-0.278	-0.049	0.264
Q12	0.102	0.109	0.046	-0.151	-0.065
Q13	0.359 +	-0.094	0.296	0.116	0.394 +
Q15	0.212	0.473 +	0.072	-0.052	0.109
Q16	-0.027	0.795 +	0.081	0.029	0.069
Q17	0.336 +	-0.219	0.345 +	0.027	0.411 +
Q18	-0.084	0.218	-0.002	0.386 +	0.102
Q19	0.261	0.550 +	-0.098	-0.206	-0.007
Q20	0.469 +	0.545 +	0.023	-0.032	-0.143
Q21	0.389 +	0.677 +	0.034	-0.009	-0.135
Q22	0.153	0.669 +	0.034	0.150	-0.092
Q23	0.292	0.374 +	-0.106	0.377 +	0.091
Q26	0.182	0.449 +	0.144	0.213 -	0.043
Q27	0.061	0.533 +	0.055	-0.193	-0.063
Q30	0.120	-0.100	0.012	0.179	0.007
Q31	0.063	-0.044	-0.022	-0.028	0.143
Q32	-0.172	-0.026	0.042	-0.086	-0.013
Q33	0.039	0.359 +	0.024	0.046	-0.179
Q34	0.080	0.327 +	0.004	0.154	0.019
Q35	0.179	0.045	0.078	0.219	-0.156
Q37	0.086	0.641 +	-0.136	0.151	0.122
Q39	0.096	0.162	-0.052	0.627 +	0.051
Q40	0.068	0.080	-0.013	-0.091	0.661 +
Q41	0.322 +	0.360 +	-0.010	0.180	0.149
Q42	-0.084	-0.074	0.517 +	0.028	0.151
Q43	0.299	0.357 +	0.082	0.435 +	-0.135
Q45	0.185 -	0.171	-0.006	0.025	0.231
Q46	0.270 -	0.042	0.004	-0.021	0.373 +
Q50	0.124	0.024	0.071	-0.107	0.183
Q51	-0.069	-0.110	-0.009	0.165	0.235
Q52	0.089	-0.122	-0.024	0.087	0.084
Q54	-0.057	0.027	0.177	0.106	0.117
Q56A	-0.032	0.070	0.049	-0.060	0.032
Q56B	-0.065	-0.008	0.034	0.061	0.042
Q56C	0.025	-0.058	-0.055	0.048	-0.028
Q56D	-0.006	0.039	0.037	0.027	0.174
Q56E	0.010	0.039	0.022	0.007	0.121
Q56F	-0.043	0.014	-0.004	-0.026	-0.032
Q56G	0.090	0.016	-0.087	0.049	0.046

Table E2 continued.

	1 ATT	2 AGG	3 WD	4 DEL	5 TP
Q57	-0.089	0.797 +	-0.022	0.036	0.125
Q61	0.432 +	-0.053	0.008	0.440 +	0.072
Q62	0.394 +	0.076	0.256	-0.171	0.227
Q65	-0.048	0.183	0.585 +	0.193	0.027
Q66	0.257	0.308 +	0.125	-0.075	0.352 +
Q67	-0.014	0.079	0.054	0.664 +	0.034
Q68	-0.098	0.728 +	-0.009	-0.144	0.043
Q69	-0.029	0.052	0.543 +	0.335 +	0.048
Q70	0.023	0.086	-0.027	-0.044	0.587 +
Q71	-0.026	0.052	0.355 +	-0.158	-0.150
Q72	0.258	0.418 +	0.049	0.152 -	-0.034
Q75	-0.034	-0.137	0.590 +	-0.256	-0.155
Q80	0.206 -	0.025	0.464 +	-0.040	0.455 +
Q81	0.370 +	0.275	0.062	0.548 +	-0.281
Q82	0.360 +	0.267	0.018	0.557 +	-0.168
Q84	0.080	0.249	0.235	0.050	0.517 +
Q85	0.040	0.161	0.181	0.083	0.505 +
Q86	-0.059	0.691 +	0.321 +	0.018	-0.089
Q87	-0.094	0.477 +	0.292	0.087	0.075
Q88	-0.067	0.499 +	0.337 +	0.023	-0.089
Q89	-0.088	0.318 +	0.155	0.196	0.204
Q90	-0.063	0.501 +	-0.068	0.370 +	0.097
Q91	-0.160	0.291	-0.111	0.321 +	-0.032
Q94	-0.002	0.612 +	-0.042	-0.113	0.189
Q95	-0.086	0.813 +	0.017	-0.043	0.040
Q97	-0.158	0.793 +	-0.006	0.131	0.212
Q101	-0.034	-0.124	0.012	0.834 +	-0.011
Q102	0.046	-0.138	0.536 +	0.104	0.179
Q103	-0.018	0.097	0.324 +	0.233	-0.023
Q104	0.165	0.639 +	-0.129	-0.179	0.235
Q105	-0.124	-0.131	0.042	0.910 +	0.055
Q106	0.148	0.339 +	0.094	0.508 +	-0.001
Q111	0.045	0.049	0.616 +	-0.019	0.099
Q112	-0.035	-0.077	0.134	-0.056	0.086

Table E2 continued.

	6 SOM	7 AD
Q1	-0.074	0.105
Q3	-0.021	0.179
Q7	-0.063	0.055
Q8	-0.091	0.158
Q9	0.004	0.283
Q10	-0.003	0.066
Q12	0.113	0.530 +
Q13	-0.065	0.164
Q15	0.044	-0.091
Q16	-0.070	-0.043
Q17	-0.085	0.133
Q18	0.128	0.197
Q19	0.009	0.330 +
Q20	0.168	-0.054
Q21	0.133	-0.145
Q22	-0.011	0.055
Q23	-0.091	0.024
Q26	-0.048	-0.114
Q27	-0.010	0.363 +
Q30	0.169	0.458 +
Q31	-0.018	0.581 +
Q32	-0.003	0.615 +
Q33	0.003	0.594 +
Q34	-0.093	0.492 +
Q35	-0.062	0.743 +
Q37	-0.056	0.068
Q39	-0.037	0.080
Q40	0.147	-0.040
Q41	-0.035	0.096
Q42	-0.059	0.018
Q43	0.020	0.007
Q45	0.097	0.376 +
Q46	0.118	0.092
Q50	0.089	0.550 +
Q51	0.525 +	0.141
Q52	0.010	0.746 +
Q54	0.299 -	0.139
Q56A	0.694 +	0.042
Q56B	0.716 +	0.014
Q56C	0.867 +	0.087
Q56D	0.434 +	-0.082
Q56E	0.408 +	-0.023
Q56F	0.771 +	0.109
Q56G	0.757 +	-0.094

Table E 2 continued.

	6	7
	SOM	AD
Q57	-0.045	-0.049
Q61	-0.029	0.158
Q62	0.042	0.018
Q65	-0.040	-0.023
Q66	-0.015	-0.051
Q67	0.019	0.067
Q68	0.130	0.098
Q69	-0.061	0.070
Q70	0.176	-0.026
Q71	0.051	0.493 +
Q72	0.153	-0.228
Q75	0.084	0.257
Q80	0.001	-0.068
Q81	0.073	-0.040
Q82	0.020	-0.091
Q84	-0.079	-0.097
Q85	-0.053	0.033
Q86	-0.029	0.060
Q87	0.005	0.183
Q88	0.040	0.230
Q89	0.018	0.227 -
Q90	-0.002	0.017
Q91	0.063	0.453 +
Q94	-0.018	-0.068
Q95	0.030	0.046
Q97	-0.074	-0.036
Q101	0.127	0.099
Q102	0.124	0.015
Q103	0.022	0.493 +
Q104	0.023	0.036
Q105	0.022	-0.020
Q106	-0.021	-0.172
Q111	-0.044	0.213
Q112	0.076	0.677 +

Note. WD = Withdrawn factor, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, ATT = Attention Problems, DEL = Delinquent Behaviour, AGG = Aggressive Behaviour factor. *N* = 4006.

Table E3.

Factor Loadings in Seven Factor Solution for 78 CBCL Items in the Australian Sample.

	1 ATT	2 AGG	3 WD	4 SOM	5 TP
Q1	0.470 +	0.337 +	0.166	-0.099	0.001
Q3	0.083	0.801 +	-0.015	0.102	-0.140
Q7	0.153	0.624 +	-0.127	0.060	-0.106
Q8	0.647 +	0.344 +	-0.016	0.020	0.058
Q9	0.118	0.165	0.060	0.026	0.306 +
Q10	0.423 +	0.558 +	-0.203	0.056	0.125
Q12	0.130	0.214	0.023	0.084	-0.055
Q13	0.352 +	0.043	0.268	0.030	0.227
Q15	0.097	0.658 +	0.019	-0.065	0.219
Q16	-0.044	0.870 +	0.030	-0.047	0.040
Q17	0.450 +	-0.017	0.266	-0.003	0.206
Q18	-0.213	0.172	-0.009	-0.032	0.379 +
Q19	0.163	0.677 +	-0.066	0.053	0.017
Q20	0.068	0.718 +	0.023	-0.096	0.364 +
Q21	0.002	0.793 +	0.041	-0.105	0.359 +
Q22	0.105	0.838 +	0.033	0.049	-0.077
Q23	0.353 +	0.568 +	-0.134	-0.083	-0.086
Q26	0.133	0.708 +	0.151	-0.018	-0.014
Q27	0.025	0.668 +	0.086	0.043	-0.142
Q30	0.054	-0.040	0.102	0.187	0.005
Q31	0.102	0.012	-0.012	-0.075	0.184
Q32	-0.079	-0.088	0.037	-0.007	0.001
Q33	-0.017	0.427 +	0.058	0.024	-0.121
Q34	0.078	0.393 +	0.019	-0.007	-0.018
Q35	0.145	0.068	0.107	-0.075	-0.048
Q37	0.146	0.683 +	-0.153	-0.021	0.015
Q39	0.244	0.425 +	-0.113	-0.019	-0.100
Q40	0.051	-0.014	-0.051	0.209	0.574 +
Q41	0.321 +	0.613 +	-0.027	-0.016	0.058
Q42	0.049	0.040	0.556 +	-0.026	0.165
Q43	0.150	0.650 +	0.163	0.029	-0.069
Q45	0.091 -	0.228	0.077	0.142	0.136
Q46	0.265 -	0.099	0.016	0.108	0.248
Q50	0.097	-0.046	0.135	0.111	0.158
Q51	0.005	-0.162	0.045	0.571 +	0.141
Q52	0.022	-0.159	0.048	0.029	0.109
Q54	0.063	0.018	0.188	0.363 +	0.021
Q56A	0.004	0.054	-0.003	0.724 +	-0.022
Q56B	-0.037	0.033	-0.008	0.748 +	0.007
Q56C	-0.017	0.007	-0.060	0.940 +	0.013
Q56D	0.105	0.027	0.010	0.412 +	0.132
Q56E	-0.014	0.008	0.066	0.381 +	0.073
Q56F	-0.048	0.009	-0.040	0.853 +	-0.011
Q56G	0.002	-0.009	-0.042	0.724 +	0.041

Table E3 continued.

	1 ATT	2 AGG	3 WD	4 SOM	5 TP
Q57	-0.132	0.848 +	-0.052	-0.063	0.133
Q61	0.543 +	0.280	0.060	-0.038	-0.083
Q62	0.505 +	0.222	0.144	0.055	0.090
Q65	-0.054	0.275	0.547 +	0.005	0.051
Q66	0.171	0.294	0.054	-0.036	0.406 +
Q67	-0.111	0.446 +	0.008	0.060	0.079
Q68	-0.112	0.815 +	0.039	0.123	0.062
Q69	-0.015	0.192	0.483 +	0.036	0.017
Q70	0.085	-0.018	-0.072	0.199	0.618 +
Q71	0.009	0.017	0.407 +	0.052	-0.184
Q72	0.137	0.472 +	-0.041	-0.016	0.133
Q75	-0.008	-0.239	0.669 +	-0.021	-0.123
Q80	0.320 +	0.030	0.353 +	0.041	0.301 +
Q81	0.096	0.592 +	0.191	0.002	-0.019
Q82	0.125	0.540 +	0.149	-0.083	0.033
Q84	0.032	0.257	0.125	-0.023	0.549 +
Q85	0.017	0.169	0.062	0.023	0.573 +
Q86	-0.103	0.723 +	0.318 +	0.110	-0.041
Q87	-0.097	0.595 +	0.234	0.106	0.100
Q88	-0.053	0.615 +	0.372 +	0.059	-0.128
Q89	-0.079	0.383 +	0.174	0.074	0.115
Q90	-0.041	0.652 +	-0.095	0.050	0.054
Q91	-0.190	0.178	-0.089	-0.016	0.240
Q94	0.050	0.777 +	-0.033	0.034	-0.084
Q95	-0.105	0.864 +	0.015	0.073	0.044
Q97	-0.167	0.864 +	-0.071	-0.012	0.081
Q101	0.008	0.064	0.044	0.138	-0.092
Q102	0.200	-0.210	0.496 +	0.220	-0.021
Q103	-0.016	0.153	0.284 -	0.089	0.052
Q104	0.153	0.737 +	-0.135	0.112	0.051
Q105	-0.047	-0.042	-0.060	0.086	0.037
Q106	-0.025	0.705 +	-0.006	-0.043	0.204
Q111	0.087	-0.006	0.667 +	-0.080	0.138
Q112	0.007	-0.068	0.166	0.148	0.070

Table E 3 continued.

	6 DEL	7 AD
Q1	0.127	0.052
Q3	0.056	0.105
Q7	-0.089	0.041
Q8	-0.046	0.028
Q9	0.021	0.322 +
Q10	0.142	0.051
Q12	0.041	0.452 +
Q13	-0.047	0.208
Q15	0.045	-0.158
Q16	-0.028	0.011
Q17	-0.016	0.072
Q18	-0.287	0.394 +
Q19	0.157	0.226
Q20	-0.009	-0.152
Q21	-0.014	-0.175
Q22	-0.027	-0.017
Q23	-0.307 +	0.056
Q26	-0.113 -	-0.097
Q27	0.092	0.261
Q30	-0.201	0.438 +
Q31	-0.068	0.623 +
Q32	-0.003	0.719 +
Q33	-0.069	0.521 +
Q34	-0.128	0.469 +
Q35	-0.218	0.715 +
Q37	-0.140	0.163
Q39	-0.487 +	0.103
Q40	-0.043	0.119
Q41	-0.067	0.021
Q42	-0.022	0.093
Q43	-0.316 +	-0.129
Q45	0.042	0.442 +
Q46	0.092	0.204
Q50	0.154	0.617 +
Q51	-0.076	0.192
Q52	-0.049	0.758 +
Q54	-0.058	0.171
Q56A	-0.012	-0.002
Q56B	-0.083	-0.025
Q56C	-0.028	-0.036
Q56D	-0.029	0.047
Q56E	0.019	-0.027
Q56F	0.011	-0.023
Q56G	-0.068	-0.049

Table E3 continued.

	6 DEL	7 AD
Q57	-0.032	0.111
Q61	-0.270	0.054
Q62	0.096	-0.036
Q65	-0.191	0.011
Q66	0.172	0.119
Q67	-0.410 +	0.105
Q68	0.208	0.062
Q69	-0.308 +	0.094
Q70	0.003	0.080
Q71	0.047	0.485 +
Q72	-0.228 +	-0.044
Q75	0.171	0.289
Q80	-0.005	0.002
Q81	-0.431 +	-0.252
Q82	-0.466 +	-0.218
Q84	0.048	0.087
Q85	0.021	0.149
Q86	0.044	0.053
Q87	-0.005	0.159
Q88	0.093	0.099
Q89	-0.088	0.277 -
Q90	-0.251 -	0.095
Q91	-0.291	0.582 +
Q94	-0.006	0.042
Q95	0.100	0.111
Q97	-0.088	0.118
Q101	-0.679 +	0.161
Q102	-0.179	0.081
Q103	-0.172	0.459 +
Q104	0.172	0.039
Q105	-0.738 +	0.090
Q106	-0.196 -	-0.122
Q111	0.037	0.233
Q112	0.103	0.647 +

Note. WD = Withdrawn factor, SOM = Somatic Complaints, AD = Anxious/Depressed, TP = Thought Problems, ATT = Attention Problems, DEL = Delinquent Behaviour, AGG = Aggressive Behaviour factor. *N* = 7112.

Table E4.

Factor Loadings for Seven Factor Solution

for 78 CBCL Items in Israeli Sample.

	1 ATT	2 AGG	3 DEL	4 ANX	5 DEP
Q1	0.440 +	0.134	0.145	0.150	-0.020
Q3	0.013	0.731 +	-0.194	-0.033	-0.028
Q7	-0.066	0.479 +	0.029	-0.087	0.078
Q8	0.713 +	0.140	0.155	-0.122	0.035
Q9	0.283	0.096	-0.027	-0.008	0.297
Q10	0.294 -	0.400 +	0.240	-0.109	0.019
Q12	0.120	0.035	-0.031	0.016	0.570 +
Q13	0.820 +	-0.028	-0.061	0.054	0.066
Q15	-0.045	0.068	0.626 +	0.212	-0.078
Q16	-0.134	0.448 +	0.410 +	0.151	0.005
Q17	0.765 +	-0.004	-0.213	0.018	0.090
Q18	-0.025	-0.018	0.124	-0.254	0.597 +
Q19	0.111	0.351 +	-0.002	0.030	0.436 +
Q20	0.006	0.101 -	0.743 +	0.073	0.084
Q21	-0.039	0.153 -	0.796 +	0.106	0.075
Q22	0.140	0.613 +	0.235	-0.163	0.029
Q23	0.244	0.401 +	0.357 +	-0.330 +	-0.032
Q26	0.097	0.374 +	0.289 -	-0.064	0.078
Q27	-0.045	0.392 +	0.054	0.096	0.424 +
Q30	0.100	-0.216	0.177	0.067	0.329 +
Q31	0.003	-0.166	0.079	0.161	0.575 +
Q32	-0.163	0.060	-0.225	0.123	0.516 +
Q33	0.009	0.210	-0.005	-0.131	0.768 +
Q34	0.001	0.278	0.084	-0.044	0.579 +
Q35	0.234	-0.061	0.055	0.004	0.599 +
Q37	-0.072	0.617 +	0.275	0.008	0.064
Q39	0.088	0.228	0.482 +	-0.210	0.092
Q40	-0.026	-0.045	0.430 +	0.130	0.276
Q41	0.179 -	0.395 +	0.285	-0.059	0.010
Q42	0.260	-0.053	-0.040	0.245	0.156
Q43	0.128	0.206	0.498 +	-0.064	0.003
Q45	0.147 -	0.527 +	-0.100	0.020	0.112 -
Q46	0.208 -	0.298	0.103	0.134	-0.015
Q50	0.116	0.062	-0.043	0.503 +	0.166 -
Q51	0.110	0.092	-0.235	-0.004	0.050
Q52	0.067	-0.007	-0.009	0.122	0.579 +
Q54	0.207	0.113	-0.088	0.007	0.016
Q56A	-0.068	0.031	0.078	0.025	0.031
Q56B	0.021	0.071	-0.114	-0.044	-0.043
Q56C	-0.014	-0.067	0.035	0.030	-0.028
Q56D	0.114	-0.017	0.014	0.011	0.007
Q56E	-0.065	0.072	0.108	0.090	0.000
Q56F	-0.072	0.047	0.053	0.053	-0.004
Q56G	-0.096	-0.109	0.198	0.135	-0.078

Table E4 continued.

	1 ATT	2 AGG	3 DEL	4 ANX	5 DEP
Q57	-0.218	0.572 +	0.408 +	0.054	0.059
Q61	0.638 +	-0.008	0.223	-0.144	-0.025
Q62	0.492 +	-0.175	0.135	0.205	0.055
Q65	0.252	0.078	0.177	0.258	-0.023
Q66	0.199	0.209	0.120	0.178	0.036
Q67	0.052	0.301 +	0.278 -	-0.256	0.070
Q68	-0.044	0.784 +	-0.003	0.109	-0.100
Q69	0.122	0.175	0.067	0.261	0.019
Q70	0.037	-0.148	0.379 +	0.221	0.312 +
Q71	0.094	0.072	0.025	0.635 +	-0.005 -
Q72	0.037	0.145	0.623 +	0.121	-0.225
Q75	0.101	-0.030	-0.003	0.803 +	-0.094
Q80	0.844 +	-0.020	-0.112	0.142	-0.092
Q81	-0.017	-0.015	0.753 +	-0.085	-0.054
Q82	-0.018	-0.115	0.863 +	-0.104	-0.047
Q84	0.172	0.172	0.221	0.242	0.059
Q85	0.070	0.125	0.321 +	0.185	0.045
Q86	0.110	0.725 +	-0.091	0.098	-0.043
Q87	0.087	0.504 +	-0.135	0.036	0.152
Q88	0.013	0.798 +	-0.083	0.032	0.017
Q89	-0.031	0.391 +	-0.017	0.218	0.220 -
Q90	-0.043	0.594 +	0.248 -	0.003	-0.032
Q91	-0.125	0.104	0.054	-0.245	0.638 +
Q94	-0.033	0.632 +	0.259	0.081	0.022
Q95	-0.113	0.779 +	0.066	-0.009	0.017
Q97	-0.233	0.564 +	0.407 +	0.074	-0.005
Q101	0.156	0.110	0.248 -	-0.217	-0.047
Q102	0.544 +	-0.133	0.040	0.238	-0.009
Q103	0.230	0.111	-0.067	0.037	0.366 +
Q104	-0.006	0.613 +	0.251	0.040	-0.028
Q105	-0.135	-0.053	0.505 +	-0.175	0.099
Q106	-0.080	0.246	0.653 +	0.077	0.066
Q111	0.301 +	-0.025	0.012	0.316 +	0.122
Q112	-0.020	0.138	-0.239	0.373 +	0.244 -

Table E4 continued.

	6 SOM	7 WD/SUI
Q1	-0.096	0.119
Q3	0.072	0.132
Q7	0.012	0.200
Q8	0.012	0.216
Q9	0.098	-0.008
Q10	0.064	0.315 +
Q12	-0.010	-0.119
Q13	-0.032	-0.092
Q15	-0.101	-0.032
Q16	-0.093	-0.130
Q17	0.049	-0.108
Q18	0.075	-0.500 +
Q19	0.001	0.175
Q20	-0.048	0.187
Q21	-0.084	0.148
Q22	-0.044	0.001
Q23	-0.040	0.011
Q26	-0.094	-0.047
Q27	-0.083	0.098
Q30	0.295	-0.032
Q31	0.068	-0.061
Q32	0.051	-0.101
Q33	-0.123	-0.222
Q34	-0.064	-0.236
Q35	-0.065	-0.287
Q37	-0.089	0.037
Q39	0.009	-0.096
Q40	0.117	0.008
Q41	0.035	-0.005
Q42	-0.094	-0.495 +
Q43	0.029	-0.023
Q45	0.158	-0.196
Q46	0.098	-0.063
Q50	0.195	0.091
Q51	0.738 +	-0.114
Q52	0.128	-0.152
Q54	0.438 +	-0.200
Q56A	0.777 +	0.014
Q56B	0.830 +	-0.084
Q56C	0.935 +	0.089
Q56D	0.395 +	-0.060
Q56E	0.292 -	-0.041
Q56F	0.740 +	0.069
Q56G	0.769 +	0.145

Table E4 continued.

	6 SOM	7 WD/SUI
Q57	-0.089	-0.145
Q61	0.024	0.016
Q62	-0.039	-0.163
Q65	-0.078	-0.332 +
Q66	-0.007	-0.037
Q67	0.092	-0.293
Q68	0.095	-0.009
Q69	-0.024	-0.337 +
Q70	0.148	-0.025
Q71	-0.012	-0.074
Q72	0.080	-0.019
Q75	0.009	0.005 -
Q80	0.026	-0.069 -
Q81	0.130	-0.158
Q82	0.025	-0.117
Q84	-0.002	-0.296
Q85	0.023	-0.179
Q86	0.005	-0.195
Q87	0.117	-0.284
Q88	0.097	-0.199 -
Q89	0.095	-0.176
Q90	-0.015	-0.120
Q91	0.053	-0.533 +
Q94	-0.050	0.017
Q95	0.067	-0.168
Q97	-0.034	-0.153
Q101	0.291	-0.255
Q102	0.001	-0.253 -
Q103	0.081	-0.451 +
Q104	0.031	0.039
Q105	0.331	-0.327 +
Q106	-0.077	0.063
Q111	-0.135	-0.430 +
Q112	0.168	-0.001

Note. WD/SUI = Withdrawn/Suicidal factor, SOM = Somatic Complaints, ANX = Anxious, DEP = Depressed, ATT = Attention Problems, DEL = Delinquent Behaviour, AGG = Aggressive Behaviour factor. *N* = 3772.

Table E5.

Factor Loadings in Eight Factor Solution for 78 CBCL Items in Israeli Sample.

	1 ATT	2 AGG	3 DEL	4 ANX	5 DEP
Q1	0.386 +	0.147	0.138	0.202	0.006
Q3	-0.034	0.749 +	-0.190	0.007	-0.013
Q7	-0.022	0.481 +	0.020	-0.134	0.057
Q8	0.722 +	0.154	0.115	-0.098	0.047
Q9	0.373 +	0.090	-0.054	-0.099	0.251
Q10	0.354 +	0.404 +	0.207	-0.157	0.011
Q12	0.073	0.045	-0.027	0.055	0.563 +
Q13	0.871 +	-0.045	-0.070	0.003	0.029
Q15	0.014	0.056	0.613 +	0.144	-0.098
Q16	-0.104	0.445 +	0.401 +	0.107	-0.006
Q17	0.876 +	-0.025	-0.235	-0.099	0.023
Q18	0.037	-0.023	0.105	-0.284	0.538 +
Q19	0.060	0.366 +	0.002	0.063	0.438 +
Q20	-0.024	0.104 -	0.746 +	0.089	0.096
Q21	-0.082	0.157 -	0.805 +	0.131	0.089
Q22	0.054	0.635 +	0.243	-0.061	0.054
Q23	0.198	0.414 +	0.348 +	-0.245	-0.006
Q26	0.047	0.383 +	0.294 -	-0.007	0.092
Q27	-0.153	0.412 +	0.078	0.173	0.444 +
Q30	0.030	-0.211	0.190	0.119	0.351 +
Q31	0.033	-0.173	0.080	0.102	0.537 +
Q32	-0.097	0.050	-0.227	0.026	0.464 +
Q33	-0.120	0.230	0.016	-0.009	0.787 +
Q34	-0.057	0.288	0.097	0.011	0.568 +
Q35	0.140	-0.049	0.066	0.102	0.608 +
Q37	-0.076	0.622 +	0.272	0.006	0.066
Q39	0.105	0.226	0.469 +	-0.200	0.086
Q40	0.159	-0.038	0.361 +	-0.071	0.179
Q41	0.213 -	0.395 +	0.268	-0.084	-0.001
Q42	0.221	-0.052	-0.033	0.277	0.145
Q43	0.024	0.216	0.519 +	0.047	0.038
Q45	0.140 -	0.535 +	-0.108	0.029	0.104 -
Q46	0.285 -	0.297	0.074	0.052	-0.049
Q50	0.100	0.063	-0.033	0.459 +	0.158 -
Q51	0.127	0.093	-0.242	-0.026	0.035
Q52	0.094	-0.013	-0.013	0.071	0.545 +
Q54	0.186	0.119	-0.094	0.034	0.019
Q56A	-0.095	0.032	0.088	0.034	0.039
Q56B	-0.019	0.077	-0.108	-0.008	-0.027
Q56C	-0.024	-0.067	0.042	0.021	-0.023
Q56D	0.076	-0.011	0.015	0.047	0.023
Q56E	-0.042	0.070	0.106	0.055	-0.016
Q56F	-0.090	0.046	0.065	0.049	0.000
Q56G	-0.099	-0.111	0.204	0.109	-0.073

Table E5 continued.

	1 ATT	2 AGG	3 DEL	4 ANX	5 DEP
Q57	-0.138	0.565 +	0.384 +	-0.031	0.033
Q61	0.560 +	0.010	0.203	-0.025	0.021
Q62	0.450 +	-0.166	0.124	0.247	0.070
Q65	0.176	0.083	0.189	0.322 +	-0.004
Q66	0.306 +	0.208	0.080	0.069	-0.011
Q67	0.025	0.305 +	0.277 -	-0.197	0.072
Q68	-0.044	0.791 +	-0.004	0.094	-0.102
Q69	0.048	0.181	0.084	0.317 +	0.033
Q70	0.211	-0.150	0.320 +	0.028	0.211
Q71	-0.025	0.083	0.054	0.677 +	0.037 -
Q72	0.064	0.141	0.612 +	0.091	-0.229
Q75	-0.027	-0.022	0.034	0.844 +	-0.049
Q80	0.927 +	-0.041	-0.120	0.050	-0.159
Q81	-0.161	-0.008	0.789 +	0.062	-0.002
Q82	-0.074	-0.115	0.872 +	-0.033	-0.026
Q84	0.242	0.170	0.193	0.163	0.017
Q85	0.202	0.114	0.285	0.042	-0.026
Q86	0.051	0.741 +	-0.085	0.151	-0.033
Q87	0.111	0.509 +	-0.148	0.012	0.126
Q88	-0.032	0.813 +	-0.078	0.074	0.020
Q89	-0.054	0.396 +	-0.007	0.213	0.207 -
Q90	-0.033	0.597 +	0.239 -	-0.004	-0.036
Q91	-0.108	0.107	0.044	-0.233	0.597 +
Q94	0.007	0.634 +	0.243	0.031	0.009
Q95	-0.086	0.786 +	0.052	-0.035	0.003
Q97	-0.158	0.555 +	0.384 +	-0.005	-0.032
Q101	0.035	0.127	0.261 -	-0.075	0.003
Q102	0.457 +	-0.119	0.036	0.339 +	0.023
Q103	0.173	0.123	-0.066	0.102	0.361 +
Q104	0.067	0.614 +	0.222	-0.035	-0.048
Q105	-0.019	-0.068	0.470 +	-0.248	0.029
Q106	-0.056	0.244	0.642 +	0.046	0.059
Q111	0.219	-0.015	0.023	0.385 +	0.135
Q112	0.047	0.134	-0.244	0.265	0.189 -

Table E5 continued.

	6 SOM	7 TP	8 WD/SUI
Q1	-0.075	0.103	0.134
Q3	0.088	0.133	0.132
Q7	0.001	-0.065	0.191
Q8	0.017	0.120	0.207
Q9	0.070	-0.198 -	-0.018
Q10	0.053	-0.026	0.308
Q12	0.007	-0.009	-0.137
Q13	-0.060	-0.136	-0.093
Q15	-0.115	-0.211	-0.011
Q16	-0.103	-0.142	-0.118
Q17	0.002	-0.246	-0.117
Q18	0.054	-0.161	-0.539
Q19	0.024	0.027	0.163
Q20	-0.037	-0.060	0.183
Q21	-0.071	-0.063	0.146
Q22	-0.017	0.208	-0.014
Q23	-0.026	0.209	-0.015
Q26	-0.080	0.080	-0.056
Q27	-0.047	0.069	0.093
Q30	0.312 +	0.014	-0.045
Q31	0.056	-0.249	-0.071
Q32	0.024	-0.290	-0.110
Q33	-0.083	0.136	-0.263
Q34	-0.047	-0.002	-0.259
Q35	-0.033	0.079	-0.307
Q37	-0.087	-0.019	0.036
Q39	0.005	0.003	-0.119
Q40	0.071	-0.433 +	0.000
Q41	0.024	-0.041	-0.012
Q42	-0.090	-0.051	-0.480
Q43	0.058	0.151	-0.033
Q45	0.156	0.011	-0.200
Q46	0.074	-0.166	-0.054
Q50	0.198	-0.182	0.120
Q51	0.727 +	-0.035	-0.128
Q52	0.114	-0.214	-0.167
Q54	0.438 +	0.046	-0.207
Q56A	0.775 +	-0.016	-0.002
Q56B	0.833 +	0.078	-0.102
Q56C	0.927 +	-0.034	0.071
Q56D	0.401 +	0.063	-0.068
Q56E	0.284 -	-0.101	-0.041
Q56F	0.737 +	-0.037	0.056
Q56G	0.763 +	-0.087	0.139

Table E5 continued.

	6 SOM	7 TP	8 WD/SUI
Q57	-0.113	-0.191	-0.142
Q61	0.055	0.286	0.005
Q62	-0.024	0.039	-0.146
Q65	-0.061	0.038	-0.313
Q66	-0.039	-0.227 -	-0.024
Q67	0.095	0.092	-0.320
Q68	0.091	-0.015	0.001
Q69	-0.009	0.016	-0.319
Q70	0.102	-0.469 +	-0.030
Q71	0.022	-0.015	-0.030
Q72	0.073	-0.099	-0.008
Q75	0.045	-0.052	0.070
Q80	-0.012	-0.231 -	-0.058
Q81	0.159	0.159	-0.179
Q82	0.033	0.017	-0.132
Q84	-0.030	-0.231 -	-0.285
Q85	-0.017	-0.345 +	-0.171
Q86	0.019	0.102	-0.186
Q87	0.103	-0.070	-0.290
Q88	0.107	0.078	-0.200
Q89	0.096	-0.096	-0.170
Q90	-0.020	-0.019	-0.120
Q91	0.045	-0.084	-0.570
Q94	-0.063	-0.104	0.023
Q95	0.054	-0.042	-0.172
Q97	-0.054	-0.182	-0.147
Q101	0.319 +	0.276	-0.285
Q102	0.030	0.153	-0.232
Q103	0.094	0.042	-0.462
Q104	0.011	-0.119	0.043
Q105	0.306 +	-0.196	-0.356
Q106	-0.080	-0.126	0.065
Q111	-0.114	0.031	-0.405
Q112	0.144	-0.311 +	0.022

Note. WD/SUI = Withdrawn/Suicidal factor, SOM = Somatic Complaints, ANX = Anxious, DEP = Depressed, TP = Thought Problems, ATT = Attention Problems, DEL = Delinquent Behaviour, AGG = Aggressive Behaviour factor. N = 3772.

Table E6.

Factor Loadings in Six Factor Solution for 78 CBCL Items in Israeli Sample

	1 WD	2 AGG	3 ATT	4 SOM	5 DEP
Q1	0.382 +	0.149	0.361 +	-0.114	0.028
Q3	-0.116	0.707 +	0.098	0.102	-0.022
Q7	-0.257	0.478 +	0.115	0.017	0.101
Q8	0.313 +	0.124	0.594 +	0.083	-0.001
Q9	0.181	0.069	0.196	0.152	0.274
Q10	-0.063	0.408 +	0.422 +	0.063	0.061
Q12	0.117	0.010	0.038	0.061	0.533 +
Q13	0.720 +	-0.088	0.456 +	0.068	-0.012
Q15	0.154	0.139	0.041	-0.223	0.042
Q16	0.083	0.498 +	-0.065	-0.151	0.057
Q17	0.656 +	-0.085	0.397 +	0.163	-0.007
Q18	0.015	-0.059	-0.269	0.228	0.428 +
Q19	-0.048	0.343 +	0.219	0.024	0.474 +
Q20	-0.072	0.140 -	0.220	-0.192	0.258
Q21	-0.060	0.197 -	0.182	-0.240	0.256
Q22	-0.040	0.624 +	0.160	0.024	-0.029
Q23	-0.082	0.420 +	0.235	0.061	-0.149
Q26	0.037	0.399 +	0.104	-0.059	0.044
Q27	-0.065	0.402 +	0.089	-0.083	0.473 +
Q30	0.117	-0.192	0.099	0.288	0.363 +
Q31	0.115	-0.153	0.020	0.066	0.615 +
Q32	-0.019	0.038	-0.145	0.077	0.523 +
Q33	-0.038	0.177	-0.068	0.019	0.653 +
Q34	0.042	0.267	-0.066	0.033	0.507 +
Q35	0.292	-0.082	0.021	0.042	0.513 +
Q37	-0.090	0.650 +	0.062	-0.099	0.088
Q39	-0.051	0.267	0.099	0.064	0.016
Q40	0.044	-0.006	0.090	0.061	0.370 +
Q41	0.079	0.413 +	0.180 -	0.058	-0.004
Q42	0.666 +	-0.068	-0.121	-0.038	0.086
Q43	0.055	0.253	0.160	0.027	0.000
Q45	0.209	0.502 +	0.007 -	0.228	0.061 -
Q46	0.288	0.305 +	0.130 -	0.089	0.015
Q50	0.419 +	0.102	0.144	0.069	0.350 +
Q51	0.117	0.055	0.009	0.769 +	0.050
Q52	0.178	-0.015	0.004	0.164	0.580 +
Q54	0.261	0.089	0.028	0.483 +	-0.019
Q56A	-0.079	0.041	0.032	0.755 +	0.110
Q56B	0.002	0.049	-0.008	0.845 +	-0.024
Q56C	-0.084	-0.063	0.104	0.911 +	0.081
Q56D	0.115	-0.021	0.058	0.401 +	0.020
Q56E	0.033	0.091	-0.020	0.258 -	0.054
Q56F	-0.088	0.059	0.055	0.707 +	0.095
Q56G	-0.087	-0.081	0.101	0.692 +	0.089

Table E6 continued.

	1	2	3	4	5
	WD	AGG	ATT	SOM	DEP
Q57	-0.056	0.623 +	-0.112	-0.117	0.077
Q61	0.366 +	-0.009	0.437 +	0.108	-0.108
Q62	0.631 +	-0.163	0.223 -	-0.026	0.048
Q65	0.593 +	0.107	-0.003	-0.080	-0.035
Q66	0.301 +	0.222	0.137	-0.028	0.080
Q67	-0.005	0.304 +	-0.071	0.196	-0.064
Q68	0.039	0.786 +	0.013	0.077	-0.054
Q69	0.491 +	0.194	-0.089	-0.026	0.013
Q70	0.181	-0.105	0.100	0.081	0.420 +
Q71	0.634 +	0.139	0.034	-0.166	0.177 -
Q72	0.130	0.202	0.102	-0.023	-0.108
Q75	0.713 +	0.046	0.065	-0.194	0.172
Q80	0.807 +	-0.077	0.472 +	0.094	-0.139
Q81	0.013	0.051	0.023	0.103	-0.055
Q82	-0.025	-0.047	0.047	-0.012	-0.042
Q84	0.481 +	0.198	-0.009	-0.014	0.070
Q85	0.291	0.158	0.007	-0.017	0.090
Q86	0.253	0.716 +	-0.015	0.057	-0.080
Q87	0.227	0.474 +	-0.084	0.196	0.085
Q88	0.122 -	0.783 +	-0.066	0.157	-0.025
Q89	0.217	0.400 +	-0.070	0.091	0.249 -
Q90	0.027	0.620 +	-0.019	-0.005	-0.044
Q91	-0.042	0.060	-0.346 +	0.215	0.462 +
Q94	0.009	0.664 +	0.073	-0.075	0.065
Q95	-0.021	0.784 +	-0.102	0.104	-0.013
Q97	-0.043	0.618 +	-0.126	-0.074	0.023
Q101	0.095	0.124	0.007	0.371 +	-0.162
Q102	0.752 +	-0.134	0.189	0.028	-0.034
Q103	0.422 +	0.074	-0.093	0.194	0.256 -
Q104	-0.014	0.637 +	0.095	0.005	0.018
Q105	-0.059	-0.009	-0.159	0.367 +	0.024
Q106	-0.060	0.289	0.096	-0.190	0.192
Q111	0.720 +	-0.023	-0.054	-0.107	0.086
Q112	0.250	0.135	-0.010	0.105	0.360 +

Table E6 continued.

	6 DEL	
Q1	0.071	
Q3	-0.201	
Q7	-0.013	
Q8	0.210	
Q9	0.040	
Q10	0.185	
Q12	0.055	
Q13	0.087	
Q15	0.471	+
Q16	0.316	+
Q17	-0.021	
Q18	0.426	+
Q19	-0.044	
Q20	0.607	+
Q21	0.654	+
Q22	0.276	
Q23	0.452	+
Q26	0.296	-
Q27	-0.023	
Q30	0.140	
Q31	0.035	
Q32	-0.210	
Q33	0.169	
Q34	0.190	
Q35	0.203	
Q37	0.202	
Q39	0.534	+
Q40	0.321	+
Q41	0.287	
Q42	0.071	
Q43	0.469	+
Q45	-0.010	
Q46	0.072	
Q50	-0.301	+
Q51	-0.159	
Q52	0.018	
Q54	0.006	
Q56A	0.015	
Q56B	-0.072	
Q56C	-0.048	
Q56D	0.031	
Q56E	0.044	
Q56F	-0.043	
Q56G	0.025	

Table E6 continued.

	6 DEL	
Q57	0.344	+
Q61	0.321	+
Q62	0.142	
Q65	0.167	
Q66	0.063	
Q67	0.444	+
Q68	-0.065	
Q69	0.058	
Q70	0.253	
Q71	-0.274	
Q72	0.502	+
Q75	-0.391	+
Q80	-0.009	
Q81	0.738	+
Q82	0.850	+
Q84	0.202	
Q85	0.267	
Q86	-0.056	
Q87	-0.021	
Q88	-0.028	
Q89	-0.061	
Q90	0.232	-
Q91	0.360	+
Q94	0.169	
Q95	0.089	
Q97	0.331	+
Q101	0.387	+
Q102	0.081	
Q103	0.132	
Q104	0.179	
Q105	0.588	+
Q106	0.545	+
Q111	0.060	
Q112	-0.372	+

Note. WD = Withdrawn factor, AGG = Aggressive, ATT = Attention Problems, SOM = Somatic Complaints, AD = Anxious/Depressed, DEL = Delinquent Behaviour factor. *N* = 3772.