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The utility of the anxiety cluster scale of the Piers-Harris children's self-concept scale to identify anxiety problems in 10 year old children

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The Utility of the Anxiety Cluster Scale of the Piers-Harris Children's Self-Concept Scale to Identify Anxiety Problems in 10 Year Old Children.

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ABSTRACT

It is widely accepted in the literature that internalised childhood psychopathology including anxiety is best identified by child self-report, followed by observations by parents and then to a lesser extent, by teachers. Although anxiety scales are a useful way to quantify anxiety symptomatology and progress through treatment, changes to classification systems (e.g., DSM-III-R to DSM-IV) make their ability to screen for the presence of psychiatric problems difficult. This research looked at whether the Anxiety Cluster (AC) scale of the Piers-Harris Children's Self-Concept Scale (PHCSCS) can be used to identify anxiety disorders in children.

Two separate studies were conducted in the present research. Study 1 sought to compare AC scores from 160 ten year old Western Australian school children to normative information provided in the PHCSCS manual. Study 2 involved administering the Anxiety Disorders Interview Schedule for DSM IV: Child Version (ADIS-C) to a sample of 76 children drawn from Study 1 to compare AC scores to anxiety diagnosis. The 76 participants comprised all 11 children with AC scores between 0 and 5 (indicating anxiety), all 47 children with AC scores between 6 and 9 (considered a-typical) and a sample of 18 out of 100 children with AC scores between 10 and 14 (indicating no anxiety). Sampling of the 10 to 14 group was necessary due to resource limitations for this study.

Results for Study 1 found that AC scores for this cohort were approximately 1 point higher (indicating less anxiety) than reported in the manual. This result was unlikely to be due to inadequate sampling, rather, that the normative information for the PHCSCS does not provide for age and sex differences. Results for Study 2 were that 10 out of 11 subjects (91%) with AC scores between 0 and 5 met sufficient criteria for one or more anxiety disorder, whilst 17 out of 18 children (94%) with AC scores between 10 and 14 did not. Although it would increase the number false positives, raising the

clinical cut-off to an AC score of 7 is recommended as it would reduce the number of false negatives.

It would appear therefore, that the AC scale has good utility for use as a first stage screening tool. As such, an application could be the selection of children for intervention groups who are likely to have an anxiety disorder (AC score 0 to 7) and as a reasonable means of precluding those children who are unlikely to have an anxiety disorder (AC score 10 to 14). A second stage screening involving a structured diagnostic interview would be necessary for the remaining children (i.e., AC score 8 and 9).

Limitations of this study are discussed in terms of inter-rater reliability of diagnostic interviews and the sampling of approximately 1 in 5 children with AC scores of 10 – 14 due to resource constraints.

DECLARARTION

I certify that this thesis does not, to the best of my knowledge and belief:

(i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education.

(ii) contain any material previously published or written by another person except where due reference is made in the text; or

(iii) contain any defamatory material.

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1.0 INTRODUCTION

1.1 CHILDHOOD ANXIETY: The School Psychologists' Problem

International and local data on childhood psychopathology indicates that between 3.6% to 21% of school aged children might have an anxiety disorder (Bowen, Offord & Boyle 1990; Kashani & Onaschel, 1990; Zubrick, Silburn, Garton, Burton, Dalby, Carlton, Shepherd, & Lawrence, 1995)

At present, schools in Western Australia rely on parents and teachers to refer children displaying signs of anxiety to psychological services. Whilst some children might self-refer, the overall number of children presenting with such problems is far less than rates expected from the epidemiological data. In a climate of economic rationalism, government services are looking for cost effective early intervention models. As such, school psychologists are being asked to run programmes for anxious children. The problem therefore for school psychologists, is how best to recruit those children in most need of limited resource dollars. There is a need for a screening instrument that can be easily administered in a school setting that will reliably identify anxious children with a minimum of false negatives and a manageable number of false positives.

Some schools are starting to develop screening protocols to identify mental health problems of their students (e.g. *The Clarkson Community Survey*). However, most schools rely on parent and teacher referrals rather than screen their student population for mental health problems. One exception to this is in the area of self-esteem, where schools invest in self-report questionnaires to determine how children feel about themselves. In many schools in the Joondalup Education District, the *Piers-Harris Children's Self-Concept Scale* (PHCSCS; Piers, 1984) is utilized for this purpose. The PHCSCS is a self report questionnaire designed to assess how children and adolescents feel about themselves and evaluate their own behaviour and attitudes.

As well as yielding a Total Score of self-concept the PHCSCS provides six Cluster scales, including the Anxiety Cluster (AC) scale that measures Anxiety. Acknowledging that self-esteem should be viewed as a multidimensional construct, Piers (1984) comments that "Children are not characterised simply by an overall level of self concept but may view themselves quite differently across different areas. Since there is no general consensus about the nature of these underlying dimensions, the cluster scales were arrived through extensive factor analysis" (p. 38). The author further suggests that each scale can be used to arrive at a clinical hypothesis and provide the clinician with areas of a child's strengths and vulnerabilities.

In terms of clinical inferences drawn from results on the AC scale, Piers (1984) states that, "More than any other Cluster scales, this scale contains items which may suggest the need for further psychological evaluation or referral" (p. 39). It would appear that the AC scale might be a useful screening instrument to identify anxious children.

As mentioned previously, the PHCSCS is currently being used in schools to screen for self-esteem problems of children. In the current economic environment, it is likely to be difficult to convince schools to spend additional scarce resources to fund the purchase of further screening instruments. Although the AC scale of the PHCSCS was not designed to screen for childhood anxiety, many items within the scale do appear to have good face validity (e.g. "*I am nervous*" and "*I worry a lot*" - see Appendix 1 for all 14 items). Therefore, utilizing an already administered scale could address this resourcing problem.

1.2 OBJECTIVE

The purpose of the present study was to determine whether the Anxiety Cluster (AC) scale of the Piers-Harris Children's Self-Concept Scale (PHCSCS) can be used to identify ten year old children who have an anxiety disorder.

1.3 DEFINITIONS

According to King (1994) "anxiety often refers to an aversive or unpleasant emotional state involving subjective apprehensive and physiological arousal of a diffuse nature" (p. 3). This definition relates to what has been described in the literature as *free floating anxiety* that tends not to be confined to a particular situation. However, anxiety has also been described as being either state or trait in nature (Spielberger, 1972). According to Spielberger, state anxiety is an acute transitory affect while trait anxiety refers more to chronic or stable fears. Therefore, state anxiety is differentiated from anxiety proneness (trait anxiety) which is defined in terms of individual differences in the frequency that anxiety states are manifested over time (p. 10).

In this research project, the term 'anxiety' is used to describe both state and trait anxiety. The term 'anxiety disorder' refers specifically to a diagnosis based upon formal current diagnostic criteria, such as those listed in the Diagnostic and Statistical Manual for Mental Disorders - Fourth edition (DSM-IV; American Psychiatric Association, 1994).

1.4 RATIONALE

Although several methods are presently available to diagnose a childhood anxiety disorder (e.g., structured diagnostic interview) or determine the presence of anxiety symptoms (e.g., child & parent questionnaires), the author's clinical experience

suggests that the AC scale of the PHCSCS is useful for identifying childhood fears and worries and therefore may also be useful in screening for anxiety disorders. As many schools in the Joondalup Education District are currently assessing students' self-esteem using the PHCSCS, it would be prudent to utilize the AC scale to identify anxious children rather than administer additional tests or employ intensive structured interviews. Using the AC scale to identify anxious children would be warranted if it was found to be accurate at either diagnosing an anxiety disorder or screening out children who do not have an anxiety disorder. Therefore, to determine the accuracy of the AC scale, one must compare AC scores with a current structured diagnostic procedure.

2.0 CHILDHOOD ANXIETY

2.1 CLINICAL AND EPIDEMIOLOGICAL FEATURES

Recent epidemiological studies in the area of psychopathology have found that anxiety symptoms and disorders are quite common psychiatric problems with respect to children (Berstein & Borchardt, 1991). However, it is important to acknowledge that many childhood fears are part of normal developmental (Albana, Chorpita & Barlow, 1996; Bell-Dolan, Last & Strauss, 1990; Bernstein & Borchardt, 1991). For example, young children tend to fear sudden and intense stimuli (e.g., loud noises, large animals) and separation from their parents. Older children, on the other hand, can experience fears relating to school performance, friendships and injury (Bell-Dolan et al., 1990). Other common self-reported childhood fears include nuclear war, not being able to breathe, being hit by a car or truck, earthquakes and getting burnt by fire (King, Ollendick & Gullone, 1990, p. 99). In fact, in a 1964 epidemiological study by Lapouse and Monk, 43% of mothers of children aged 6 to 12 years reported that their children experienced seven or more fears and worries (cited in Bell-Dolan et al., 1990, p. 759). Finally, King et al. point out that even though fear has an adaptive and necessary part to play for survival, "anxieties and fears can become problematic when they are excessive, persist over time and produce significant discomfort for the child" (p. 99).

2.1.1 Age at Onset

In 1989, the American National Institute of Mental Health (NIMH) conducted epidemiological studies in five U.S. communities. From the data collected, Burke, Burke, Regier & Rae (1990) set about looking at adult reports of onset of psychopathology including panic disorder (PD), obsessive-compulsive disorder (OCD) and specific phobias (Sp.P). Respondents over the age of 18 were asked to report the

first occurrence in their lives of their anxiety in an attempt to estimate the onset of their disorders. They found that for PD, OCD and Sp.P the mean age of onset was 24, 23 and 13 years respectively (p. 512). In terms of gender, females exhibited higher rates of the disorders with the most significant difference found for Sp.P (p. 514). The authors conceded that for OCD and PD, the childhood onset would have been a lot stronger had respondents who reported "whole of life" been able to pinpoint onset (p. 515). In terms of peak age of onset the authors comment that, "The most striking finding from this analysis is that the peak age for several mental disorders is younger than reported in the literature. For phobias, the hazard rate peaks between the ages of 10 and 14 years" (p. 517).

2.1.2 Familial Trends

Last, Hersen, Kazdin, Orvaschel and Perrin (1991), examined first and second degree relatives of children with anxiety disorders as part of their study comparing anxiety to Attention Deficit Hyperactivity Disorder (ADHD). Their definition of anxiety disordered included the three childhood anxiety disorders: separation anxiety disorder (SAD), overanxious disorder (OAD) and avoidant disorder (AD) and five additional disorders: specific phobia (Sp.P), panic disorder (PD), generalized anxiety disorder (GAD), obsessive-compulsive disorder (OCD) and posttraumatic stress disorder (PTSD). Their study sample comprised 3 groups of which 94 children were diagnosed as anxious, 58 diagnosed as ADHD and 87 who had never been psychiatrically ill. All 239 children were administered a structured diagnostic interview to confirm their categorization.

A trend was found for first-degree male relatives, where male relatives of children suffering anxiety disorders was more than twice that of ADHD and the normal groups, with elevated rates of SAD, OAD and Sp.P (p. 933). These results led the

authors to conclude that, " a familial component is involved in the pathogenesis of childhood anxiety disorders" (p. 934). In regard to whether the nature of this familial component is environmental and/or genetic, the authors concede that further genetic and family interaction research is required.

2.1.3 School Related Fears

According to King et al., (1990) typical anxiety in the school setting can include; performance anxiety (e.g., tests), social anxiety and in severe cases school phobia. Many children report anxiety prior to and during tasks such as reading in front of the class, presenting a talk on a school project or being asked to recite a poem in front of the school at a school assembly. However for some children, excessive fears and worries regarding these tasks can impact quite negatively on school performance. For example, a student who excessively worries about test performance may perform poorly which can lead to future test anxiety. In regard to student achievement, excessive anxiety "may act as barriers to academic and/or social development" (King et al., p. 99).

2.1.4 Epidemiological Studies

The following is a summary of the major prevalence studies of childhood anxiety conducted in several countries including Western Australia. As is detailed, some of the research findings have been made on the basis of structured diagnostic interviews, whilst others rely on data collected from questionnaires completed by children, parents and teachers.

One of the problems with obtaining information from large community samples can be the cost in both time and money of conducting thorough assessment. To tackle this, researchers have either employed a two-phase design in which clinical assessment

is completed following an initial screening (e.g., The *Child Behaviour Checklist* [CBCL], Achenbach, 1991a,, or utilized instruments that can be administered by lay individuals (e.g., The *Diagnostic Interview Schedule for Children* [DISC], National Institute of Mental Health, 1991). To this end Bird, Gould and Staghezza (1992) analysed data from the 1985 Puetro Rico Psychiatry Epidemiological Study using a two phase screening of 777 children aged 4-16 using the CBCL. Separate interviews between child and parent using the 1985 revision of the DISC was undertaken. Results showed prevalence based upon parent interview for separation anxiety disorder and overanxious disorder to be 6.3% and 3.0%, whilst for child interview, these figures were 15% and 6.9% respectively. Suggested reasons for this discrepancy offered by the authors included: developmental and/or situational considerations (e.g., school), child respondent misunderstanding of questions, responses based upon hearsay and parental projection of feelings/behaviours to child (pp. 83-84).

In an endeavour to estimate the prevalence of anxiety symptoms and disorders in community samples, Kashani and Orvaschel (1990) sampled 210 children aged 8, 12, and 17 years from a public school list of 4810 in the city of Colombia, Missouri. Both the child and the child's mother were interviewed using the *Child Assessment Schedule* (CAS; Hodges, Kline, Stern & McKnew, 1992), as well as the child completing the *Revised Children's Manifest Anxiety Scale* (RCMAS; Reynolds & Richmond, 1985). Twenty one percent of their sample had an anxiety disorder based upon the child diagnostic interview, whilst 13.8% had an anxiety disorder according to their mother's interview. Looking at age differences, Kashani and Orvaschel found that 25.7% of 8 year olds, 15.7% of 12 year olds and 21.4% of 17 year olds were diagnosed as having an anxiety disorder.

Bell-Dolan, Last and Strauss (1990), were interested in obtaining prevalence of DSM-III-R anxiety disorders in community based children who had never been referred

before for psychiatric problems. With ages ranging from 5 to 18 years (M = 11.03), 62 children and their parents participated in a 4-hour assessment that included administration of the *Schedule for Affective Disorders and Schizophrenia in School Aged Children;* (K-SADS; Puig-Antich & Chambers, 1978), *Stait-Trait Anxiety Inventory for Children – Trait Scale* (STAIC-T, Spielberger, 1973) and the RCMAS. To optimise diagnostic validity, each interview was audio taped for a second interviewer to assess. Although overall inter-rater diagnostic agreement was only calculated for 19 (31%) of the sample, average agreement for anxiety symptoms was 96.2%. As for the rating of 'no diagnosis', this yielded a 100% inter-rater agreement. Of the 90 anxiety symptoms examined by the K-SADS, over 10% of these non-referred children reported 17 or more symptoms. Results also showed that 10% endorsed symptoms of overanxious disorder, whilst 20% endorsed symptoms related to fear of heights, public speaking and somatic complaints. Approximately, one third had concerns about their competence and indicated an excessive need for reassurance.

Data obtained from the 1983 Ontario Child Health Study was analysed by Bowen, Offord and Boyle (1990) to look at community prevalence of overanxious disorder (OAD) and separation anxiety disorder (SAD) in children aged 12 to 16. Ninety-one percent of eligible households agreed to participate in the study (p. 753) Using both items from the Study and the CBCL, the researchers were able to obtain measures of psychopathology. From a sample of 3294 children aged 4 to 16, the researchers found 3.6% met *Diagnostic and Statistical Manual for Mental Disorders Third Edition Revised* (DSM-III-R; American Psychiatric Association, 1987) criteria for OAD whilst 2.4% were deemed SAD. The authors noted that these results were similar to those obtained by a New Zealand study by Anderson, Williams, McGee and Silva (1987) where for 11 year olds, prevalence of 2.9% and 3.5% were found for OAD and SAD respectively.

In July 1993, a large scale epidemiological survey of the health and well being of Western Australian children was conducted (Zubrick et al., 1995). One of the aims of the survey was to estimate the mental health problems of children aged 4 to 16 years. Following calibration of the CBCL against the *Diagnostic Interview for Children and Adolescents Revised* (DICA-R; Reich, Shayka, & Taibleson, 1991) a total of 2737 children, their teachers and caregivers were surveyed. Parents completed the CBCL whilst teachers and students (aged 12 – 16) filled out similar versions. Results showed that 17.7% of children (16% of 4-11 & 21% of 12-16 year olds) were found to have a mental health problem as defined by clinical significance reached on the Achenbach scales. On the *Anxiety/Depression* scale, 3.6% of the total sample (3% of 4-11 year olds) scored in the clinical range were identified by their teachers and caregivers. Surprisingly, the morbidity rate for boys (4.7%) was greater than for girls (2.6%).

Some caution should be used in interpreting these results. Although the researchers calibrated the CBCL against a structured diagnostic interview (DICA-R), not all children could be administered the child version (*Youth Self-Report*; [YSR], Achenbach, 1991c) as this instrument is designed for children between 12 and 18 years. Therefore, calibration could only have been done for the CBCL and DICA-R in this age group.

Some studies reviewed earlier in this section had similar patterns with lower prevalence rates based upon parent reports (This issue will be discussed in more detail later in this report). Therefore, children appear to report internalised problems more often than do parents, followed by teachers. As such, the reported 3% of children between the ages 4 and 11 years seen as having an anxiety/depression problem may be an underestimation, as this figure would have been derived through parent and teacher report.

2.1.5 Comorbidity of Anxiety Disorders

Looking into the relationship between anxiety and depression in a sample of 106 children and adolescents from a child psychiatric clinic, Strauss, Last, Hersen and Kazdin (1988) compared children's responses on self-report measures of anxiety and depression. Results showed that 28% of children who had already been diagnosed with an anxiety disorder displayed concurrent major depression. However, this cohort tended to be older, exhibit more severe anxiety symptomatology and display two or more anxiety disorder subtypes when compared to children with anxiety disorders alone (p. 65).

In a study looking into depressed mother's perceptions of the child's anxiety, Politano, Stapleton and Corell (1992) found with a sample of 56 mothers, where 26 were deemed to be depressed (using a self-report), a positive association was found between child self-reported trait anxiety and the mothers' depressed state. The authors stated that their results were consistent with earlier studies that suggested maternal depression may act as a pervasive influence on children during their development resulting in elevated anxiety symptomatology.

2.2 CLASSIFICATION SYSTEMS

Cantwell and Baker (1988) state that, "Classification is a process of imposing order on complex data by grouping the data into categories based upon shared characteristics" (p. 521). From an historical perspective, Cantwell and Baker cite a number of classification systems in child psychiatry including; Anna Freud's *Developmental Profile* in 1964, The *Group for the Advancement of Psychiatry Report* in 1966, then current editions of *the International Classification of Diseases - Tenth Edition* (ICD-10; World Health Organisation, 1992) and *the Diagnostic and Statistical*

Manual for Mental Disorders - Fourth Edition (DSM-IV; American Psychiatric Association, 1994) (pp. 521-522).

Essentially, psychiatric classification systems can be divided into two approaches namely; categorical and dimensional. Categorical systems provide the clinician and researcher specific criteria for each diagnosis to be met, whereas dimensional systems are interested in the degree to which a person exhibits symptoms of a disorder. As such, where a child may score highly on an anxiety questionnaire (dimensional scale) he/she may not actually have an anxiety disorder as they may not satisfy sufficient criteria on a categorical system (e.g., ICD/DSM).

2.2.1 Categorical Classification

The latest edition of the *International Classification of Mental and Behavioural Disorders* (ICD-10) groups anxiety disorders in the section named; *Neurotic, Stress-Related and Somatoform Disorders.* The subsection entitled; *Behavioural and Emotional Disorders with Onset Usually Occurring in Childhood and Adolescence* includes such disorders as; *separation anxiety*, *phobic anxiety*, and *social anxiety* disorder (pp. 273-276).

Although child anxiety had been studied for some time, it was not until the publication of the third edition of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-III; American Psychiatric Association, 1980) that categories pertaining to child and adolescent anxiety were operationalised (Hooper & March, 1995). With the release of the revised DSM-III-R, the section *Disorders Usually First Evident in Infancy, Childhood or Adolescence* included the childhood anxiety disorders; *separation anxiety disorder, avoidant disorder, and overanxious disorder* (pp. 58 -65).

In an attempt to achieve consistency with the ICD-10, the release of DSM-IV combined the three childhood anxiety disorders found in DSM-III-R (renaming *avoidant disorder* as *social phobia*, and *overanxious disorder* as *generalised anxiety disorder*) with adult anxiety disorders (e.g., *phobic disorder*, *obsessive-compulsive disorder*, and *posttraumatic stress disorder*). To determine whether these changes to the DSM-III-R resulted in any changes to the categorisation of anxiety in childhood and adolescence, Kendall and Worman (1996) conducted 40 structured diagnostic interviews. Using the *Anxiety Disorders Interview Schedule for Children* (ADIS-C; Silverman, 1987) and self report measures including the RCMAS and the CBCL as well as teacher reports using the *Teacher's Report Form* (TRF; Achenbach, 1991b). Of their sample of 40 youth aged 9 to 13, results of both DSM-III-R and DSM-IV versions of diagnostic interviews indicated a pattern of non-significant differences between them. This led the authors to conclude that, the revisions made between the two DSM editions "do not interfere with the extent to which we can generalize from current and past research" (Kendall & Worman, p. 460).

Although categorical systems are routinely used by researchers and clinicians alike, this approach has been criticised. In this respect, Millon (cited in Cantwell & Baker, 1988) states that, "The reliance upon one source (usually a parent) to provide responses to a set of diagnostic criteria and criteria being insufficiently explicit, excessively concrete and insufficiently comprehensive" (p. 521).

2.2.2 Dimensional Classification

Another approach to the classification of children's psychiatric disorders utilizes statistical procedures to measure "the tendency of specific items of behaviour to occur together" (Cantwell & Baker, 1988, p. 522.). Once dimensions of behaviour have been established through statistical methods (e.g., principal factor analysis), children can be

classified into specific groups. The CBCL is a popularly used questionnaire in child clinical psychology and is a good example of a dimensional scale.

An advantage of the dimensional approach is the use of multiple sources of information about the child and the clinical utility for tracking a child's progress. According to Cantwell and Baker (1988) "Because of its empirical foundation, the dimensional approach produces groupings that are more reliable, more homogenous, and more closely tied to the child's assessment and progress through treatment" (p. 523). However, Cantwell and Baker concede that although the use of factor analytical techniques produce statistically meaningful correlations between test items, these factors may not be clinically or theoretically useful.

2.3 ASSESSMENT OF CHILDHOOD ANXIETY

Categorical and dimensional approaches make up the two main approaches for the assessment of anxiety in children. In regard to categorical systems, structured and semi-structured interviews provide the clinician and researcher with specific criteria to make a diagnosis usually aligned to the DSM-III-R or more recently released DSM-IV. With respect to dimensional approaches, the clinician and researcher obtain a normative score on broad behaviour checklists (e.g., CBCL) or on more specific anxiety scales (e.g., RCMAS).

2.3.1 Structured and Semi-structured Interviews

Several structured and semi-structured interview protocols have been developed primarily for epidemiological research. The purpose of using these, as opposed to open ended interviews, is that they serve to structure the stimuli presented to the person and

reduce the role of clinical judgement. Moreover, structured interviews have "the advantage of making possible comparisons between one case or population and the next" (Groth-Marnat, 1997, p. 88). Five interview protocols that are most commonly used by researchers and clinicians are each discussed below.

The *Schedule for Affective Disorders and Schizophrenia in School Aged Children;* (K-SADS; Puig-Antich & Chambers, 1978) is designed to assess children between the ages of 6 and 17 primarily in respect of childhood anxiety and depression. The K-SADS was designed to be administered by a professional clinician taking approximately 1 hour to complete enabling diagnosis of disorders such as: *major depressive disorder, phobias, conduct disorder, obsessive-compulsive disorder and separation anxiety*. Separate interviews are administered to both parent and child. Rogers (1995) comments that the K-SADS has excellent inter-rater reliability (k = .84) and evidence of convergent validity with the CBCL (median k = .50). However, Chambers et al report poor reliability for overanxious disorder and separation anxiety disorder (cited in Stalling & March, 1995, p. 130).

The *Diagnostic Interview Schedule for Children - Version 2.3* (DISC - 2.3; National Institute of Mental Health, 1991), was specifically designed for use in epidemiological research. It is highly structured, designed for use by lay interviewers with both interviews for children (264 items) and adults (302 items) to determine a child diagnosis. Although the DISC can take up to an hour to administer, time is reduced when sections are found to be unremarkable. The latest version DISC-2.3 was designed to be compatible with DSM-III-R and comprises sections for: *Anxiety Disorders, Affective Disorders, Disruptive Disorders, Schizophrenia and Other Disorders, and Alcohol and Other Substance Abuse Disorders*. In terms of reliability, Rogers (1995) states that the correlation between diagnosis and symptom scores were .84 for parent form and .75 for child form. With respect to validity, the DISC has weak concurrent

validity of .14 with the CBCL (p. 145). Stallings and March (1995) note that some of the advantages of the DISC are its administration by lay individuals, compatibility with DSM-III-R and the availability of a computerized scoring system. In regard to disadvantages, Stalling and March comment that the DISC is inflexible (i.e., the interviewer is unable to administer sections in isolation) and has poor reliability for the anxiety disorders, especially poor sensitivity to internalizing psychopathology during middle childhood (p. 132).

The *Diagnostic Interview for Children and Adolescents Revised* (DICA-R; Reich, Shayka, & Taibleson, 1991) was designed to be administered by lay interviewers to children aged between 6 and 17 take between 60 and 90 minutes. The format is based upon themes such as; *Behaviour at Home & School,* and *Interpersonal Relationships.* Following interview with the child, the parent is questioned about signs and symptoms of 18 possible DSM-III-R diagnostic categories. Test-retest reliability is reported to range between .76 and .90 across categories (Groth-Marnat, 1997). Disappointingly, the lowest agreement between clinical diagnosis and the DICA-R was for anxiety disorders at k = 0.3 (Stallings & March, 1995).

The *Child Assessment Schedule* (CAS; Hodges, Kline, Stern & McKnew, 1992) was modelled upon traditional child clinical interviews (Hodges, 1993). As a result, approximately half of the 56 items do not relate directly to diagnostic criteria, but rather provide useful information about the child. The interview has a thematic organisation (e.g., *School, Friends & Family*) with diagnostic questions interspersed throughout. The CAS is designed to be administered by a clinician with diagnoses generated by calculating the number of items endorsed in various areas of functioning. The CAS has good test-retest reliability of .66, .80 & .90 for separation anxiety, overanxious disorder and "worries and anxieties" respectively. In terms of convergent validity, the CAS Total

score and *overanxious* scale correlates moderately to the CBCL Total score (r = .53) and STAIC (r = .54) respectively.

The *Anxiety Disorders Interview Schedule for DSM-IV - Child Version* (ADIS-C; Silverman & Nelles, 1996) is a semi-structured interview specifically designed to evaluate anxiety disorders in children and adolescents aged 6 to 18. The ADIS-C has separate child and parent versions, and although the authors recommend both versions be administered, diagnosis can be derived through either form independently (p. 12). Due to what Silverman and Nelles (1988) claim is "the growing recognition that children can provide valuable information about their thoughts, feelings and behaviours" (p. 772), the authors conducted extensive pilot work with the ADIS-C to ensure that the ADIS-C child version was appropriate for children. To this end, they set out to ensure that, "The wording of questions is short and simple to understand, easily understood, that questions could be clarified using standard prompts, that temporal landmarks are offered for questions involving chronology and that questions were phrased in minimally threatening ways" (Silverman & Nelles, p. 773).

Research by Silverman and Rabian (1995) of the ADIS-C for DSM-IV found good test-retest reliability for overanxious disorder (r =.64) and specific phobia (r =.84). The ADIS-C for DSM-IV assesses all 9 anxiety disorders listed in DSM-IV, dysthymia and major depression, whist screening for externalized problems (e.g., ADHD). Diagnosis is derived when sufficient criteria are met for each disorder and the clinician, having made a clinical judgement of the reported symptoms, deems significant interference with normal functioning. As such, the *Clinician Severity Rating* is the final determinant of diagnosis.

Summary

As has been detailed here, several structured and semi-structured diagnostic interview protocols are currently available. Some have the advantage of being administered by lay individuals (DISC, DICA-R), whilst the CAS has been specifically modelled upon traditional child clinical interview. As the ADIS-C was specifically designed to assess anxiety disorders and now is available for DSM-IV, it would presently appear to be the better choice for the clinician and researcher.

Obviously, administering both parent and child versions of a diagnostic interview would yield the most information about a child's psychopathology. However, circumstances (e.g., cost, time, availability) may dictate the administration of one version over the other. In this respect, Hodges (1993) summarizes the lessons learnt from data obtained from use of these instruments (structured diagnostic interviews) including, "(1) children and adolescents can respond directly to questions aimed at inquiring about their mental status, (2) there is no indication that asking children these questions has any morbidity or mortality risks and (3) parent and child reports cannot be considered interchangeable, nor can the parent be considered the 'gold standard' to which the child's report is compared." (p. 50). Therefore, if only one version (child or parent) is to be administered, it seems that it would be prudent to interview the child.

2.3.2 Behaviour Scales

Achenbach (1991a) developed the *Child Behaviour Checklist* (CBCL) to help quantify childhood psychopathology. Principal component analysis identified two broad classifications (internal/external) and eight core syndromes, namely: *Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Delinquent Behaviour* and *Aggressive Behaviour*. An additional

syndrome (*Sex Problems*) is included for 6-11 year old boys. The CBCL also contains a section inquiring about a child's social activities and school competencies.

The CBCL behaviour problems section contains 113 behaviour items for which the respondent reports with respect to the child's behaviour over the previous six months. Normative information is provided separately for boys/girls 4-11 years and 12-16 years (Achenbach, 1991a). To obtain information from the child's teacher, the authors developed the *Teacher Report Form* (TRF; Achenbach, 1991b) with similar gender/age norms. Finally, the *Youth Self-Report* (YSR; Achenbach, 1991c) was developed as a self-report measure for boys and girls aged 11-18 years.

In terms of the CBCL's validity, the manual reports good external validity establishing a correlation of $r = .80$ with the *Connor's Parent Questionnaire* (CPQ; Connors, 1989). Correlations between the two checklist individual syndromes range from $r = .59$ to $r = .88$ (Achenbach, 1991a). The 1991 revision of the CBCL norms in the United States found an average increase of approximately 3 points. Bond, Nolan, Adler and Robertson (1994), collected Australian normative information for 7, 12 and 15 year old samples taken from Melbourne and Sydney. Acknowledging the limitation of their sample (i.e., 3 age groups) and some small differences between the Sydney and US norms (e.g., *Anxious/Depressed* clinical cut-off being 14 versus 12), Bond et al. concluded that the US norms appeared to be "appropriate for use with Australian children" (p. 103).

2.3.3 Anxiety Scales

Prior to categorical systems (e.g., DSM), diagnosis of anxiety relied upon clinical judgement usually supplemented by the completion of scales. In this section, the

two scales that are commonly used in the field and reported in the literature with regard to the assessment of anxiety are discussed.

The *Revised Children's Manifest Anxiety Scale* (RCMAS; Reynolds & Richmond, 1985) is a 37 item self-report questionnaire designed to assess anxiety levels in children aged 6 to 19 years. It provides three sub scales (physiological anxiety, worry/oversensitivity & social concerns/concentration) that can be summed to provide a total anxiety score. A lie scale is also embedded in the scale. Evidence of good internal consistency (α = .83), as well as test-retest reliability (r = .68) for the total anxiety score is reported in the manual (Reynolds & Richmond, 1985). Although the RCMAS is reported to correlate well with the STAIC-T (r = .85), this is the only criterion measure provided in the manual and therefore agreement with diagnostic interview cannot be assumed.

Initially developed as a research tool to assess anxiety in elementary school children, the *Stait Trait Anxiety Inventory for Children* (STAIC; Spielberger, 1973) has been shown to be a valid screening instrument for anxiety problems in children (Hodges, 1990). It comprises two distinct scales; *State Anxiety* (A-State) and *Trait Anxiety* (A-Trait).

The manual states;

> "The A-State scale is designed to measure transitory anxiety states, that is, subjective, consciously perceived feelings of apprehension, tension, and worry that vary in intensity and fluctuate over time, the A-Trait scale measures relatively stable individual differences in anxiety proneness, that is differences between children in the tendency to experience anxiety states" (Spielberger, 1973, p. 3).

The Trait scale comprises 20 statements for which the child responds how they generally feel using a three point scale; *"hardly ever"*, *"sometimes" or "often"*. This instrument can be administered in a group and is suitable for children attending fourth, fifth or sixth grade elementary school. The test reputedly takes 8 to 12 minutes to complete. Children are informed that they are completing a "How I feel questionnaire" without use of the words fear or anxiety. Both percentile ranks and T-Scores are provided separately for grade level and gender. In terms of reliability and validity, the manual reports moderate test-retest reliability over six weeks for A-Trait at $r = .65$ for boys and $r = .71$ for girls with "reasonably good" internal consistency for boys ($\alpha = .78$) and ($\alpha = .81$) for girls (p. 8). Goertzel and Goertzel (1992) reported an alpha coefficient of .74 for A-Trait with respondents aged 12 or younger (N = 22). Evidence of concurrent validity is reported by correlation with the *Children's Manifest Anxiety Scale* and the *General Anxiety Scale for Children* at .75 and .63 respectively (p. 9). A low negative association ($r = .12$) was found between A-Trait and IQ scores for both fifth grade boys and girls (p. 9).

2.3.4 Comparing Structured Interviews to Scales

Hodges (1990) looked at the validity of scores obtained on the RCMAS and the STAIC Trait scale for 70 psychiatric in-patients. With an average age of 10 years, these patients had met the criteria for either an anxiety disorder or mood disorder based upon the CAS. Contrary to the researcher's hypothesis, the anxiety disordered group and the non-anxiety disordered group did not differ on the RCMAS. However, the anxiety disordered group did score significantly higher on the STAIC-T than the non-anxiety disordered group. Hodges concluded that although the questionnaires used appeared to have limited diagnostic ability, they felt that the STAIC could be used "to assess change in symptomatology as well as to screen for potential cases in community based samples" (p. 380).

Jensen, Salzberg, Ritchers and Watanabe (1993) also attempted to clarify the relationship between scales and structured diagnostic interview. Initially starting with a sample of 541 military families, the authors used the CBCL to screen for children whose parents had rated them at or above the 80th percentile. This resulted in a subsample of 201 families that were administered the DISC (parent & child). Children were also assessed on the RCMAS and the *Child Depression Inventory* (CDI; Kovacs, 1984). Children who obtained an anxiety diagnosis via the DISC were found to have significantly higher RCMAS scores than non- anxious children.

Perrin and Last (1992) administered the *Fear Survey Schedule for Children Revised* (FSSC-R; Ollendick, 1983) the RCMAS and a modified STAIC (*13 additional somatic items added*) to three groups of boys with an anxiety disorder (N = 105), ADHD (N = 59) and a community sample (N = 49). Correlation between the FSSC-R, RCMAS & STAIC-T were r = .48, r = .44 and r = .16 respectively for each group. Planned comparisons of the three groups' total scores on the three anxiety measures indicated that anxiety disordered boys scored significantly higher (p < .001) on the RCMAS and the STAIC-M than the normal group (p. 573)

2.4 BEST INFORMANT - CHILDHOOD ANXIETY

Traditionally, mental health professionals have relied upon a single informant, usually the child's mother, to assess for childhood psychopathology (Loebner, Green & Lahey, 1990). However, research consensus (Edelbrock, Costello, Dulcan, Conover & Kala 1986; Achenbach, McConaughy & Howell, 1987) and the development of separate parent, teacher and child versions of structured interview and behaviour checklists, has called for the use of multiple informants (Loebner et al., p. 136). Since parents, teachers and children have unique perspectives from which to perceive a child's pathology, use of multiple informants allows the clinician and researcher to obtain a "best estimate" score

which is considered more superior to scores from one informant (Achenbach, McConaughy & Howell, 1987).

However, Loebner et al., (1990) point out that parents, teachers and children can differ in their ability to accurately perceive a child's problem and some respondents may be more able than others to assess certain behaviours because many child behaviours are not pervasive across settings. Furthermore, as children grow older, their ability to perceive and describe problem behaviours increases and they are then better informants of subjective experiences (p. 142). Loebner et al., suggest that a proper choice of informants will reduce error variance, and asking informants only about those behaviours they are best placed to comment on will reduce the cost of assessment.

To test the notion outlined in the preceding paragraph, Loebner et al., surveyed by mail 128 Ph.d and MD researchers in North America. Of the 105 respondents, 59% considered themselves to being involved primarily in child research. The respondents were asked to rate the utility of the child, mother or teacher to assess childhood behaviours. The result of the survey showed that the researchers felt that mothers were the most useful informants, then children with teachers being least useful. However, for the items: 'worrying' and 'worrying about separation from parents', researchers reported that the child was the best informant. The child was rated equal to the mother in ability to assess somatic, depressed and suicidal ideation items. In regard to externalizing behaviours, mothers and teachers were perceived to be better informants than the child. This study provides further evidence of the importance of collecting child self-reported information in respect of internalised psychopathology.

Looking at the difference between child informants from community settings and clinic referred children, Sawyer, Baghurst and Mathias (1992) compared CBCL, TRF and YSR scores from 83 community children (aged 10-11, 14-15) and 100 children

referred to child clinics (aged 10-16). The authors found that the children drawn from the general community reported more externalizing and internalizing behaviours than their parents whilst the clinic referred children reported fewer externalizing , but more internalizing problems than their parents. The explanation given for this discrepancy was that children referred to the clinic for past externalized behaviours had been previously punished (parental discipline) and were therefore less inclined to admit this through the questionnaire (p. 447). Therefore, for both groups, children were reporting more internalizing behaviour problems.

In a study involving 299 children aged 6 to 18 years, Elderbrock et al., (1986) interviewed mothers and children separately the DISC and then compared the children's and their mothers' perceptions of child problems. They found greater agreement between parents and children on conduct problems than on anxiety, fear, obsessions/compulsions, psychotic symptoms and affective disorders. Elderbrock et al., (1986) concluded that although children may not admit to behaviour problems articulated by their parents, children may often report symptoms of fear, anxiety and depression that are not reported by their parents. In terms of age difference, Elderbrock et al., found that with respect to symptoms of anxiety, child-parent correlation for 6-9 year olds, 10-13 year olds and 14-18 year olds, were r = .1, r = .13 and r = .36 respectively (p. 186). Finally, Elderbrock et al., concluded that; "Children below the age of 10 are generally unreliable in their responses to a structured psychiatric interview such as the DISC" but that, "Reliability of the child's self-report increases sharply with age and by adolescence children are as reliable as their parents in reporting child symptoms" (p. 188).

In another investigation of parent-child agreement on symptoms assessed through structured diagnostic interviews, Hodges, Gordon and Lennon (1990) examined the relationship between parent and child versions of the CAS. They interviewed 48

child psychiatric patients (M = 10 years) and their mother over a period of 12 days. Results showed a high parent child agreement on conduct/behavioural problems with a correlation of r = .66 for conduct disorder and r =.47 for attention deficit disorder. Moderate agreement was found for affective symptoms with a correlation of r = .46 for major depressive disorder and r = .45 for dysthymia. However, low association was found for anxiety symptoms, with agreement for separation anxiety being r = .26 and overanxious disorder r = .12. These results are similar to those obtained with the DICA (Eldrbrock et al., 1986) in that although there was no significant difference in overall score, there was significant discrepancy between parent and child in respect separation anxiety (child reporting more). In terms of implications from these two studies Hodges et al., state, "they underscore the need to administer parallel versions to both informants whenever possible. If this is not achievable, parental report on conduct/behavioural problems could perhaps be used. However, information about anxiety-related symptoms, worries and physical symptoms, as well as problems related to the family, would need to be obtained directly from the child." (p. 434).

Epkins (1993), compared teacher ratings to self-report measures of depression, anxiety and aggression in both in-patient and school groups. Eighty three hospital patients aged 8 to 12 years and 234 students in grades 3, 4 and 5 were studied. Among other measures, the children completed the RCMAS and CDI. Epkins (1993) found that "elementary school children self-report more, or a greater severity of, symptoms than their teachers on all traits (including anxiety & depression)" (p. 656). Children in the in-patient group self-reported more symptoms than their teachers only on the anxiety measures.

Frick, Silverthorn and Evans (1994) looked at child-teacher and parent informant patterns to the assessment of anxiety as well as looking at how maternal anxiety might influence parental information. Ninety five children aged 6 to 8 and 9 to 13 who were

referred to a child clinic were assessed on the DISC-2.3. Results showed than for both the younger sample and older sample, teachers showed substantial disagreement in their perception of the child's anxiety to parent and child. Correlation between parent and teacher was r = .17 and r = .15 for younger group and older group respectively. Child and teacher correlation was also at r = .15 (DISC-2.3 was only administered to the older child). In respect of anxiety diagnosis, the authors found that maternal over reporting of anxious symptoms was related systematically to the level of maternal anxiety, and this anxiety-related over reporting seemed to account for the presence of children who received a diagnosis solely from the parents' report (p. 376). Here, the opposing argument for child assessment is indicated. That is, anxious mothers may over report, thereby a need for child report is required. The authors concluded, "our findings clearly argue for the importance of child self-reports of anxiety symptoms when using structured interviews in a clinic referred sample of older elementary school-aged children " (p. 378).

A thorough meta-analysis of child and adolescent behavioural and emotional problems was undertaken by Achenbach, McConaughy and Howells (1987), to investigate the association between multiple informant assessment. With a sample of 119 studies conducted between 1967 and 1985, the researchers looked at consistency between informants of childhood psychopathology including anxiety, depression, aggression and behaviour problems. Some of the main criteria for the selection of studies included; English publication, children between the ages of 1 1/2 and 19 years, children of normal intelligence, sample size of at least 15 subjects, Pearson Product Moment correlations had to be the statistical measurement. After correcting for Type II error, Achenbach et al., found a mean correlation of r = .25 between child report and parent report, and r = .20 between child report and teacher report. Test re-test correlation for self-rating was found to be r =.74 .

With the aim of comparing community and clinic samples of young children, Epkins (1996) compared child, parent and teacher ratings of depression, anxiety and aggression with scales including the CDI and RCMAS. One hundred and thirty five children took part in the survey (61% response rate) with a mean age of 9.86 and the in-patient group comprising 83 children. For anxiety scores for young children (8 to 9 years), correlations between child and parent, and child and teacher were r = .32 and r = .22 respectively. For older children (10 to 12 yrs), the correlations were r = .22 and r = .42 respectively. Epkins concluded that although there was "considerable parent-child correspondence on both anxiety and depression, the present results are in line with recent work that found parent-report screening measures, in comparison to child self-report, are less sensitive to internalizing problem behaviours in elementary school youngsters" (Epkins, p. 606).

Stanger and Lewis (1993) investigated agreement between mothers, fathers, teachers and children on the CBCL and related instruments (i.e., TRF & YSR) in regard to behavioural and emotional problems. They obtained data from a stratified sample of 98 thirteen year old children who were participating in a Child Development Longitudinal Study. Comparison of the results of all three measures were r= .30, r =.27, and r = -.08 for Internalized problems for mother, father and teacher respectively. Stranger and Lewis noted that "children generally reported the most problems and teachers reported the least" (p. 113).

2.5 SUMMARY

Therefore, it seems that the literature supports the view that children may be the best source of information when assessing anxiety. This is not to say that parents and teachers do not add important information when determining the presence of child psychopathology. However, one is not always able to obtain information from all three

sources. Further, it may be that because internalised behaviour problems by definition are not always evident to others, that children may therefore be the only truly reliable source for this information For example, a child may deliberately avoid some social situations because of a social anxiety. A parent may perceive the avoidance, particularly in the older years, as oppositional behaviour. In regard to this research, conducting structured diagnostic interviews with children themselves would seem the optimal way of identifying anxiety disorders in children.

3.0 RATIONALE FOR THIS RESEARCH

As has been detailed previously in this report, childhood anxiety disorders are sufficiently prevalent to warrant early intervention programmes in schools and other community settings. The feasibility of these programmes often relies on low-cost, unobtrusive and valid screening procedures. Screening procedures that obtain data from the child themselves appear not only to be adequate, but perhaps preferable to those trying to deduce internalised psychopathology by obtaining data from other persons such as parents and teachers.

Many schools are interested in the mental health of their students. Although schools are only now starting to address the need for school surveys (e.g. *The Clarkson Community Survey*) many schools collect data on their students' levels of self-esteem via self-report questionnaires. Although several instruments are presently available for this purpose, the PHCSCS seems to be the most commonly used test of childhood self-esteem in the Joondalup Education District. Given that schools already collect these data, it seems that childrens' AC scores on the PHCSCS provide a potential method for screening children for anxiety problems. Selection of children to be included in anxiety treatment groups might also be made based upon AC scores.

To determine the utility of the AC scale of the PHCSCS for screening purposes, two studies were conducted. Study 1 compared 10 year old Western Australian childrens' AC scores with those reported in the manual. Study 2 examined whether children with AC scores in the clinical range (based on the cut-off recommended in the manual) actually have a DSM-IV anxiety disorder. This study also used crosstabulations to determine the best cut-off score on the AC scale for screening for anxiety disorders.

4.0 STUDY 1

4.1 RESEARCH QUESTION 1

To what extent are raw AC scores from 10 year old Western Australian school children similar to normative data presented in the PHCSCS manual ?

4.2 METHODS

4.2.1 Participants

Two hundred and seventy two year 5 children from 4 Western Australian government primary schools within the Joondalup Education District were sampled for this study. Permission for the Study was granted by the Education Department of Western Australia (EDWA) prior to approaching individual school principals. Parents were advised of the study and their consent was sought via letters taken home by the students (see Appendix 2).

The schools that participants were sampled from, ranged from middle to upper-middle socio-economic status. According to recent Census information (Australian Bureau of Statistics [ABS], 1996), median personal weekly income of residents living in suburbs from the four schools ranged from $308 to $418 (see Table 1). The median personal weekly income for Perth and the North West Metropolitan Region is $304 and $307 respectively (ABS, 1996a, 1996b). For suburbs across the entire Perth metropolitan region, personal median weekly income ranges from $174 to $500 (ABS, 1996b).

Following distribution of information letters, 160 signed consent forms were returned from the 4 schools with return rates ranging from 48% to 67% across the 4 schools, with an overall response rate of 59% (see table 1). No significant statistical association was found between median personal weekly income and response rate ($p > 0.05$). Also, although there was some discrepancy between parents of boys and girls providing consent for this study, a chi squared analysis found these differences to be non significant. The final sample comprised 80 boys and 80 girls.

Table 1.
Recruitment of Subjects

School	Median Personal Weekly Earnings	N	Consent	% Return	Consent - Boys N (%)	Consent - Girls N (%)
A	$418	45	21	48%	9 (43%)	12 (57%)
B	$308	82	43	52%	21 (49%)	22 (51%)
C	$346	67	44	66%	22 (50%)	22 (50%)
D	$386	78	52	67%	28 (54%)	24 (46%)
TOTAL		**272**	**160**	**59%**	**80 (50%)**	**80 (50%)**

4.2.2 Measures

The *Piers Harris Children's Self-Concept Scale* (PHCSCS, Piers, 1984) is an 80 item self-report questionnaire primarily designed to assess self-esteem. In addition, six Cluster scales have been derived through factor analysis. According to the author, these scales "may be used to generate clinical hypotheses" (Piers, 1984 p. 38). The Cluster scales include *Behaviour, Intellectual and School Status, Physical Appearance and Attributes, Anxiety, Popularity, and Happiness and Satisfaction.*

The questionnaire is scored from normative information provided in the manual which derives a Total Score of self-concept and 6 Cluster scores. The PHCSCS can be administered either individually or in groups and takes approximately 30 minutes to

complete, hand score and interpret (Piers, 1984, p. 1). The scale comprises short statements for which the child responds '*yes*' or '*no*'.

According to Piers (1984), no age or sex differences were found in the normative sample (N = 1183) that included students in grades 4, 6, 8, 10, and 12 (p. 70). Although boys systematically report less anxiety and more problematic behaviours than girls, no significant sex differences in overall self-concept were indicated (p.72) In regard to gender differences for the AC, unfortunately, the manual does not provide sex this information for the Cluster scales. Raw scores are plotted on a profile sheet that provides both percentile rankings and T scores (i.e., M = 50, SD = 10) for each Cluster as well as for the Total Score. In respect of the AC scale, high raw scores indicate the absence of anxiety problems while low raw scores suggest anxiety problems that require the need to investigate the possibility of psychopathology.

Internal consistency of the Cluster scales range from .73 for *Happiness and Satisfaction* to .81 for *Behaviour* with .77 for *Anxiety* (p. 56). According to the manual (Piers, 1984) the PHCSCS reports good test-retest reliability ranging between r = .96 for 3-4 weeks and r = .51 for 1 year (p. 54). This also supports the contention that the test is measuring relatively stable characteristics. Internal consistency of the Total Score has been reported in the range of α = .88 to α = .93 whilst internal consistency estimates for the Cluster scales are reported at between α = .73 and α = .90 with the AC scale at α= .77 (p. 56). A recent study by Goertzel and Goertzel (1992) of 38 cancer patients obtained an alpha score of .82 on the AC scale.

In regard to the external validity of these scales, a recent review of the literature located only two recent studies that have utilized individual Cluster scales. In addressing the convergent and discriminant validity of the Student's Life Satisfaction Scale (SLSC; Huebner, 1991), Huebner (1994) compared this instrument to the *Happiness and*

Satisfaction Cluster scale (HS) of the PHCSCS. Acknowledging that little validity information was available for the HS scale, the author compared this to the SLSC. Huebner found a correlation between the two of r = .57 which was the highest of all the Cluster scores (p. 275). This provides limited evidence of construct validity for the HS scale. A second study by Wood, Becker and Thompson, (1996) utilized the AC and HS cluster scales of the PHCSCS as part of a psychological battery to establish pre-adolescent body image. However, no external validity measures were taken in this study.

To interpret the PHCSCS, scores are plotted on a Profile Form, to see whether the Total Score and individual Cluster Sores fall into one of three categories. For the AC scale, raw scores of 10 or above are considered normal, raw scores from 6 to 9 a-typical, and raw scores below 5 (more than one standard deviation below the mean) fall into the clinical range and require further psychological evaluation. Percentile rankings and T score information can also be obtained from the manual. Participants' raw score on the AC scale was the measure used in this study.

4.2.3 Procedure

The 4 schools were visited by the researcher in one day to administer the PHCSCS in class groups . It was explained to the children that the researcher was interested in finding out how they felt about themselves (see Appendix 3 for verbatim instructions). The children were reassured that no-one would be able to look at their individual responses, not even their teacher or parents. However, children were told that their teachers and parents would receive a summary of their overall results. Finally, the children were informed that some of them would be asked to talk more about themselves individually during the next day or so.

4.3 RESULTS

All 160 completed PHCSCS were hand scored and plotted on individual Profile Forms. In regard to AC scores, an overall mean of 10.25 (*SD* = 3.35) was obtained compared to a mean of 9.54 (*SD* = 3.11) reported in the manual (p. 51). In respect of gender, boys (*M* = 11.09, *SD* = 3.17) reported less anxiety than girls (*M* = 9.41, *SD* = 3.34). A *t*-test found the means to be significantly different (t (80) = - 8.91, p = .000). These results compare similarly to those reported in the manual where boys (*M* = 10.43, *SD* = 2.97) also reported less anxiety than girls (*M*= 8.70, *SD* = 3.01). Considering that the normative information provided in the manual is not age specific, these results indicate that 10 year old Western Australian children have reported slightly less anxiety (i.e., approximately 1 point higher).

Table 2 shows that the scores obtained in this study were slightly higher than those obtained in the normative sample. Consequently, the distribution deviates somewhat from the percentile information provided in the manual. The 12 children in the clinical range (0 – 5) comprised 8 girls and 4 boys.

Table 2.
Distribution of Raw AC scores compared to Normative Information

Raw	THIS STUDY		PHCSCS Manual	
AC Score	**N**	**Percentile**	**(Predicted N)**	**Percentile**
0-5	12	7	(18)	11
6	11	14	(11)	18
7	13	22	(13)	26
8	13	31	(18)	37
9	11	38	(18)	48
10-14	100	100	(82)	100
TOTAL	**160**			

4.4 DISCUSSION

Participants in this study scored slightly higher on the AC scale than children in the normative study reported in the PHCSCS (Piers, 1984). Acknowledging that a small sample size can influence assumptions of homogeneity, de Vaus (1995) suggests a minimum sample size of 144 at the 95% confidence level (p. 72). Therefore, this variance is unlikely to be due to sample size.

It is reported in the manual (Piers, 1984), that the normative information provided to the user is based upon Total Score results obtained from 1183 children from Pennsylvanian schools in 1966, whilst Cluster score norms are based upon a second study of 485 children. The authors concede that the norms should be used with caution, and may therefore have limited generalizability. It is therefore not surprising that there were discrepancies with the frequency of children's AC scores, particularly as the norms provided in the manual are for children between the ages and 8 and 18 years and are not presented separately for each age and gender across this range.

On the other hand, the distribution of scores in this study did not appear distorted in comparison with the normative data presented in the manual but rather, were dispersed around a higher mean. For example, in this study, a similar proportion scored AC scores of 6 or less as scored 5 or less in the manual, and a similar proportion scored AC scores of 7 or less as scored 6 or less in the manual and so on.

It is unclear whether the slightly higher AC scores obtained in this study reflect a difference between Australian children in the late 1990's and United States children in the late 1960's, or a difference between 10 year olds and other age groups, or simply, sampling error. The data from this study were consistent with the normative data reported in the manual in regard to the size and distribution of sex differences. On that

basis, the AC scores can be interpreted according to the principles outlined in the manual with one exception: it is possibly best to regard the clinical range as 0 to 6 rather than 0 to 5. For the current sample, a score of 7 is just less than one standard deviation below the mean.

5.0 STUDY 2

5.1 RESEARCH QUESTION 2

(a) What proportion of 10 year old children with AC scores in the clinical range satisfy the diagnostic criteria for an anxiety disorder ?

(b) What is the best cut-off point on the AC scale for identifying children with an anxiety disorder ?

5.2 METHODS

5.2.1 Participants

For this study, an initial sample of 80 children was selected from the sample of 160 children who participated in Study 1. This new sample comprised all children with AC scores between 0 and 9 (N = 60), plus 20 children with AC scores between 10 and 14 who were selected using a stratified random sampling that produced a ratio of 2 females to each male. This stratification was employed because an approximate 2:1 prevalence rate of females to males for internalised childhood problems has been reported in the literature (Bell-Dolan et al., 1990, Bird et al., 1992) as well as a similar sex ratio found for the anxious participants (AC scores 0 to 5) in Study 1.

Two subjects with AC scores of 14 (1 male, 1 female) were withdrawn due to their Total Score falling above the 98th percentile and deemed to be a questionable high result according to the manual, one female subject with an AC score of 8 withdrew consent prior to the diagnostic interview, and one male subject with an AC score of 4

appeared not to understand the ADIS-C questions due to his intellectual disability. As Table 3 depicts, the final sample consisted of 76 children (23 male, 53 female).

Table 3
Participants for Study 2

Raw AC Score	N	Male	Female
0-5	11	3	8
6	11	5	6
7	13	5	8
8	12	2	10
9	11	2	9
10-14	18	6	12
TOTAL	**76**	**23**	**53**

5.2.2 Measures

The AC scores obtained in Study 1 were also used in this study. Diagnostic classifications for anxiety disorders were made on the basis of ADIS-C scores. As discussed earlier in this report, the ADIS-C has stronger evidence of validity than the other available diagnostic interview schedules and is the only measure currently designed to arrive at a DSM-IV diagnosis. Finally, the ADIS-C can derive an anxiety diagnosis on the basis of an interview with the child without needing to interview the parent. This was an important feature of the measure for this Study, as limited time and funding restricted the researcher to child interviews only.

Scoring on the ADIS-C combines the interviewer's judgement with the interviewee's responses. To arrive at a DSM-IV anxiety diagnosis, two conditions must be met. First, the child needs to report sufficient anxiety symptomatology. Second, the symptoms must cause significant interference in the child's life. The interviewer is required to make a clinical judgement as to the severity of the reported interference in the child's life. This judgement is reflected on a 9-point scale (scores range from 0 to 8) with a rating of 4 or more (*definitely disturbing/disabling*) enabling a diagnosis to be made.

To compare how well an established anxiety measure might also identify anxious children, the *Revised Children's Manifest Anxiety Scale* (RCMAS; Reynolds & Richmond, 1985) was also administered following the ADIS-C interview. The RCMAS is a 37 item self-report questionnaire designed to assess anxiety levels in children aged 6 to 19 years. It provides three subscales (*physiological anxiety, worry/oversensitivity & social concerns/concentration*) that can be summed to provide a total anxiety score. A lie scale is also embedded in the scale. Evidence of good internal consistency (α = .83), as well as test-retest reliability (r = .68) for the total anxiety score is reported in the manual (Reynolds & Richmond, 1985).

5.2.3 Procedure

All interviewers were registered or provisionally registered school psychologists (1 male, 9 female) and were trained by the researcher to administer the ADIS-C. Each School Psychologist was provided with a sample of the ADIS-C (*only the Anxiety Disorders would be used in the interview)* and relevant extracts from the manual. An example case was worked through following which, the school psychologists were advised to practise with a child during the week leading up to the ADIS-C interviews. The researcher made himself available to answer queries during the week prior to interview.

The 76 participants (see Table 3) were administered the ADIS-C individually at their school. Children were interviewed between 3 and 10 days following the administration of the PHCSCS. Alphabetical lists of children were provided to the interviewers to avoid bias. Children were collected from their classroom and escorted to the room where the interview was conducted. This is normal practice for children seeing the School Psychologist or other health professionals. The child was read a standard

explanation of the reason for the interviews and asked whether he/she was happy to proceed. Only one female child withdrew consent (as reported in section 6.2.1).

The interviews took between 25 minutes (no reported anxiety) to 70 minutes (more than one anxiety disorder). Two children became upset during the interviews and were immediately de-briefed before continuing the interviews. No participant became upset to the extent that an interview needed to be postponed or terminated. Parents of any distressed children were notified on the day of the interview. If the child was distressed, or diagnosed with an anxiety disorder, a place at a *Resilience Training Group* (to run approximately 6 weeks later) was offered.

5.3 RESULTS

Based upon the ADIS-C, a comparison was made between AC scores and anxiety diagnosis. As mentioned previously, those children with raw AC scores between 0 and 5 (one or more standard deviations below the mean) are considered to be clinically significant, those between 6 and 9 are considered a-typical and those 10 and above are in the normal range. As is depicted in table 4, all but one of the 0 to 5 group (N = 11) were found to have one or more anxiety disorder. As well, only one child in the 10 to 14 group (N = 18) was found to have an anxiety diagnosis. The results obtained for AC scores between 6 and 9 showed a less consistent trend for the proportion with an anxiety disorder to decrease with increasing AC scores. Overall, 36 children met criteria for one or more anxiety disorders.

Table 4
Crosstabulation of AC Scores and Diagnostic Classification

AC Score	N	1 or more Anxiety Disorder	No Anxiety Disorder	% with 1 or more Anxiety Disorder
0-5	11	10	1	90.9
6	11	7	4	63.6
7	13	10	3	76.9
8	12	4	8	33.3
9	11	4	7	36.4
10-14	18	1	17	5.5
Total	**76**	**36**	**40**	

In terms of type of DSM-IV anxiety diagnosis obtained, Table 5 shows that, GAD (N = 22) was the most frequently identified disorder followed by SP (N = 17), SAD (N = 12) Sp.P (N = 12) and PTSD/ASD (N = 3) respectively. Although some subjects reported PD and OCD symptomatology, none met sufficient criteria for diagnosis.

Table 5
Number of Children Diagnosed with each Anxiety Disorder

Raw AC Score	SAD	SP	Sp.P	PD PD/AG	GAD	OCD	PTSD/ ASD
0-5	5	7	2	-	4	-	-
6	2	3	1	-	4	-	1
7	2	3	4	-	8	-	2
8	1	1	1	-	2	-	-
9	2	3	3	-	4	-	-
10-14	-	-	1	-	-	-	-
TOTAL	**12**	**17**	**12**	**0**	**22**	**0**	**3**

SAD Separation Anxiety Disorder, SP Social Phobia, Sp.P Specific Phobia, PD/AG Panic Disorder with/without agoraphobia, GAD Generalised Anxiety Disorder, PTSD/ASD Posttraumatic/Acute Stress Disorder.

Note: This table includes individuals who met the criteria for 1 or more anxiety disorder.

The principal aim of Study 2 was to determine the utility of the AC scale to identify children with anxiety disorders. The degree to which the AC scale identified false positives and false negatives would determine its usefulness. While it was decided that false positives are more tolerable than false negatives, it was hoped that a cut-off score could be identified that minimised both false positives and false negatives.

If all 160 participants in Study 1 were interviewed with the ADIS-C, a crosstabulation of the AC scale (above and below cut-off) compared with the results of the ADIS-C (diagnosis or not) would determine the level of agreement between the two measures. However, due to limited resources, this was not possible. Consequently, data were obtained for all children with AC scores between 0 and 9 (N = 60), and for a sample of 20% of children with AC scores between 10 and 14 (i.e., 20 of the 100 children in this range; see Table 2). To use these data would give a misleading impression of the false positives and false negative rates, as the sample is not representative of the distribution of AC scores in the population (high AC scores were under-represented). In order to determine the optimal cut-off point for the AC scale in identifying anxiety disorders, the number of cases in our sample of the 10 to 14 range needs to be proportional. I obtained full data from 18 of the 20 cases with AC scores of 10 or more (2 cases invalid). Assuming these 20 were representative of the full sample of 100 in terms of the likelihood of returning missing data, it was concluded that 90 of the 100 would have provided full data if I had attempted to interview all 100 children.

In the following set of analyses, the sample size for the 10 to 14 AC range is shown as 90. Given that 1 out of the 18 children interviewed was diagnosed with an anxiety disorder, it was estimated that 5 out of 90 would have had an anxiety disorder.

Table 6

Proportion of Subjects Identified as Anxious with an AC Cut-off Score of 5

	AC (0-5)	AC (6-14)	TOTAL
NON-ANXIOUS	1	107	108
ANXIOUS	10	30	40
TOTAL	11	137	148

Kappa = .312, (p = .000)

Table 7

Proportion of Subjects Identified as Anxious with an AC Cut-off Score of 6

	AC (0-6)	AC (7-14)	TOTAL
NON-ANXIOUS	5	103	108
ANXIOUS	17	23	40
TOTAL	22	126	148

Kappa = .441, (p = .000)

Table 8

Proportion of Subjects Identified as Anxious with an AC Cut-off Score of 7

	AC (0-7)	AC (8-14)	TOTAL
NON-ANXIOUS	8	100	108
ANXIOUS	27	13	40
TOTAL	35	113	148

Kappa = .626, (p = .000)

Table 9

Proportion of Subjects Identified as Anxious with an AC Cut-off Score of 8

	AC (0-8)	AC (9-14)	TOTAL
NON-ANXIOUS	16	92	108
ANXIOUS	31	9	40
TOTAL	47	101	148

Kappa = .594, (p = .000)

Table 10

Proportion of Subjects Identified as Anxious with an AC Cut-off Score of 9

	AC (0-9)	AC (10-14)	TOTAL
NON-ANXIOUS	23	85	108
ANXIOUS	35	5	40
TOTAL	58	90	148

Kappa = .580, (p = .000)

The above analyses were based upon the assumption that if 90 participants from the 10 to 14 group were interviewed, 5 of them would have an anxiety disorder. However, it is possible (though unlikely) that the 1 case found to have an anxiety disorder from the 18 actually interviewed was the only case in the entire 10 to 14 group. Alternatively, it is possible (again, unlikely) that as many as 10 children from the entire 10 to 14 group would have been found to have an anxiety disorder (if all of them were interviewed). Therefore, further analyses were conducted to determine how false negatives and false positives would be affected by each of these scenarios (1 case out of 90, and 10 cases out of 90).

Scenario 1

Data were entered on the basis that the 1 child in the 10 to 14 sample (N= 18) was the only anxiety disordered participant in the full sample of 90. This had only a marginal effect upon kappa values for AC cut-off scores of 5 to 9 with a cut-off score of 7 having highest agreement (see Table 11). In this scenario, there was a reduction in the

false negative rate (9 cases, rather than 13 out of 113). There was no change to the number of false positive rate (8 cases out of 35).

Scenario 2

Data were also entered on the basis that up to 10 children in the 10 to 14 sample of 90 could have been found to have an anxiety disorder. This also had a marginal effect on kappa values for AC cut-off scores of 5 to 9 again with a cut-off score of 7 having highest agreement (see Table 11). In this scenario, there was an increase in the number of false negatives (18 cases out of 113). Again, the false positive rate was unchanged.

Table 11
Assessment Between ADIS-C Diagnosis and AC Raw Score According to the Number of Cases Assumed to Exist in the Normal Sample Group (N = 90)

AC Cut-off	Number of Cases Assumed		
	5[a]	1	10
5	.312	.352	.270
6	.441	.493	.385
7	.626	.685	.557
8	.594	.651	.527
9	.580	.635	.513

a **Kappas in this column correspond to values reported in Tables 6 to 10**

When participants' responses on the RCMAS were scored, 25 of the 80 (31%) questionnaires were found to be invalid according to the RCMAS Lie Scale scores. Consequently, it was decided it to omit these data from the study.

5.4 DISCUSSION

All but one of the children whose AC scores were between 0 and 5 (indicating the need for further psychological evaluation) were found to have an anxiety disorder based upon their ADIS-C interview. Perusal of the one subject who did not meet criteria, found that anxious symptomatology was reported by the child, but the

interviewer deemed there was insufficient interference with functioning to make a diagnosis. When the clinical range of the AC scale is taken to be 0 to 6 , as suggested earlier on the basis of the data in Study 1, 17 (77.3%) of the 22 participants in the clinical range were diagnosed with an anxiety disorder. Only one (5.6%) of the 18 children with AC scores between 10 and 14 was diagnosed with an anxiety disorder. Interestingly, this child reported a specific phobia of elevators and no other anxiety symptoms. As specific fears are not referred to in the 14 AC items, it is understandable how this child was not detected by the AC scale.

To determine an AC score cut-off, crosstabulations of AC scores and ADIS-C diagnosis were performed taking into consideration that interviews were attempted with only 20 of the 100 children with AC scores between 10 and 14. The data from the sample of children with AC scores of 10 or more were used to estimate the data that would have been obtained if interviews had been attempted with all children with AC scores of 10 or more. Three estimates were made: (1) that the sample of 18 actually interviewed was perfectly representative (2) a worst-case scenario (1 in 9 anxious) and (3) a best-case scenario (1 in 90 anxious). Analyses based on each of these scenarios indicated that if the AC scale was to be used to screen large groups of children, a cut-off score of 7 would yield the most accurate classification as this produced greatest agreement between the AC scale and the ADIS-C.

Therefore, if the PHCSCS were to be used to identify anxious children, the most conservative strategy would be to regard all children with AC scores between 0 and 5 as anxious, regard all children with AC scores between 10 and 14 as likely not anxious, and conduct further assessment of those children who obtain scores between 6 and 9. This further assessment would best be undertaken with standardized diagnostic interviews such as the ADIS-C. If one wanted to reduce the number of diagnostic interviews required, with only a few additional false positives resulting, one could

accept children with AC scores of 7 or less based upon the data from Study 1 as anxious and only interview those with scores between 8 and 9 (i.e., 15% of the total sample).

6.0 GENERAL DISCUSSION

The aim of the present research was to determine whether the Anxiety Cluster (AC) score of the Piers Harris Children's Self-Concept Scale (PHCSCS) could be utilized to screen for anxiety problems in 10 year old children. Whilst it is acknowledged that there are general child behaviour scales (e.g., CBCL, TRF, YSR) and specific anxiety questionnaires (e.g., RCMAS, STAIC) available to the clinician for this purpose, the PHCSCS has the advantage of being a self-report applicable to children aged 8 years and above (YSR is only standardized for 11 to 18 years) and is commonly used by school psychologists in the Joondalup Education District.

The results of Study 1 indicated that our data found that this group of children obtained slightly higher AC scores (i.e., lower anxiety) than the normative information supplied in the manual (Piers, 1984). Overall, AC scores for our sample were approximately one point higher. Possible explanations for this difference include that the PHCSCS norms reported in the manual; (1) were collected in the 1960s in Pennsylvania and therefore may reflect a change over 30 years, or differences between Australian and American children (2) are provided for all children with age ranging from 8 to 18 years which could mean that 10 year olds may actually report less anxiety and (3) are not gender specific even though the literature generally finds that girls report more anxiety than boys. With these limitations in mind, it is not surprising some variance was found. Consistent with the literature, girls did reported more anxiety than boys.

Study 2 found that the AC score of the PHCSCS was able to identify extreme ends of the anxiety spectrum. All but 1 of the 11 children with valid AC raw scores between 0 and 5 (clinically significant) met the criteria for at least 1 anxiety disorder and all but 1 of the 18 children with AC raw scores between 10 and 14 (non anxious)

did not meet sufficient criteria for any anxiety disorder. For AC raw scores between 6 and 9 (a-typical, but not clinically significant) there was a slight trend for higher AC scores to have a lower rate of anxiety diagnosis. It appears that the AC score has good utility at the extreme ends of the scale, but moderate utility in the middle. As discussed in the previous section, the optimal strategy would be to use the AC scores as an initial screen (0 to 7 = anxious, $\geqslant$ 10 = not anxious) and diagnostic interviews to clarify the status of children with AC scores of 8 and 9.

6.1 PREVALENCE

Of the 76 children administered the ADIS-C, 36 were found to have one or more anxiety disorder. The most common diagnostic category was GAD (N =22) followed by; SP (N = 17), SAD (N = 12), Sp.P (N = 12), and PTSD/ASD (N = 3). Only one child with an AC score between 10 and 14 was found to meet the criteria for an anxiety disorder (Sp.P). When data were extrapolated to the full 160 subjects, approximately 25% of children were estimated to have one or more anxiety disorder (i.e., 35 subjects with AC scores between 0 and 9 plus 5 subjects with AC scores between 10 and 14). Since limited resources prevented all 160 children from being interviewed a true estimate of prevalence cannot be made, nor can individual anxiety diagnostic category prevalence be drawn from this sample. It may be that the 1 child out of 18 with an AC score of 10 to 14 who was diagnosed with an anxiety disorder was the only one in the original sample of 80 (Study 1). If so, the prevalence rate was 22.5% (36 out of 160). On the other hand, the estimate of 5 cases of anxiety disordered among the children with an AC score greater than 9 could also be a gross under-estimation.

International prevalence rates for anxiety disorders have been discussed earlier in this paper. Prevalence rates have ranged from 3.6% in Ontario (Bowen, Offord & Boyle, 1990) through to 21% reported in Colombia (Kashani & Onaschel, 1990). Of

those studies using structured interview (e.g., CAS, K-SADS, DISC), child interviews have consistently resulted in higher rates of diagnosis (e.g., 21% for child interview, 13.8% mother interview). In Colombia, Kashani & Onaschel (1990) found that 25.7% of 8 year olds met the criteria for a DSM-III-R anxiety disorder. Lower prevalence rates seem to have been found with those studies using questionnaires. For example, the Western Australian Child Health Survey (Zubrick, et al., 1995) found that 3.6% of the total sample, and 3% of children aged 4-11 year olds were identified by their teachers (TRF) and caregivers (CBCL) had a behaviour problem in the area of Anxiety/Depression. This suggests that relying on teachers and parents to report internalised problems of young children may result in the under estimation of the true prevalence of such problems. Alternatively, relying on self-report may over-estimate prevalence.

As mentioned previously, the data from the current studies indicate a prevalence rate for childhood anxiety that is higher than found in other studies. Factors such as the introduction of DSM-IV anxiety categories applicable to children as well as adults (DSM-III-R listed SAD, OAD and Sp.P only), and local influences may be partly responsible. In regard to the latter, Perth had recently experienced several abductions of children (at the time of the interviews) which some participants cited as the reason for their separation anxieties. On the other hand, such an influence may lead to elevated scores on self-report questionnaires but are unlikely to result in greater numbers of children exhibiting sufficient symptoms to be diagnosed with an anxiety disorder.

6.2 LIMITATIONS

Unlike many medical illnesses that can be detected through objective investigative procedures (such as blood test or CT scan), the presence of childhood psychopathology is determined by the reliance of clinical judgement often aided by

subjective information provided by the child or others observing the child. As such, questionnaires and structured diagnostic interviews often form the basis of the diagnosis.

The reliability of the diagnosis very much depends upon the reliability of the client to state honestly the presence/absence of symptoms and the degree to which these symptoms interfere with that person's functioning. The reliability of the diagnosis also relies on the capacity of the informant to be aware of symptoms and articulate this awareness when questioned.

Although the ADIS-C recommends that both the child and parent versions be administered to maximise convergence, this was not feasible in this study. However, the manual does allow for diagnosis of an anxiety disorder based upon a symptom reported by the child that significantly interferes with functioning. Moreover, as has been stated previously, children appear to be an adequate, if not a preferable source for obtaining data on anxiety symptoms.

Since each ADIS-C interview had the potential to last up to 1.5 hours (depending on symptoms reported), interviewing was carried out concurrently by 10 school psychologists. Although the 10 interviewers are competent psychologists, and were trained in the use of the ADIS-C as a group, this study did not investigate inter-rater reliability of the interviewers. Despite the fact that the ADIS-C is a structured interview (i.e., the interviewer follows verbatim instructions), some degree of interpretation of the child's subjective distress via the *Clinician Severity Rating* (CSR) is required. As such, some deviation could have arisen due to inter-rater variability of the CSR.

Finally, the most important limitation of this study was the need to sample from the pool of subjects with AC scores greater than 9, rather than administer the ADIS-C to all 100 of these children. This precluded a true calculation of the false negative rate.

6.3 APPLICATION

Often, a cost effective way to deliver psychological services to children is to run therapy intervention groups. This became the trend during the last decade with numerous self-esteem groups being run at schools and child clinics. Coupled with the fact that children are used to being grouped at school, the demand for services cannot often be met for individuals who are nowadays more frequently placed on lengthy wait-lists. Often these children are nominated for these groups by teachers and parents where the process would rarely involved collecting data for their inclusion. This has obvious implications in terms of selecting those children who may benefit most.

The advantage of the PHCSCS is that not only does it allow for an assessment of self-esteem, but may also allow for the inspection of AC scores to select children who may have anxiety problems. In practical terms, according to these results, those children with raw AC scores between 0 and 7 have a 77% chance of having an anxiety disorder, whilst those between 10 and 14 would be excluded, since this study estimated 94% are not anxious. For those with scores of 8 or 9 (15% of all screened), additional assessment would be required to identify those who are anxious. This is a substantial reduction in workload from needing to assess every child.

6.4 UTILITY: A Caution

Although many of the items on the AC scale have good face validity (e.g., "*I feel nervous*" and "*I am often afraid*"), the conclusions drawn from Study 2 applies only to the PHCSCS being administered as set out in the manual. That is, the entire

questionnaire was administered to the children as a measure of self-esteem. Only afterwards was the AC scale extracted for analysis. Therefore, the use of the AC as a "short form" to screen for anxiety has not been examined here and conclusions about similar utility should not be assumed. Further research is required to see whether the AC scale can be administered on its own, or integrated into a another questionnaire designed to screen for other childhood psychopathology.

6.5 FUTURE RESEARCH

Due to limited resources, not all of the 160 children administered the PHCSCS could be interviewed. As such, sampling of approximately one in five children with AC scores between 10 and 14 was used. Although extrapolated figures can be generated to approximate how many of these subjects might meet criteria for an anxiety disorder, this procedure is far less accurate than interviewing all children. As such, future research should involve interviewing all PHCSCS respondents sampled, using both child and parent interview schedules. Additionally, inter-rater reliability could be determined via a pilot study whereby children are interviewed by two separate clinicians and results compared prior to the main study. Alternatively, every fourth or fifth child interviewed in the main study, could be interviewed a second time by another psychologist to check for variability. These approaches would maximise the chance that a child who is diagnosed with an anxiety disorder by one interviewer is likely to receive the same diagnosis from another interviewer.

Statistical procedures (such as *logistic regression* and *ROC Curves*) could be employed to determine the best balance between false positives and false negatives. Future studies should also sample from a broader range of schools, both in terms of geographic location and socio-economic status. Finally, as mentioned above, Study 2

could be conducted again with just the AC scale administered in isolation or embedded within another questionnaire.

6.6 CONCLUSION

Accounting for the limitations outlined above (i.e., inter-rater reliability and the sampling of children with AC scores of 10 – 14) a psychologist can administer the PHCSCS to a group of 10 year old children and be reasonably confident that those children with raw AC scores between 0 and 5 have an anxiety disorder. Some caution however should be made in assuming that those children with raw AC scores of 10 –14 do not, because of sampling. That is, although unlikely, it is conceivable that some children in the 10 – 14 group might actually have an anxiety disorder but were not interviewed. However, children with AC scores between 6 and 9 could be assessed further to determine whether or not they have an anxiety disorder. The psychologist can reduce the number of children who require further assessment, at the expense of only a few false positives, by classifying children with AC scores of 7 or less (rather than 5 or less) as anxious.

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APPENDIX 1

Anxiety Cluster Scale Items

I am often sad

I am shy

I get nervous when the teacher calls on me

My looks bother me

I get worried when we have tests in school

I give up easily

I am nervous

I worry a lot

I like being the way I am

I feel left out of things

I wish I were different

I am unhappy

I am often afraid

I cry easily

APPENDIX 2

DEAR PARENTS

Mr Jeremy Singer, a School Psychologist completing his Master of Psychology studies, is about to conduct research into ways of screening for anxiety problems in children. His research has been granted ethical clearance by the Education Department of WA as well as Edith Cowan University.

Although parents are usually aware when their children experience anxiety (eg fears), some children do not tell their parents about their worries, which can affect a student's learning outcomes. Psychologists use either interviews or questionnaires to identify anxiety problems in children. This research examines whether a questionnaire designed to measure self-esteem in children can also accurately identify anxiety problems. That is, do children who report their worries on this self-esteem questionnaire actually have an anxiety problem ?

There are three stages to this research project:

STEP 1
Approximately 200 children from 4 government primary schools will participate in this research. Your child will complete the *Piers-Harris Children's Self-Concept Scale* with the rest of their class this Friday, (14 August). **The results of this assessment will be made available to you via the School Psychologist, soon afterwards.**

STEP 2
If your child indicates on this questionnaire that they tend to worry about things, Mr Singer and other School Psychologists will then conduct a more thorough assessment the following week. As well, 1 in 7 children who report no fears, will also be selected randomly for further assessment.

STEP 3
Should this more thorough assessment indicate that your child has an anxiety problem, Mr Singer will inform you of this and negotiate with the School Principal appropriate support for your child.

CONFIDENTIALITY

Only you and the school principal will be informed of whether your child has an anxiety problem. All identifying information (eg your child's name, date of birth, etc) will be removed from the questionnaires by Mr Singer. The data (which is then anonymous) will be entered and analysed by computer. No researcher who assists in analyzing the data will be able to identify any child who participated in the study.

A report on the project will be written. Again, children and the name of the schools who participated in the study will not be named in this report.

If you would have any questions regarding this research, please telephone Mr Jeremy Singer on 9301 3000, or Mr Greg Dear on 9400 5052 at Edith Cowan University.

Please sign and return this form to school <u>before</u> Friday 14 August.

Thank you.

INFORMED CONSENT

I ..... having understood the enclosed letter, give permission for my son/daughter ..... to participate in the Anxiety research with the knowledge that participation is voluntary and I may withdraw this permission at any stage of the research. I also understand that my child may choose to withdraw from the study also at any time.

Signed ..... Dated .....

APPENDIX 3

"The purpose of this questionnaire is to find out how you really feel about yourself. Often, other people, especially parents and teachers are asked to say how they think you feel. This booklet gives you the opportunity to say for yourselves how you feel."

"It's important that you answer as honestly as possible and not answer how you think others would like you to. This is not a school test and you will not be marked right or wrong."

"Although your teacher will be provided with an overall score from this questionnaire, how you answer individual items will remain private."

"Some of you will be asked further questions later this week or next that have more to do with worries and fears. If you are selected, you will be given the choice of whether or not you are happy to do this. If you would prefer not to answer more questions about worries and fears, that will be okay."

Adaptation of question 55

"I have lots of pep" → "I have lots of energy"