Preventing anxiety and promoting social and emotional strength in early childhood: An investigation of aetiological risk factors

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To my mom and dad

Declaration by author

This thesis is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my thesis.

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Pahl was responsible for writing the book chapter and Barrett was responsible for reviewing the book chapter and providing feedback.

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Abstract

Anxiety disorders are among the most prevalent psychiatric disorders in children and adolescents, with ten to fifteen percent of young children experiencing internalising problems (Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004; Egger & Angold, 2006). Researchers have indicated that clinically significant anxiety can exist in preschool aged children and can be sub-typed into patterns similar to that of older children. This early identification of anxiety has lead researchers to recommend that prevention efforts occur early in the life course (Beinvenu & Ginsburg, 2007), before the onset of disorder(s). Research remains scarce as to when the ultimate time to intervene would be, as anxiety research with young children is minimal. The studies presented in this thesis attempt to expand the current literature within in the area of early childhood anxiety.

The first objective of this thesis was to extend the literature in the field of early childhood anxiety by examining the aetiology of anxiety and behavioural inhibition (BI) through the investigation of potential risk factors. This study (Study One) represents one of the first investigations within the research to examine risk factors for early childhood anxiety. Two hundred and thirty-six children aged four to six years participated in this study. Parents of the children completed self-report questionnaires at one time point. Results revealed that BI did not significantly predict anxiety, nor did any of the risk factors significantly predict BI. Significant predictors of anxiety included mother's negative affect and mother's parenting stress. Father's parenting stress was found to play a mediating role between mother's parenting stress and child anxiety. Overall, the findings highlight the importance of both parents (directly or through mediation) in the aetiology of early childhood anxiety. The findings of Study One provide important information regarding the aetiology of early childhood anxiety and provide important implications for the development of preventative intervention programs.

Study Two sought to examine the efficacy of a preventative intervention program (*Fun FRIENDS*; Barrett, 2007a) for preschool aged children, delivered as a school- based, universal intervention. This was the first study conducted evaluating the *Fun FRIENDS* program and was one of only a few prevention trials cited within the literature examining early childhood anxiety. The study involved a cohort of 263 children enrolled in one of 16 preschool classes. Children were aged between four and six years. Schools were randomly allocated to either an intervention group (IG) or a waitlist control group (WLG). Parents of the children and teachers completed self-report questionnaires at preintervention, postintervention, and at 12-month follow-up (parents in the IG only).

Parent report data revealed no significant differences between intervention conditions on anxiety at postintervention, although participants in the IG experienced larger reductions in anxiety than participants in the WLG. Children in both conditions decreased in BI symptoms at postintervention, except for boys in the IG. Significant increases in social-emotional strength were found for girls in both conditions, but not for boys. When examining the IG *only* over the long-term (pre, post, 12 month follow-up), nearly significant decreases in anxiety were found at postintervention and significant decreases were found again at 12-month follow-up. Improvements in BI were found at all time points for girls but not for boys and improvements on social-emotional strength were found from preintervention to 12-month follow-up, with girls scoring significantly higher than boys.

For teacher report, children in the IG improved significantly more on BI compared to the WLG at postintervention indicating that the intervention program may have had a positive impact on these children in learning strategies to manage BI symptoms. However, at pr-intervention, scores on BI were significantly different between the IG and the WLG. Similar to parent report, girls in the IG experienced the largest decrease in BI symptoms at postintervention. On social-emotional strength, children in the IG improved significantly more than children in the WLG at postintervention with girls in the IG experiencing the largest improvement from pre to postintervention. Overall, these findings suggest that the intervention program had a positive impact on some children as evidenced by improvements in anxiety, BI, and social-emotional strength at postintervention and at 12-month follow-up. Parent report indicated that children in the WLG also improved on these measures, making it difficult to contribute positive changes solely to the program. However, teacher report did indicate that children in the IG improved significantly more than children in the WLG. The improvements gained at 12-month follow-up highlight the potential long-term impact of the program although, without a comparison group, it is unknown whether significant differences would exist between both conditions. Implications of these results are discussed along with limitations and directions for future research.

Keywords

anxiety, prevention, social-emotional competence, resilience, universal prevention, risk factors, protective factors

Australian and New Zealand Standard Research Classifications (ANZSRC)

170106 100%

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List of Abbreviations and Symbols

5-HTT	Serotonin Transporter gene
ADF	Asymptotically Distribution Free Estimator
BERS	Behavioural and Emotional Rating Scale, Parent Report
BERST	Behavioural and Emotional Rating Scale, Teacher Report
BI	Behavioural Inhibition
BIRS	Behavioural Intervention Rating Scale, Parent Report
BIRST	Behavioural Intervention Rating Scale, Teacher Report
BIQ	Behavioural Inhibition Questionnaire, Parent Report
BIQT	Behavioural Inhibition Questionnaire, Teacher Report
CAPA	Child and Adolescent Psychiatric Assessment
CBCL	Child Behaviour Checklist
CBCL 1.5-2	Child Behaviour Checklist for 1.5 to 5 year olds
CBT	Cognitive Behaviour Therapy
CD	Conduct Disorder
CFI	Comparative Fit Index
DASS-21	Depression, Anxiety, and Stress Scale
DAWBA	The Development and Well Being Assessment
DC-03	Diagnostic Criteria: Infancy and Preschool
DISC	Diagnostic Interview Schedule for Children
DSM	Diagnostic and Statistical Manual of Mental Disorders
DSM-III-R	Diagnostic and Statistical Manual of Mental Disorders, Edition 3, revised
DSM IV	Diagnostic and Statistical Manual of Mental Disorders, Edition 4
DSM IV-TR	Diagnostic and Statistical Manual of Mental Disorders, Edition 4, Revised
EM	Expectation Maximisation
FAM	Family
FCBT	Family Cognitive Behaviour Therapy
FCCS	Fear Survey Schedule for Children
FGCBT	Family Group Cognitive Behaviour Therapy
GABA	Gamma amino butyric acid

GAD	Generalised Anxiety Disorder
FU	Follow-up
GCBT	Group Cognitive Behaviour Therapy
ICBT	Individual Cognitive Behaviour Therapy
ICD-10	International Statistical Classification of Diseases and Related Health Problems 10th Revision
IG	Intervention Group
IQ	Intelligence Quotient
K-SADS	Schedule of Affective Disorders and Schizophrenia for School-Aged Children
MASC	Multidimensional Anxiety Scale for Children
MAOA	Monoamine Oxidase A
MDD	Major Depressive Disorder
MT	Monitoring
NR	Not Reported
OAD	Over Anxious Disorder
OCD	Obsessive Compulsive Disorder
ODD	Oppositional Defiant Disorder
PAPA	Preschool Age Psychiatric Assessment
PAS	Preschool Anxiety Scale
PRESS	The Preschool Symptom Self-Report
PSI-SF	Parenting Stress Index, Short Form
PSIM	Parenting Stress Index, Mother Report
PSIF	Parenting Stress Index, Father Report
PTSD	Post Traumatic Stress Disorder
RDC-PA	Research Diagnostic Criteria-Preschool Age
RCT	Randomised Controlled Trial
RMSEA	Root-mean square error of approximation
SAD	Separation Anxiety Disorder
SD	Standard Deviation
SEM	Structural Equation Modelling
SOP	Social Phobia
SP	Specific Phobia
SPSS	Statistical Package for the Social Sciences
SRMR	Standardized root-mean square residual

StressF	Parenting Stress Index, Father's Report.
StressM	Parenting Stress Index Mother's report
USA	United States of America
WL	Waitlist
WLG	Waitlist Group
**	Significant
<	Less than
>	Greater than
α	Alpha
B	Unstandardised regression coefficients
ß	Beta, standardised regression coefficients
F	F value: Measurement of distance between individual distributions
n	Sample size
η^2	Eta squared
N	Entire sample size
p	Significance Level
r	Correlation
R	Regression
R^2	Adjusted Regression coefficient
sr^2	Semipartial correlation
x^2	Chi squared
$\bar{x}$	Mean

CHAPTER ONE: EARLY CHILDHOOD ANXIETY

A clear lesson emerging from the psychiatric research over the last decade is that what were once thought of as typically *adult* disorders are more often than not reported to have had their onset in childhood and adolescence (Insel & Fenton, 2005; Kessler et al, 2005). Recently, researchers have indicated that clinically significant anxiety can exist in preschool-aged children (Eley et al., 2003; Spence, Rapee, McDonald, & Ingram, 2001; Sterba, Egger, & Angold, 2007) with the most conservative rates indicating that 1 in every 25 children in a classroom may experience anxiety (Ford, Goodman, & Meltzer, 2003). This early identification of anxiety has led researchers to suggest that prevention efforts ought to occur early in the life course to reduce the overall burden of anxiety in later childhood and adulthood (Beinvenu & Ginsburg, 2007). However, research is scarce examining prevention efforts in early childhood and subsequently, it is unknown exactly when the ultimate time is to intervene. Recent investigations have indicated that delivering preventative interventions when children are very young (e.g., 3 to 5 years of age), following early signs of anxiety or behavioural inhibition (BI), may represent the ideal stage for intervention (Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005). Amongst their principles for prevention research, Nation and colleagues' (2003) have highlighted the need for a research-based risk and protective factor framework that involves families, peers, schools and communities in targeting specific prevention outcomes. A host of risk factors have been identified for anxiety in older children and adolescents but research is limited for specific risk factors for early childhood anxiety, therefore, making it difficult to develop and implement preventative interventions for this young age group.

This PhD thesis attempts to extend the current knowledge base by examining the aetiology of anxiety in preschool-aged children by investigating potential risk factors. This investigation of early childhood risk factors will assist in expanding and increasing our current knowledge regarding this understudied age group and may assist in the development and delivery of preventative intervention programs for young children. This thesis will also examine the efficacy of a preventative intervention program developed for preschool-aged children called the *Fun FRIENDS* program (Barrett, 2007a). Results will be reported from the first ever, universal, school-based trial of this program. This work attempts to increase the existing literature within the realm of preventative interventions for young children.

The aim of this chapter is to provide an overview of anxiety in preschool-aged children. In the majority of studies in this chapter, preschool age is considered to range between the ages of 2 and 6 years. This chapter will begin will a discussion of the fears and anxiety experienced during

the preschool years and a review on the epidemiology of early childhood anxiety. This chapter will also discuss the prevalence rates.

Chapter Two will review the risk factors of childhood anxiety noted within the literature along with a brief overview of protective factors. Chapter Three will review the treatment literature for childhood anxiety, which is continued in Chapter Four with a focus on the *Fun FRIENDS* program (Barrett, 2004; 2005; 2007a) as a treatment for anxiety disorders in children. Chapter Five shifts to a review of the prevention literature and Chapter six reports the general methodology for this thesis, while Chapter Seven and Eight report the results from Study One and Study Two of this thesis, respectively. The overall discussion of this thesis is presented in Chapter Nine.

Fears and Anxiety during the Preschool Years

From the perspective of developmental psychology and temperament research, anxiety and fear in young children has typically been seen as either a normative phase of development, or as a temperament style that increases the child's risk for developing an anxiety disorder in later childhood or adulthood (Egger & Angold, 2006). All children experience normal developmental fears which change across the lifespan as children's developmental experiences change and cognitive abilities increase. That is, children's increased cognitive capacity may allow them to recognise and understand dangers that are inherent in potentially threatening situations (Ollendick & Horsch, 2007). Early on, Jones and Jones (1928) contended that many common fears in childhood arise because the child is increasingly able to "see" the danger in those situations but in not able to "grasp" the situation, or able to exercise control over it. In this regard, fears may be evolutionarily adaptive and possess survival value (Ollendick & Horsch, 2007). It may be that fears represent a protective response to a situation that is neither fully understood nor controllable (Ollendick, Hagopian, & King, 1997).

The context of normal fears and anxieties generally shifts from concerns about concrete, external things to internalised, abstract anxieties (Kopelwicz, 1996). Thus, normal developmental fears exist at all ages. Most infants develop a degree of fear of strangers and express distress when separated from their primary caregivers between 6 and 12 months of age, with fears peaking between 9 and 13 months and decreasing for the majority by 30 months of age (Marks, 1987; Warren & Sroufe, 2004). These fears would generally not be classified as symptoms of a disorder rather; they reflect the baby's attachment to a primary caregiver and the ability to distinguish

between loved ones and strangers. These fear responses are transient and do not disrupt the child's cognitive, social, or emotional development (Egger & Angold, 2006).

Early developmental community-based studies (e.g., Earls, 1980; Macfarlane, Allen, & Honzik, 1954; Richman et al., 1974; Richman, Stevenson, & Graham, 1982) have revealed that specific fear of animals and fear of the dark are common in young children, with peak prevalence between the ages of 2 and 6 years. In Macfarlane and colleagues' (1954) longitudinal study of 252 children assessed from 18 months to 14 years of age, 62% of 3 year-olds were reported to have a specific fear, with these rates being the highest when compared to the rates of other age groups (Macfarlane, Allen, & Honzik, 1954). The two most common fears of preschoolers noted were fear of dogs and fear of the dark. Interestingly, at age 5 years, fear in girls was correlated with irritability, mood swings, tantrums, timidity and overdependence, while in boys they were associated only with negativism. Two community studies demonstrated that 9-14% of 3-year-olds "often" had fears (Earls, 1980; Richman et al., 1974) as reported by their parents.

For a portion of children, fear of strangers and of novel situations are more severe. Approximately 15% of young children experience intense and persistent fear, shyness, and social withdrawal in response to unfamiliar people and/or situations. These children are said to be "behaviourally inhibited" (e.g., Biederman et al., 1993; Fox Henderson, Rubin, Calkins, & Schmidt, 2001; Hirshfeld et al., 1992; Kagan & Snidman, 1991). Behavioural inhibition is a temperament construct that can be defined as "an enduring tendency to exhibit quiet withdrawal in novel situations" (Warren & Sroufe, 2004). Behaviourally inhibited infants and preschoolers display characteristic patterns of physiological reactions to novelty (e.g., elevated heart rate, low heart rate variability, high baseline morning cortisol, elevated startle responses; Calkins, Fox, & Marshall, 1996; Fox et al., 2001; Kagan, Reznick, & Snidman, 1987). These children seem to be at increased risk for multiple anxiety disorders and phobic disorders (Biederman et al., 1990; Kagan, Snidman, Zentner, & Peterson, 1999). The temperament construct of BI has been considered a risk factor for the development of anxiety across the lifespan. This risk factor is discussed in more detail in Chapter Two.

Epidemiology

The long-term course of childhood anxiety disorders remains controversial. It is now thought that anxiety in childhood and adolescence is not always transitory, and in many cases, leads to long-term clinical presentations which often persist into later childhood and adulthood

(Cartwright-Hatton, McNicol, & Doubleday, 2006). Once present, childhood anxiety disorders tend to be chronic and rarely remit without treatment (Costello, Egger, & Angold, 2004; Thomsen & Mikkelsen, 1995) and additional anxiety disorders may develop in adolescence and adulthood (Aschenbrand, Kendall, Webb, Safford, Flannery-Schroeder, 2003). Childhood anxiety is highly comorbid with depression and other psychological disturbances within community and clinical populations (Boyd & Gullone, 1997; Brady & Kendall, 1992; Cole, Peeke, Martin, Truglio, & Seroczynski, 1998; Orvaschel, Lewinsohn, & Seeley, 1995; Pine, Cohen, Gurley, Brook, & Ma, 1998; Pollack, Rosenbaum, Marrs, Miller, & Biederman, 1996; Seligman & Ollendick, 1998). A longitudinal study in New Zealand found that adolescents with anxiety disorders experienced elevated rates of anxiety, major depression, illicit-drug dependence, and educational underachievement when they entered young adulthood (Woodward & Fergusson, 2001). Anxiety disorders in childhood are also predictive of other disturbances in later life (Last, Perrin, Hersen, & Kazdin 1996; Woodward & Fergusson, 2001) including personality psychopathology, suicidality (Rudd, Joiner, & Rumzke, 2004) and increased substance abuse (Kessler et al., 1996).

In addition to psychiatric comorbidities, childhood anxiety disorders may contribute to social, family, and academic impairments. In a prospective study, first graders who reported high levels of anxiety symptoms were at significant risk of persistent anxiety symptoms and low achievement scores in reading and math in the 5th grade (Ialongo, Edelson, Werthamer-Larsson, Crokett, & Kellam, 1995). Associated symptoms of anxiety include excessive worry, physiological arousal, psychosomatic complaints, and extreme avoidance of specific situations which can cause significant disruption to everyday life. Anxious children and adolescents often experience disrupted psychosocial development through social isolation, interpersonal difficulties, impaired social competence and disrupted school adjustment (Klein & Last, 1989; Messer & Beidel, 1994). In addition, anxious children tend to interpret ambiguous situations in a negative way and often underestimate their competencies (Bögels & Zigterman, 2000).

A number of studies have found that anxious children expect more negative emotion, adopt more maladaptive action plans, overestimate danger and underestimate their ability to cope, and make threatening judgements of ambiguous scenarios based on less information (Barrett, Dadds, Rapee, & Ryan, 1996; Bögels, van Dongen, & Muris, 2003; Bögels & Zigterman, 2000; Chorpita, Albano, & Barlow, 1996; Creswell, Schniering, & Rapee, 2005; Muris, et al., 2000; Walters, Craske, Bergman, & Treanor, 2008). These findings are thought to result from anxious children's lower estimates of their coping ability and impaired self-efficacy compared to nonanxious children (e.g., Bögels & Zigterman, 2000; Kendall, 1985). Furthermore, such biases are thought to exacerbate

anxious children's emotional state and avoidant behaviour, which further biases children in favour of threatening meanings, creating a vicious cycle that maintains anxiety (Taghavi et al., 2000).

Prevalence of Anxiety Disorders

Anxiety is perhaps, the most common psychological disorder of childhood and adolescence (Cartwright-Hatton et al., 2006). Cartwright-Hatton et al. (2006) conducted a comprehensive review investigating the prevalence of anxiety disorders in preadolescent children. Across the 11 studies examined, the prevalence of anxiety disorders varied substantially. The lowest reported rate was 2.6% amongst an American 11-year-old male sample (Costello, Mustillo, Erkanli, Keeler, & Angold, 2003) and the highest was 41.2% amongst a Japanese sample of 7 to 9-year-old children (Sugawara, et al., 1999). When omitting those two outlying studies, the range in the remaining 9 studies was from 3% (Ford, Goodman, Meltzer, 2003) to 23.9% (Kroes, et al., 2001) of children. The majority of studies included in Cartwright-Hatton et al.'s (2006) review involved older children and adolescents (aged 6 years and up). However, three of the studies cited included younger children within their cohorts (i.e., Briggs-Gowan, Horwitz, Schwab-Stone, Leventhal, & Leaf, 2000; Ford, et al., 2003; Lavigne, et al., 1996). These studies are discussed in more detail in the next sections. Prevalence rates more specific to preschool-aged children will now be discussed in terms of clinical studies and community studies.

Clinical Studies

Few clinical studies have examined the prevalence rates of anxiety disorders in preschool-aged children. In studies of preschoolers seen in specialty mental health clinics (Frankel, Boyum, & Harmon, 2004; Lee, 1987; Hooks, Mayes, & Volkmar, 1988; Luby & Morgan, 1997), rates of anxiety disorders ranged from 4 to 10%. Wilens et al. (2002) examined patterns of psychopathology in clinically referred preschoolers (age range = 2-6; $\bar{x}$ age = 5) and rates of specific anxiety disorders were 34% for separation anxiety disorder (SAD), 3% for panic disorder, 18% for agoraphobia, 20% for overanxious disorder (OAD), 17% for specific phobia (SP), and 7% for social phobia (SOP). In addition, 28% of the children had two or more anxiety disorders with a mean age of onset of approximately 3.5 years (Wilens et al., 2002).

Community Studies

A few nonclinical studies have assessed the prevalence of anxiety disorders in young children. Findings of these studies are summarised in Table 1.1. Keenan, Shaw, Walsh, Delliquadri, and Giovannelli (1997) examined children living in poverty and assessed them with the Schedule of Affective Disorders and Schizophrenia for School-Aged Children (K-SADS). Lavigne et al. (1996) used a combination of the Child Behaviour Checklist (CBCL, Achenbach, 1991, 1992; Achenbach & Rescorla, 2000), observational assessments, and measures of adaptive behaviours to make clinical consensus diagnoses of the preschoolers they studied in a paediatric primary care setting. Briggs-Gowan et al. (2000) examined a sample of children in a primary care clinic using an unmodified version of the Diagnostic Interview Schedule for Children (DISC; 1999). Ford, Goodman, and Meltzer, (2003) examined the prevalence of disorders as classified by the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) disorders amongst 2,964 children aged 5 to 7 years old using the The Development and Well Being Assessment (DAWBA) interview (Goodman, Ford, Richards, Gatward, & Meltzer, 2000). Angold and colleagues (submitted) conducted the only study to use a structured diagnostic psychiatric interview, the Preschool Age Psychiatric Assessment, (PAPA; Egger & Angold, 2004) developed for use with parents of children aged 2 to 5 years.

Taken together, it appears that anxiety is a common disorder of early childhood. Even according to the most conservative studies reported here, (e.g., Ford et al., 2003) approximately one child in every preschool classroom of 25 will experience an anxiety disorder. Difficulties still remain however, in successfully assessing anxiety in this young age group.

Table 1.1

Prevalence of Anxiety Disorders in Community Studies of Preschoolers

Study and year	Measure/diagnostic Criteria	Ages	N	Any anxiety disorder	SAD	GAD	OAD	SP	SOP	Selective mutism
Lavigne et al. (1996)	Clinical consensus DSM-III-R	2-5 years	510	NR	0.5%	NR	NR	0.6%	0.7%	NR
Keenan et al. (1997)	Modified K-SADS DSM-III-R	5 years	104	NR	11.5%	NR	NR	4.6%	2.3%	NR
Briggs-Gowan et al. (2000)	DISC DSM-III-R	4-6 years	516 (out of total sample of 1,060)	6.1%	3.6%	NR	0.5%	3.7%	NR	NR
Ford et al. (2003)	DAWBA (parent report) DAWBA (teacher report) Diagnosis by two psychiatrists	5-7 years	2,964 (out of total sample of 10,438)	3.19%	1.48%	0.16%	NR	1.17%	0.33%	NR

Angold et al. (submitted)	PAPA DSM IV	2-5 years	307 (data weighted back to screening population of 1,073)	9.5%	2.4%	6.5%	0	2.3%	2.2%	.06%

Note. DISC = Diagnostic Interview Schedule for Children; GAD = generalised anxiety disorder; K-SADS = Schedule for Affective Disorders and Schizophrenia for School-Age Children; NR = not reported; OAD = overanxious disorder; PAPA = Preschool Age Psychiatric Assessment; SAD = separation anxiety disorder; SP = specific phobia; SOP = social phobia. A portion of this table was adapted from Egger and Angold (2006).

Anxiety Disorders in Preschoolers

The assessment of mental health in preschool children is in its infancy and there are many issues yet to be resolved. For example, there is uncertainty as to whether current diagnostic categories for anxiety are reliable or valid for this young age group (DelCarmen-Wiggins & Carter, 2004). Furthermore, diagnostic assessment tools for preschool children are scarce and underdeveloped. Only recently have researchers begun to explore whether clinically significant anxiety exists in preschool-aged children. Egger and Angold (2006) discussed two approaches to defining and categorising clinically significant anxiety in preschool children (a) the use of "clinically significant cutpoints" on checklist-derived symptoms, and (b) the use of the DSM-IV-TR (American Psychiatric Association, 2000). The DSM-IV-TR will be referred to as the DSM-IV throughout the remainder of this thesis, unless otherwise stated.

There has been longstanding debate in the paediatric psychiatric literature about whether psychopathology in children is "dimensional" with clinically significant problems representing the extreme end of a continuum or "categorical", with individuals either meeting or not meeting criteria for a specific disorder (Achenbach, 1991; Arend, Lavigne, Rosembaum, Binns, & Christoffel, 1996; Pickles & Angold, 2003; Sonuga-Barke, 1998). The challenge associated with the dimensional approach in young children is distinguishing between developmentally normal anxiety, temperament variation, and clinically significant anxiety, as there appears to be a continuum of anxieties and fears during the preschool period, with graduations based on degrees of severity, persistence, and impairment (Egger & Angold, 2006). Conversely, clinical intervention often requires that the clinician decide whether to treat or not treat a child. This often involves defining "caseness" based on a cut-point on a dimensional measure of applying diagnostic criteria and is therefore, a categorical decision (i.e., making a diagnosis). Pickles and Angold (2003) believe that the central focus does not rely on whether anxiety symptoms are best conceptualised as dimensional or categorical but rather, "under what circumstances" (p.529) is it useful to measure and define clinically significant anxiety.

The use of "clinically significant cut-points"

A number of studies have examined emotional and behavioural problems in preschoolers using checklists with alternate informants (e.g., parents, teachers) with broad distinctions between emotional (internalising) and behavioural (externalising) syndromes emerging (Achenbach, Edelbrock, & Howell, 1987; Achenbach & Rescorla, 2000; Behar & Stringfield, 1974; Crowther,

Bond, & Rolf, 1981; Koot & Verhulst, 1991; Koot, van den Oord, Verhulst, & Boomsma, 1997; McGuire & Richamn, 1986; Richman, Stevenson, & Graham, 1982; van den Oord, Koot, Boomsma, Verhulst & Orlebeke, 1995). Some researchers have attempted to extract more factors with inconsistent results. More commonly, one factor demonstrating a mixture of fear, anxiety, depression, and withdrawal is found. For example, in the Achenbach and colleague's (1987) study with over 500 preschoolers using the CBCL (1½ to 5-year-olds), (a) 17% of the children were in clinical range on the internalising scale, (b) 8% were in the clinical range for anxious-depressed syndrome, and (c) 8% were in the clinical range for anxiety problems on the DSM-oriented scales, suggesting that clinically significant anxiety symptoms are not uncommon in preschool children (Achenbach & Rescorla, 2000).

Evidence for subtypes of anxiety disorders

Studies using checklist measures have also investigated symptom domains of the DSM-IV diagnostic categories to examine whether preschool anxiety can be grouped into subtypes similar to anxiety disorders in older children, or whether preschool anxiety is better described as a single anxiety dimension as in the CBCL. Spence and colleagues (2001) examined anxiety in 755 preschoolers (2.5 to 6.5 years) in Australia, using parents to complete the Preschool Anxiety Scale (PAS). A confirmatory factor analysis found that preschool anxiety symptoms clustered into five factors similar to the DSM-IV anxiety subtypes of separation anxiety disorder (SAD), social phobia (SOP), obsessive-compulsive disorders (OCD), generalised anxiety disorder (GAD), and specific fear of physical injury, suggesting differentiation of anxiety in early childhood. Interestingly, SOP, OCD and fear of physical injury appeared to be separate dimensions. Spence et al. (2001) suggested that SAD and GAD might be measuring the same or very similar dimensions.

A study by Eley et al. (2003) found similar results when examining approximately 4,500 4 year-old twins. A confirmatory factor analysis of a 16-item anxiety survey, which included anxiety-related items from psychiatric and temperament checklists, identified five factors: general distress, separation anxiety, obsessive-compulsive behaviours, and shyness-inhibition. All of the factors were correlated, although, there was differentiation. Interestingly, the correlation between general distress, separation anxiety, and fear factors and the shyness-inhibition factor ranged from about .17 to .28, suggesting that anxiety symptoms were distinct from a behaviourally inhibited temperament.

More recently, Sterba et al., (2007) examined the DSM-IV criteria and its representation amongst preschool-aged children. Parents of children aged 2 to 5 years (N = 307) participated in a

structured psychiatric diagnostic interview called the PAPA (Egger & Angold, 2004). Results indicated that preschool psychopathology is largely differentiated according to D syndromes, and the ways in which preschooler syndrome differentiation departs from the DSM-IV nosology are markedly similar to that found in older children and adolescents. Similar to factor analyses with older children, confirmatory factor analyses found that three emotional syndromes were distinguished (SOP, SAD, GAD/major depressive disorder; MDD) and three disruptive syndromes were distinguished among preschoolers (hyperactivity/impulsivity, inattention, and oppositional defiant disorder/conduct disorder; ODD/CD). Sterba et al.'s (2007) results provide initial support for the use of the DSM-IV nosology with preschool-aged children. However, the moderate sample size used in the study limits the applicable analyses and therefore, certain anxiety disorders were left out of the analyses (i.e., OCD, post traumatic stress disorder, PTSD).

The DSM-IV

The DSM-IV (American Psychiatric Association, 2000) was developed with limited attention to the emotional and behavioural problems of preschool-aged children and therefore, questions remain regarding the validity of the anxiety disorder criteria for young children. Table 1.2 (reproduced from Egger & Angold, 2006) lists the DSM-IV anxiety disorder subtypes, specifying the four domains the DSM uses to identify "clinically significant" anxiety symptoms and disorders: (a) descriptors defining the characteristics of anxiety, (b) duration criterion for the symptom, (c) association of the syndrome with distress and/or impairment, and (d) presentations of symptoms specific to children (Egger & Angold, 2006). The application of these four domains will be briefly discussed in relation to anxiety disorders in preschoolers.

Table 1.2

DSM-IV Anxiety Disorders

DSM-IV disorder	Key symptoms	Duration	Impairment/distress	Child-specific criteria
Separation anxiety disorder (SAD)	Three out of eight symptoms of persistent, developmentally inappropriate behaviour.	At least 4 weeks.	Causes clinically significant distress or impairment.	• In "disorders usually first diagnosed in infancy, childhood, or adolescence" section. • Must begin before age 18.
Selective mutism	Child does not speak to others in certain social situations, despite speaking in other situations.	At least 1 month.	Interferes with educational achievement or with social communication.	• In "disorders usually first diagnosed in infancy, childhood, or adolescence" section.
Panic disorder with and without agoraphobia	Recurrent panic attacks with and without agoraphobia	At least 1 month of worry about or change in behaviour due to panic attacks.	No impairment criteria specified. Distress inherent in the symptoms.	None.
Specific phobia (SP)	• Marked, persistent fear that is unreasonable	If the person is under age 18, duration is at least 6	Causes clinically significant distress or	• In children, anxiety may be expressed by

	cued by presence or anticipation of feared stimulus. • Exposure almost invariably provokes an immediate anxiety response.	months. No duration criterion specified for adults.	impairment.	crying, tantrums, freezing, or clinging. • Children need not recognise that the fear is excessive or unreasonable. • If the person is under age 18, duration is at least 6 months.
Social phobia (SOP)	• Marked, persistent fear of one or more social or performance situations. Fear that he or she will be humiliated or embarrassed. • Exposure almost invariably provokes an immediate anxiety response.	If the person is under age 18, duration is at least 6 months. No duration criterion specified for adults.	Causes clinically significant distress or impairment.	• In children, must be evidence of capacity for age-appropriate social relationship with familiar people, and the anxiety must occur with unfamiliar peers and adults. • In children, anxiety may be expressed by crying, tantrums, freezing, or clinging. • Children need not

				recognise that the fear is excessive or unreasonable. • If the person is under age 18, duration is at least 6 months.
Obsessive-compulsive disorder (OCD)	Obsessions and/or compulsions	No duration criteria specified.	Causes marked distress, is time consuming (takes more than 1 hour a day), or causes impairment.	• Children need not recognise the obsession or compulsions are excessive or unreasonable.
Generalised anxiety disorder (GAD)	• Excessive, difficult-to-control anxiety and worry. • Three of six associated symptoms.	More days than not for at least 6 months.	Causes clinically significant distress or impairment.	• States that GAD includes the DSM-III-R diagnosis overanxious disorder of childhood. • In children only one of six associated symptoms is required.

Note. From: Common emotional and behavioural disorders in preschool children: Presentation, nosology, and epidemiology, by Egger, H.L., & Angold, A. (2006). Anxiety Disorders. In J.L. Luby (Ed.), *Handbook of preschool mental health: Development, disorders, treatment* (pp. 137-164). New York: Guildford.

First, as shown Table 1.2, the DSM-IV (American Psychiatric Association, 2000) anxiety disorders utilise a variety of adjectives to describe the intensity, frequency, and duration of clinically significant anxiety such as: developmentally inappropriate (SAD), excessive (SAD, GAD), persistent (SAD, SP, SOP), etcetera. No further guidance is provided in determining important issues including when separation distress is developmentally inappropriate and what constitutes persistent versus transient anxiety (Egger & Angold, 2006). Therefore, translating the criteria presented in Table 1.2 into specific expressions of emotion and behaviour can pose challenges as many of the criteria appear rather ambiguous, and ultimately interfere in the correct assessment of anxiety for this age group. Assessment then relies on descriptions of the young child's affect state based on the child's behaviours and on adult report (e.g., parent, teacher) with each posing problems of their own (see the next section on *Assessment of Anxiety*).

Second, as evidenced in Table 1.2, there is large variation in the duration criteria for each of the anxiety disorders with a range of "no" duration criterion (e.g., OCD) to a duration criterion of 6 months (e.g., GAD, SP, SOP). Therefore, longitudinal data is required to investigate whether these durations are appropriate for children of preschool age. Third, several of the DSM-IV criteria for anxiety disorders specify that the symptoms must cause clinically significant distress or impairment (American Psychiatric Association, 2000); however, exactly how to define impairment in preschoolers becomes a difficult issue (Egger & Angold, 2006). Egger and Angold (2006) have contended that impairment appropriate for preschoolers ought to be assessed in two domains: (a) the impact of the child's anxiety on his/her functioning and cognitive, social, and emotional development; and (b) the impact of the child's anxiety on parental and family functioning (e.g., a parent is unable to work due to the child's fear to attend preschool).

Fourth, the DSM-IV attempts to identify child-specific aspects of anxiety disorders, yet they apply to children from a wide range of developmental levels (0-18 years of age). Even though anxiety disorders commonly have their onset during childhood (Costello, Egger, & Angold, 2004), only two of the anxiety disorders are included in the DSM-IV section on disorders usually first diagnosed in infancy, childhood, or adolescence. The last column in Table 1.2 lists the modifications proposed for children by Egger and Angold (2006). Most relevant to preschoolers is the caveat found in the SP and SOP criteria – that anxiety in children may be expressed by crying, tantrums, freezing, or clinging. It remains unclear whether the duration criteria (6 months for children) is the right cut-point for distinguishing between normative fears and anxiety or whether the reduced symptom requirement of GAD is appropriate for preschoolers or older children (Egger & Angold, 2006).

In addressing the crucial need for developmentally appropriate criteria for psychiatric disorders diagnosed in young children, researchers sponsored by the American Academy of Child and Adolescent Psychiatry proposed modifications of the DSM-IV diagnostic criteria for use with preschool children (Task Force on Research Diagnostic Criteria, 2003). The aim of their research was to facilitate systematic research on disorders in infants and preschool-aged children (0 to 5 years) by developing clear criteria for a number of disorders (Task Force on Research Diagnostic Criteria, 2003). The recommendations put forth in the Research Diagnostic Criteria-Preschool Age (RDC-PA) demonstrate the lack of empirical evidence about the nosology of preschool anxiety disorders (see Task Force on Research Diagnostic Criteria, 2003; RDC-PA, 2002). Significant changes were made to PTSD criteria (e.g., "sense of a foreshortened future" symptoms was deleted as it requires cognitive abstraction about the future that are not developed at this age), and minor changes were made to SAD criteria. For example, criterion A.4: "persistent reluctance or refusal to go to school or elsewhere because of fear of separation" (American Psychiatric Association, 2000, p 125) was modified to: "fear or subjective anxious affect related to leaving home for daycare/school, anticipatory fear or subjective anxious affect related to daycare/school situation, or the child stays out of daycare/school because of fear/anxiety/emotional disturbance" (RDC-PA, 2002, p. 9). Despite these changes, criteria for SP, panic disorders, GAD, and OCD were not addressed, because "not enough empirical data has accumulated to justify and/or provide guidance on whether or how to modify them at this point" (Task Force on Research Diagnostic Criteria, 2003, p. 12). A new disorder of inhibition/avoidance was proposed for further study based partly on the excessive research on the construct of BI in young children. This was included as a potential disorder requiring further investigation. Although the recommendations proposed in the RDC-PA offer some guidance, Egger & Angold (2006) contended that more specific guidelines were still required in order to fully understand how to apply DSM-IV criteria to preschool-aged children.

The above data indicate that clinically significant anxiety can exist in preschool-aged children and can be subtyped into patterns similar to those of older children. However, checklist measures do not include enough symptom specificity (e.g., frequency, duration, onset) to enable researchers or clinicians to make psychiatric diagnoses that are similar to other stages of life (Egger & Angold, 2006). Although the RDC-PA recommendations were developed to adapt the exiting DSM-IV criteria to preschoolers, issues remain in regards to the developmental appropriateness of the criteria.

Assessment of Anxiety in Early Childhood

Assessment and diagnosis of childhood anxiety disorders presents some additional challenges for researchers and clinicians which typically involves the integration of data obtained from several sources (e.g., child, parent, teacher), using self-report inventories, diagnostic interviews, and direct observation of the child and family processes where possible (Greco & Morris, 2004). Accurate assessment can be complicated by the low concordance typically found between two adults' reports on a child's level of anxiety (e.g., mother-teacher; mother-father) and in some cases discrepancies between ratings have been found to relate to parental anxiety (e.g., Briggs-Gowan et al., 2000; Treutler & Epkins, 2003). The literature relating to the assessment of anxiety in older children indicates that correlations are typically low between parent and teacher report (e.g. Federer, Stüber, Margrat, Schneider, & Herrie, 2001). Teachers have been found to underreport emotional symptoms amongst their pupils (e.g., Youngstrom, Loeber, & Stouthamer-Loeber, 2000). This low concordance between multiple informants has been attributed to various factors, such as situational specificity of symptoms, the differing perspectives of informants, cultural and generational differences, measurement error (Cox, 1994), and the degree of psychopathology of the informant (Cole, Hoffman, Tram & Maxwell, 2000; Greco & Morris, 2004). This raises the issue of reliability of adult report in diagnosing anxiety disorders. For instance, parental report relies on the insight and honesty of the parent and his/her information obtained and may therefore be susceptible to the biased perceptions or motivations of the parent (Rapee, 2002). Due to a lack of research, it is not known whether the same low levels of concordance are consistently found when assessing anxious symptomatology in the preschool population. It could be argued that parents of preschoolers may be more aware of their child's internal states due to a higher degree of parental involvement in the care and guidance of children at this young age. Similarly, preschool teachers may be in a better position to observe and get to know preschoolers due to small class sizes and the small teacher to child ratios typically found in preschools. If this were the case, one would expect a higher level of concordance between parent and teacher reports during the preschool years.

The majority of current self-report measures for childhood anxiety are designed for middle childhood and adolescence and are not very useful when used with younger children, nor do they provide details of severity, frequency, or duration on the range of symptoms needed to make psychiatric diagnoses (Egger et al., 2006). Recently, Egger et al. (2006) examined the test-retest reliability of a new interviewer-based psychiatric diagnostic measure, the PAPA (Egger & Angold, 2004) for use with parents/caregivers of preschoolers aged 2 to 5 years. The PAPA is based on the

parent version of the Child and Adolescent Psychiatric Assessment (CAPA) for 9 to 18-year-olds (Angold & Costello, 1995, 2000; Angold et al., 1995). The PAPA assesses four symptoms in a number of domains including the DSM-IV and the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) diagnostic criteria as relevant to the preschool age group. It has incorporated all items in the RDC-PA (RDC-PA, 2002; Task Force on Research, 2003), along with the items in the Diagnostic Criteria: Infancy and Preschool (DC-03; Zero to Three, 1994; 2005)**.** It has also incorporated the assessment of relevant behaviours and symptoms experienced by preschools and their families that are not explicitly included in the current diagnostic criteria (see Egger & Angold, 2004 for a more detailed description). In Egger et al.'s (2006) study, the PAPA achieved levels of test-retest reliability similar to those of widely used and well-established measures for children and adults. This finding suggests that symptoms and disorders in preschoolers can be reliably measured, although, replication trials are required to further determine the validity of this measure. In terms of child report, it is unclear as to whether preschoolers have the cognitive capabilities to provide valid self-report data on emotional and behavioural problems. For example, Edelbrock, Costello, Dulcan, Kalas, and Conover (1985) observed a tendency for young children to respond 'yes' to questions in an initial interview and then to change their responses in a subsequent interview.

In obtaining self-report from young children, a variety of developmental factors need to be taken into account such as short attention spans (Irwin, 1985), language abilities (e.g., expressive skills are typically slower to develop than receptive skills) (Foster, 1990), overcompliance and socially desirable response biases (Garbarino & Stott, 1992; Harter, 1990; Paulus, 1991). The few child self-report measures that have been designed to assess psychological constructs in this young population have tended to be either pictorial or involve toys and life-like props (e.g., puppets, dolls). Eisenberg-Berg and Hand (1979) investigated moral judgements in a preschool sample using picture stories and found an association between the children's self-reported judgements and their classroom behaviour. Measelle, Ablow, Cowan, and Cowan (1998) used puppets to interview young children (aged 4½ to 7½ years) about their self-perceptions. This study found consistent convergence between children's self-reports and questionnaire ratings by mothers and teachers. Overall, researchers using these more dynamic assessment techniques rather than the paper-and-pencil measures typically used with older children, report that young children can relate both positive and negative aspects of their internal world (Measelle et al., 1998; Bretherton, Ridgeway & Cassidy, 1990; Mize & Ladd, 1988). These findings provide support for the notion that, given appropriate assessment techniques are used, young children can provide meaningful information about their affective and behavioural adjustment.

In support of this, Shure and Spivack (1980) conducted some early studies on interpersonal problem-solving in preschoolers. They evaluated an intervention designed to improve children's social problem-solving skills. Post-intervention evaluations found that those children who were able to generate several solutions and consequences to social problems in an interview situation, were more likely to participate and provide solutions rather than withdraw in the face of actual interpersonal confrontation in the preschool environment. This would seem to provide some limited evidence that at least some of the children in this study were able to provide self-report data as to how they would actually behave when presented with hypothetical social problems.

However, some studies have provided ambiguous support for the validity of young children's self-reports. One study used the Preschool Symptom Self-Report or PRESS (Martini, Strayhorn, & Puig-Antich, 1990), a pictorial self-report instrument, to assess depressive symptoms in 84 children aged 3 to 5 years. An adult version of the PRESS was also developed for adults involved with the children. No correlations were found between child reports on the PRESS and either parent or teacher reports on the same instrument. However, high internal consistency was found implying that the children were responding to the PRESS based upon the meaning of items rather than responding randomly, or because they liked a particular picture. Finally, high correlations were found between parent and teacher ratings on the PRESS and their ratings on the CBCL Depression subscale (r = .55 and r = .63 respectively) and the General Rating of Affective Symptoms in Preschoolers (Kashani, Holcomb, & Orvaschel, 1986; r = .54 and r = .68 respectively) suggesting that all of these instruments are accurately measuring adults' perceptions of children's depression (Martini et al., 1990). The researchers proposed two possible explanations for these discrepant findings between child report and adult report - that the children in the study were too young to provide meaningful and accurate responses, or that the adults lacked sufficient knowledge of a child's internal states to report accurately. Research with older children and adolescents, where understanding instructions and communicating about internal states is less of an issue, have frequently found a similar lack of agreement between child report and adult report. The researchers therefore concluded that a failure to find convergence between child and adult report did not necessarily imply that young children could not provide meaningful self-report (Martini et al., 1990).

Within the developmental literature, it has been noted that preschoolers share with adults an intentional, mentalistic construal, or 'theory of mind' (Flavell & Miller, 1998; Wellman & Gelman, 1998) in that, they employ a variety of mental-state constructs to reason about peoples' actions, their beliefs, desires, false beliefs, and intentions (e.g., Gopnik & Slaughter, 1991). Preschool

children are able to conversationally describe and explain human behaviour in terms of what the person 'wants', 'thinks' and 'knows' (e.g., Dunn, 1995) and can distinguish intended voluntary actions from unintended biological or physical movements such as a person shaking with fear or being blown down by the wind (e.g., Inagaki & Hatano, 1993; Schult & Wellman, 1997). Even toddlers have been shown to understand emotions and desires as internal and subjective (e.g., Bartsch & Wellman, 1995; Repacholi & Gopnik, 1997) and understand action and speech as guided by the person's intentions (Carpenter, Aktar & Tomasello, 1998; Meltzoff, 1995). While the literature regarding theory of mind and preschoolers cognitive state is beyond the scope of this thesis, the above findings are of importance as they demonstrate that preschoolers have the ability to infer actions, beliefs and intentions. Preschool children have been shown to demonstrate an understanding of diverse beliefs; that is, children can judge that someone else can have differing beliefs about the same situation (Wellman & Liu, 2004). This generally develops before the understanding of false beliefs (i.e., knowing which belief is true and which is false). Please see Wellman, Cross, and Watson (2001) and Wellman and Liu (2004) for recent reviews regarding theory of mind research.

In assessing preschoolers' theory of mind, Wellman and Liu (2004) created an assessment task assessing diverse desires, diverse beliefs, knowledge and ignorance, and false belief. They also included tasks involving emotion with the reasoning that children's understanding of emotion, particularly how emotions connect with beliefs and desires, is an important part of developing preschoolers theories of mind. Table 1.3 displays the tasks used by Wellman and Liu (2004) to assess *belief-emotion* and *real, apparent emotion*.

Table 1.3

Emotion tasks used to assess theory of mind in preschoolers

Task 1: Belief-Emotion	Children see a toy figure of a boy and a clearly identifiable individual-size Cheerios box with rocks inside the closed box. "Here is a Cheerios box and here is Teddy. What do you think is inside the Cheerios box?" (Cheerios) Then the adult makes Teddy speak: "Teddy says, 'Oh good, because I love Cheerios. Cheerios are my favourite snack. Now I'll go play.'" Teddy is then put away and out of sight. Next, the Cheerios box is opened and the contents are shown to the child: "Let's see… there really are rocks inside and no Cheerios! There's nothing but rocks." The Cheerios box is closed: "Okay, what is Teddy's favourite snack?" (Cheerios). Then Teddy comes back: "Teddy has never ever seen inside this box. Now here comes Teddy. Teddy's back and it's snack time. Let's give Teddy this box. So, how does Teddy feel when he gets this box? Happy or sad?" (the target question) The adult opens the Cheerios box and lets the toy figure look inside: "How does Teddy feel after he looks inside the box? Happy or sad?" (the emotion-control question). To be correct, the child must answer the target question "happy" and answer the emotion-control question "sad."
Task 2: Real – Apparent Emotion	Initially, the child sees a sheet of paper with three faces drawn on it - a happy, a neutral, and a sad face - to check that the child knows these emotional expressions. Then that paper is put aside, and the task begins with the child being shown a cardboard cut-out figure of a boy drawn from the back so that the boy's facial expression cannot be seen. "This story is about a boy. I'm going to ask you about how the boy really feels inside and how he looks on his face. He might really feel one way inside but look a different way on his face. Or

really feel one way inside but look a different way on his face. Or, he might really feel the same way inside as he looks on his face. I want you to tell me how he really feels inside and how he looks on his face."

"This story is about Matt. Matt's friends were playing together and telling jokes. One of the older children, Rosie, told a mean joke about Matt and everyone laughed. Everyone thought it was very funny, but not Matt. But, Matt didn't want the other children to see how he felt about the joke, because they would call him a baby. So, Matt tried to hide how he felt." Then the child gets two memory checks:
"What did the other children do when Rosie told a mean joke about Matt?" (Laughed or thought it was funny.) "In the story, what would the other children do if they knew how Matt felt?" (Call Matt a baby or tease him.)

Pointing to the three emotion pictures: "So, how did Matt really feel, when everyone laughed? Did he feel happy, sad, or okay?" (the target-feel question).
"How did Matt try to look on his face, when everyone laughed? Did he look happy, sad, or okay?" (the target-look question).

To be correct the child's answer to the target-feel question must be more negative than his or her answer to the target-look question (i.e., sad for target feel and happy or okay for target-look, or okay for target-feel and happy for target-look).

Note. The following tasks were reproduced from Wellman and Liu (2004, p. 539). Task one was derived from one used by Harris, Johnson, Hutton, Andrews, and Cooke (1989). Task two was derived from one used by Harris, Donnelly, Guz, and Pitt-Watson (1986).

Within the developmental cognitive literature, assessment tasks like those presented in Table 1.3 have become a standard form of assessment. These tasks are used to elicit children's desires, beliefs, thoughts, and emotions. The tasks appear to be delivered in a way that is engaging for children (e.g., using stories, props, toys, etcetera) and provides a more useful method of assessing young children (as opposed to traditional pencil-to-paper questionnaires). Dynamic assessment techniques (e.g., the use of puppets) have also been used by researchers to examine self-perception and interpersonal problem-solving abilities in preschool children (e.g., Bretherton et al., 1990; Measelle et al., 1998; Mize & Ladd, 1988; Shure & Spivak, 1980). Such assessment techniques allow clinicians and researchers to obtain self-report from young children leading to a more thorough assessment and ultimately a more complex conceptualisation of each particular child.

The assessment techniques mentioned above can be used as a guide to develop assessment protocols for young children within the field of clinical psychology, particularly anxiety disorders. There is a need to conduct experimental research investigating the applicability of such assessment techniques for use with young anxious children. The development of such protocols may better allow clinical researchers and practitioners to assess young children's thoughts, beliefs and emotions leading to a more comprehensive assessment and potentially valid self-report. Research is warranted in this area examining alternate assessment techniques for young children with anxiety disorders.

Summary

Research has indicated that clinically significant anxiety can exist in preschool-aged children at rates similar to that of older children. Whilst, studies have identified the existence of anxiety disorders in young children, issues remain regarding appropriate and valid assessment of anxiety in preschoolers. The majority of current self-report measures assessing anxiety for older children and adolescents have not been validated for use with preschool-aged children. Some studies have utilised checklist measures to assess anxiety in preschoolers to find that preschool anxiety is similar to older children and is largely differentiated according to DSM-IV syndromes. Despite this evidenced differentiation, it has been suggested that the DSM-IV criteria may not be developmentally appropriate for use with preschool-aged children. Adaptations to the DSM-IV criteria were developed by RDC-PA (RDC-PA, 2002; Task Force on Research, 2003) with the aim of making the criteria more developmentally appropriate. Although numerous criterion were revised, issues remain regarding the developmentally appropriateness of the revisions. Egger and

Angold (2006) have suggested that more specific guidelines are still required to fully understand how the DSM-IV criteria may or may not apply to preschool-aged children.

Throughout this chapter, issues were also noted in regards to child self-report. The importance of considering developmental factors when assessing young children was discussed along with alternate, engaging ways of conducting face-to-face assessments with young children (e.g., using toys, puppets, and props). Results from several studies revealed that young children can provide meaningful information when appropriate assessment techniques are used. Within the developmental literature, researchers have focused on assessing young children's theory of mind via interactive tasks which assess emotions and beliefs.

To assist in the assessment of early childhood anxiety, it is important to obtain knowledge regarding the factors that put a child at risk for the development of a disorder and those that protect a child from the development of a disorder. The following chapter reviews the literature regarding risk and protective factors for childhood anxiety. Unfortunately, most of the literature reviewed in the next chapter is based on older children and adolescents as research examining risk and protective factors remains scarce with preschool-aged children.

CHAPTER TWO: RISK FACTORS FOR CHILDHOOD ANXIETY DISORDERS

The main focus of this chapter is to provide an overview of a selection of risk factors associated with the development of childhood anxiety, which relate to the current thesis. Study One of this thesis examines potential risk factors of early childhood anxiety and BI. A brief review of protective factors will be provided however, this is not a primary investigation area of the current thesis and therefore, will be kept to a minimum.

The development of childhood anxiety disorders involves a complex interplay between risk and protective factors. Empirical evidence to date investigating the aetiology of anxiety disorders in childhood has identified a number of potential risk factors; however, research into protective factors is by comparison, deficient. While research clearly indicates an increased risk for anxiety disorders in offspring of anxious parents, a sizeable percentage of these children do not become clinically anxious. Why is it that some children do not develop emotional disturbances, even though they have been exposed to a number of risk factors? The role of protective factors is important in explaining why some children are less susceptible to risk. Examining protective factors is an understudied area and therefore, the current research-based framework for the prevention of child anxiety disorders is based primarily on reducing risk, based on the current knowledge of risk factors. Only limited investigations examining both risk and protective factors for anxiety in early childhood have been conducted. This is an area that sorely needs further research.

Risk Factors for Childhood Anxiety

There are a host of risk factors in the literature that have been postulated to be associated with the development of childhood anxiety disorders including biological, familial, social, psychological and environmental factors (Barrett & Farrell, 2007). A small selection of risk factors that have been identified as playing an important role in the aetiology of anxiety and that pertain to the current thesis will be discussed. These include: BI, parental psychopathology, parenting stress, and parenting behaviours (i.e., parental modelling and reinforcement).

Behavioural Inhibition

One of the most prominent risk factors cited in the literature is the temperament construct of BI (Kagan et al., 1987). BI refers to one's initial negative emotional and motor reactivity to novelty

(Kagan, Reznick, Clarke, Snidman, & Garcia-Coll, 1984). Studies have indicated that infants who are negatively reactive to novelty are more likely to remain inhibited in childhood than non-reactive infants (Marshall & Stevenson-Hinde, 1998; Sanson, Pedlow, Cann, Prior, & Oberklaid, 1996). In addition, behaviourally inhibited toddlers are more likely to display social reticence in childhood than non-inhibited toddlers (Fox et al., 2001; Rubin, Burgess, & Hastings, 2002). Overall, infant negative reactivity to novelty, BI, and preschool social reticence have all been described as forms of the same underlying temperamental apprehension to novelty (Fox et al., 2001; Kagan & Snidman, 1991). Kagan and colleagues (Fox, Henderson, & Marshall, 2001; Kagan, 2001) have speculated that enhanced amygdala activation to novelty and activation of "fear" circuitry may underlie this avoidance of novel stimuli. Thus, inhibited behaviours such as avoidance or freezing in the face of novelty represent coping mechanisms by which the fearful reaction is decreased. However, coping with fear through avoidance may actually reinforce the associated physiological responses and behaviours leading to continued BI and social wariness (Fox, Henderson, & Marshall, 2001; Rothbart, Derryberry, & Posner, 1994). Therefore, infants who consistently display extreme distress to novelty may continue to display this pattern of behaviour as behaviourally inhibited toddlers and socially reticent children, whereas children with less extreme reactivity to novelty may be more likely to decline in this behaviour over time (Marshall & Stevenson-Hinde, 1998; Stevenson-Hinde & Shouldice, 1995). Further, some children with extreme distress to novelty may decline in this behaviour because of one or more within child or extrinsic factors are present in their environment (Degnan & Fox, 2007).

Across many longitudinal studies of BI, there has been evidence for both continuity and discontinuity in these behavioural profiles (Degnan & Fox, 2007). For example, stability between BI in infancy and early childhood ranges from r = .18 to .52, 30-70% of inhibited infants are classified as consistently inhibited into early childhood (Broberg, 1993; Fox et al., 2001; Henderson, Marshall, Fox, & Rubin, 2001, 2004; Kagan, et al., 1984; Kagan, Snidman, & Arcus, 1998; Kerr, Lambert, Statin, & Klackenberg-Larsson, 1994; Resnick et al., 1986; Sanson et al., 1996) with inhibited toddlers showing moderate stability (r = .52; Kagan, Reznick, & Snidman, 1987) of inhibition in early childhood. In addition, studies examining the stability of BI across early to middle childhood have shown moderate stability (Mean, r = .51; Asendorph, 1990, 1994; Degnan, Henderson, Fox, & Rubin, 2008; Marshall & Stevenson-Hinde, 1998) and about 44% of inhibited preschoolers maintain their inhibition into middle childhood (Scarpa, Raine, Venables, & Mednick, 1995). Other studies found that approximately 30-40% of inhibited children showed stability from toddlerhood to middle childhood (Kagan, Snidman, Gibbons, & Johnson, 1988; Pfeifer, Goldsmith, Davidson, & Rickman, 2002), and one study found that almost all children (96%) classified as

inhibited in infancy were also inhibited in adolescence (Kerr et al., 1994). Taken together, these studies demonstrate that children who are negatively reactive (low threshold for frustration, strong experience of anger, high motor activity, low soothability; Killen & Smetana, 2006) in infancy or behaviourally inhibited in toddler-hood are likely to be inhibited at later ages.

Conversely, some studies have demonstrated discontinuity in BI across childhood and adolescence (e.g. Kerr et al., 1994, Sanson et al., 1996; Scarpa et al., 1995) suggesting that factors either inherent to the child or to the environment may have a profound influence on a resilience process that may alter these trajectories over time (discussed in the next section, *Anxiety, BI, and Resilience*). Research has also examined BI as a predictor, or risk factor for, anxiety disorders. Many of the characteristics of BI such as social withdrawal, negative affect, and vigilance are used to describe certain anxiety disorders (American Psychological Association, 2007). Studies have also indicated that behaviourally inhibited children are at increased risk for multiple anxiety disorders and phobic disorders (e.g., Biederman et al., 2001; Biederman et al., 1990; Hirshfeld et al., 1992; Gar, Hudson, & Rapee, 2005; Gladstone, Parker, Mitchell, Wilhelm, & Malhi, 2005; Kagan, Snidman, Zentner, & Peterson, 1999; Rosenbaum et al, 1992; Rosenbaum et al., 1991).

A series of influential studies by Kagan and colleagues (Garcia-Coll, Kagan, & Reznick, 1984; Kagan, Reznick, & Gibbons, 1989; Kagan et al., 1988; Kagan et al., 1987; Kagan et al., 1984;) investigated BI in two cohorts of infants by observing their behaviours when exposed to novel stimuli in a laboratory setting. These infants were first assessed at either 21 months or 31 months and then followed over a 6-year period. They found that children with a behaviourally inhibited temperament were more likely to be cautious, fearful and to withdraw from unfamiliar situations, people and objects. In contrast, those children with an uninhibited temperament were more likely to be sociable, spontaneous and untroubled by unfamiliar stimuli. However, not all children initially characterised as behaviourally inhibited remained inhibited into childhood. Only those children classified at the extreme of BI (the top 20% of the distribution) were more likely to retain their BI status (stable BI) across assessment time-points. Similarly, only those children classified as extremely uninhibited (the bottom 20% of the distribution) were more likely to retain this status into childhood (Kagan et al., 1989). Furthermore, those children designated as behaviourally inhibited were found to have significantly higher, more stable heart rates and higher salivary cortisol levels than uninhibited children suggesting a low threshold for intense reactivity of the sympathetic nervous system (Kagan et al., 1987; Kagan et al., 1984).

While the findings above did not demonstrate any direct association between BI and anxiety disorders, they did identify the behavioural characteristics, as well as some of the physiological correlates of BI. The research also demonstrated that BI can be reliably measured from an early age, although assessment typically requires intensive, laboratory-based observations. Importantly, these findings stimulated further research exploring the relationship of BI to anxiety disorders.

A number of studies have now demonstrated an association between BI and anxiety disorders in childhood and adolescence. Biederman et al. (1990) found significantly higher rates of BI in children (n = 23) of parents with panic disorder and agoraphobia, both with and without comorbid depression, when compared to children (n = 23) of parents with other psychiatric conditions. The children were also assessed for psychopathology and those rated as inhibited were found to have higher rates of anxiety disorders than the children rated as uninhibited. Biederman et al. (1990) also evaluated psychopathology in Kagan's original longitudinal cohort who had been assessed at 21 months as either inhibited (n = 22) or uninhibited (n = 19). In this group, inhibited children were also found to have a substantially higher rate of anxiety disorders when compared with the uninhibited group, although the result was not statistically significant. In a 3-year follow-up, Biederman et al. (1993) assessed both groups of children again for psychiatric disorders. Those children classified as inhibited were found to have significantly higher rates of anxiety disorders (avoidant disorder, SAD, agoraphobia) compared to children who did not have this temperament style. In addition, rates of all anxiety disorders increased noticeably in inhibited children between baseline and follow-up.

Another study utilising the same Kagan cohort supported the above findings. Hirshfeld et al. (1992) found that children identified as behaviourally inhibited at 21 months, who retained their BI status across follow-up assessments at age 4, 5.5, and 7.5, years had significantly higher rates of anxiety disorders when compared to children who did not have stable BI. Moreover, those children with stable BI across the 6 years of the study also had parents with significantly higher rates of anxiety disorders compared to parents of children without stable BI. While the above studies are based on the original Kagan cohorts and may be limited in their generalisability, later research with different child samples have added further support to these earlier findings.

A longitudinal study by Kagan et al. (1999) found that infants categorised as highly reactive (frequent vigorous motor activity combined with frequent fretting and crying) at 4 months, thought to be an early marker of BI, were more likely to develop anxious symptoms at 7 years of age. These children were observed to be more reserved in their interactions with an unfamiliar adult and

more cautious in performing a task with response uncertainty compared with children classified as lowly reactive as infants. However, it must be noted that less than 10% of those infants originally categorised as highly reactive, actually developed anxiety symptoms at 7 years of age. This suggests that while temperament is a factor in the development of childhood anxiety disorders, other variables must also play a part.

Adding support to the findings above, a longitudinal study by Prior, Smart, Sanson and Oberklaid (2000) examined the relationship between inhibited temperament and adolescent anxiety problems in large cohort of Australian children. Forty-two percent of children who were rated as inhibited on six or more occasions between 4 months and 13 years of age (i.e., stable inhibited), were found to have anxiety problems in adolescence compared to 12% who had never been rated as inhibited. However, taking a backward perspective, 47% of children found to have anxiety problems in adolescence had never or rarely been rated as inhibited, suggesting a moderate influence of temperament in the development of anxiety disorders in adolescence.

Shamir-Essakow, Ungerer, and Rapee (2005) assessed BI, child-mother attachment and anxiety disorders in 104 preschool-aged children. Their results indicated that BI and insecure attachment were both independently associated with child anxiety, with inhibited children displaying higher levels of anxiety than uninhibited children. More recently, Hirshfeld-Becker et al. (2007) examined the longitudinal outcomes of BI among a large controlled sample of children at high risk for anxiety disorders. Children were initially evaluated at preschool age (N = 284 children, age range = 21 months to 6 years) for BI and reassessed 5 years later during middle childhood (N = 215, mean age = 9.6 years). Their results indicated that BI in early childhood represented a specific risk factor for social anxiety *only* during middle childhood among those at risk for anxiety disorders. Additionally, BI predicted new onset of SOP within the 5 year follow-up period – with BI observations at ages 4 and 6 years having the strongest association with later social anxiety. However, the majority of children with early BI did not develop anxiety (Hirshfeld-Becker et al., 2007).

Taken together, the findings reviewed above suggest that children who are consistently inhibited through early and middle childhood are likely to be at increased risk for developing anxiety disorders. Furthermore, parents of children with BI have been found to have higher rates of continuing anxiety disorders (anxiety disorder diagnosis in both childhood and adulthood), suggesting a further association between BI and familial anxiety disorders. Children who are both

behaviourally inhibited and who have parents with an anxiety disorder may therefore, be at even greater risk for developing anxiety disorders themselves (Warren & Sroufe, 2004).

In summary, research evidence indicates that children with stable BI are at higher risk for developing anxiety disorders. However, not all children who remain consistently inhibited go on to develop anxiety disorders. This suggests that while BI may be a risk factor in the development of anxiety disorders, other variables, such as family, environment factors, and resilience moderate the effect of temperament vulnerability.

Anxiety, Behavioural Inhibition and Resilience

As mentioned above, some behaviourally inhibited children do not develop anxiety disorders. Gladstone et al. (2005) found that 58% of highly inhibited children did not show diagnosable rates of SOP in adulthood and 28% did not show any diagnosable anxiety disorder. Biederman et al. (2001) found that 83% of children with BI did not have social anxiety disorders, although this was compared to 95% of a non-inhibited subgroup. Additionally, in a study by Schwartz, Snidman, and Kagan (1999), 39% of inhibited toddlers did not evidence any social anxiety in adolescence. In other words, young children who are extremely inhibited and at risk for anxiety disorders serve as examples of the resilience process when they display less withdrawn social behaviour as school children and a lower incidence of anxiety disorders as adolescents or adults. From a resilience perspective, these children seem to adapt socially and decline in their avoidance of novel stimuli and are positively adapting in the face of adversity (Luthar, Cicchetti, & Becker, 2000). Given the lack of research focused on the discontinuity of child internalising problems, knowledge regarding what protective factors and mechanisms support this positive adaptation and how they contribute to a resilience process is scarce (Gar et al., 2005).

Less work has examined temperament biases as potential risk factors that may also evidence a resilience process. Temperament has not been typically thought of as a domain where resilience could have an influence, as it is generally associated with the level development of anxiety disorders. However, inhibited children who do not manifest anxiety problems and who develop adaptive social behaviour may be undergoing a resilience process (Degnan & Fox, 2007), thereby allowing temperamental trajectories to change over time (Degnan & Fox, 2007). These intervening resilience factors may stem from biological, cognitive, and social processes throughout childhood.

This contention is supported by Rothbart's model of temperament which proposes that two components contribute to multiple longitudinal patterns of inhibition: reactivity and regulation (Rothbart & Derryberry, 1981). Reactivity is defined as the behavioural and physiological excitation, responsiveness, or arousal of an individual, and regulation is defined as the neural or behavioural process that alters an individual's level of reactivity (Rothbart, Ahadi, & Evans, 2000). Theoretically, regulation occurs at the physiological, attentional, emotional, or behavioural level, and matures later in development as compared to emotional reactivity (Davidson, Putnam, & Larson, 2000). Regulation is described as the child's gradual progression from reliance on caregivers to the attainment of independent regulatory skills (Calkins, 1994; Kopp, 1982). Through physiological, behavioural, and contextual factors, children develop context-dependent strategies to regulate arousal, which later develop into a formal repertoire of skills used to actively regulate emotions and behaviours in numerous contexts (Calkins, 1994; Calkins & Degnan, 2006). The ability to regulate emotional reactivity in multiple settings contributes to a resilience process and may subsequently lead to decreases in BI and anxious behaviours over time (Degnan & Fox, 2007). In addition to internal factors (i.e., temperament, discontinuity), external factors may also influence the stability of BI.

Degnan and Fox (2007) described several extrinsic factors that may affect the trajectories of BI via a resilience process including maternal behaviour, parenting behaviours, nonparental childcare, and maternal personality (see Degnan & Fox, 2007 for a full review). Maternal behaviour may influence BI trajectories through the maternal engagement of an infant's attention, which may alter arousal levels to promote a state of positive affect and therefore reduce arousal before it becomes overwhelming and distressing. Parents may minimise their infant's distress by becoming aware of their negativity or distressful state and, in turn, distracting them from the source of distress. Through this process, infants learn how to use their attention to regulate their emotions and behaviours (Fox, Henderson, Marshall, Nichols, & Ghera, 2005) – thus, contributing to the resilience process.

Specific parenting behaviours have also been found to influence the continuity and discontinuity of BI. Oversolicitous or intrusive parenting has been associated with toddler inhibition and preschool social reticence (Rubin, Burgess, & Hastings, 2002; Rubin, Cheah, & Fox, 2001; Rubin, Hastings, Stewart, Henderson, & Chen, 1997) and maternal acceptance, warmth, sensitivity, and responsiveness has been associated with less inhibition and more socially adaptive behaviour (Park, Belsky, Putnam, Crnic, 1997; Wood, McLeod, Sigman, Hwang, & Chu, 2003). For example, mothers who are more sensitive to their behaviourally inhibited children may reduce

BI by increasing self-esteem and decreasing negative affect (Fox et al., 2005). In addition, parents who guide their children to engage socially may protect them from developing more extreme patterns of social anxiety (Wood et al., 2003) by decreasing their attentional bias to threat and promoting exploration and social activity in their children (Fox et al., 2005).

In considering the potential impact of parenting behaviours in the discontinuity of BI, it is important to consider the interactional effects between parent and child and to examine the larger context of the of the family's life. The behaviourally inhibited temperament of the child may be affected by the events occurring within the larger familial and social contexts. For example, a behaviourally inhibited child may be impacted by internal stressors within the home (e.g., father losing his job), which may then impact on the child's social context (e.g., withdrawing from soccer because of the financial cost), which may then pose challenges for the young child. During the clinical assessment of a child and his/her family members, a comprehensive developmental approach ought to be taken. This approach focuses on the child's individual needs and emotional capacities, the relationships with his/her parents and caregivers as well as the larger context of the family and culture (Greenspan & Wieder, 2006). This approach allows for a more accurate assessment of factors which may be influencing the child and therefore, affects the level of discontinuity in BI.

Degnan and Fox (2007) also discussed the influence of alternate forms of nonparental childcare on the resilience process. Fox, Henderson, Rubin et al. (2001) found that infants who showed high negative emotionality at 4 months of age were less likely to become inhibited as toddlers when they were placed in nonparental child care environments with one or more non-sibling children for 10 hours or more per week. Further, socially withdrawn preschoolers who were given the opportunity to interact with other children decreased in their inhibited behaviour (Furman, Rahe, & Hartup, 1979). Degnan and Fox (2007) explained that inhibited children who are exposed to peer interaction (i.e., childcare) early on may learn and develop stronger social approach strategies and become less inhibited over time, although, a recent study did not support this conclusion (Degnan et al., 2008).

Lastly, Degnan and Fox (2007) discussed the relationship between maternal personality and BI. Recent research has suggested that maternal neuroticism or negativity may be related to greater stability in children's BI (Degnan et al., 2008), whereas maternal extraversion may be related to less child internalising behavioural problems (Rosenbaum et al., 1988). Extraverted mothers may provide a positive influence as children may model their mother's positive affect and approach

motivation. In addition, extraverted mothers may respond to their children's emotions in a qualitatively different way than parents who are withdrawn. For example, extraverted mothers have been found to display more adaptive parenting behaviours such as warmth and support (Belsky, Crnic, & Woodworth, 1995; Mangelsdorf, Gunnar, Kestenbaum, Lang, & Andreas, 1990) and may subsequently encourage their child's exploration, rather than protecting or safeguarding their inhibited temperament.

In summary, a number of internal and external factors have been proposed that may influence the trajectories of BI across childhood. Such factors may be evidence of a resilience process, thereby buffering the child from the development of anxiety disorders in later childhood. Acknowledging the presence of this potential resilience process is of importance to the current research as the intervention *Fun FRIENDS* program examined in Study Two of this thesis (Barrett, 2007a) focuses on the promotion of such resilience/protective factors through parental psychoeducation and through the promotion of child-based resilience skills. It is imperative that parents, children, and teachers be empowered with resilience and coping skills that will serve as protective factors against the vulnerability of clinical anxiety. Additional protective factors are discussed in this chapter (see *Protective Factors).*

Parental Psychopathology

Family aggregate studies indicate that children of anxious parents are two to seven times more likely to develop an anxiety disorder than children of nonanxious parents (Capps, Sigman, Sena, & Henker, 1996; Turner, Beidel, & Costello, 1987). Parental depression has also been linked to childhood anxiety (Beidel & Turner, 1997; Kovacs, Gatsonis, Paulauskas, & Richards, 1989), suggesting more generally that parental psychopathology may be a risk for anxiety disorders in children. A selection of this literatrure will be reviewed.

A large body of research has focused on the association between parental psychopathology and childhood anxiety disorders. One early study (Turner et al., 1987) included children aged 7 to 12 years of anxious parents (n = 16), dysthymic parents (n = 14), and parents with no psychiatric diagnosis (n = 13). The children of anxious parents were found to be at twice the risk for an anxiety disorder compared to children of dysthymic parents and seven times the risk for an anxiety disorder compared to children of parents with no psychiatric diagnosis. In addition, the children of the anxious parents were more likely to report school difficulties, to spend more time worrying, and to be more socially isolated than children of parents with no psychopathology.

In a later study utilising a larger sample size (N = 81), Beidel and Turner (1997) examined children (aged 7 to 12 years) of parents with a psychiatric diagnosis for either anxiety, depression or comorbid anxiety/depression, and children of parents with no psychiatric diagnosis. They found that the children of parents with anxiety disorders, depressive disorders, and comorbid anxiety/depression were more likely to have a diagnosable psychiatric disorder than children of parents with no psychiatric disorder. Most notably, they found that children of anxious parents were significantly more likely to have an anxiety disorder than any other disorder.

In a larger scale study (Biederman et al., 2001), four groups of children and their parents were compared:

1. Children of parents with panic disorder and comorbid depression (*n* = 179).
2. Children of parents with panic disorder without comorbid depression (*n* = 29).
3. Children of parents with depression only (*n* = 59).
4. Children of parents with no psychiatric diagnosis (*n* = 113).

In line with previous findings, children from the three groups of parents with psychopathology had significantly higher rates of multiple anxiety disorders when compared to the control group (children of parents with no psychiatric diagnosis). For instance, children of parents with panic disorder, both with and without comorbid depression, showed higher rates of panic disorder and agoraphobia when compared to the control group, indicating a specific aggregation of panic disorder in these families. Children of parents with depression, irrespective of comorbidity with panic disorder, had higher rates of SOP, SAD and depression. These results add complexity to the notion of familial transmission of anxiety disorders, suggesting that while some disorders may be associated with a common familial vulnerability (e.g., panic disorder and agoraphobia), others may be associated with parental depression and/or anxiety (e.g., SAD), while others may represent a general manifestation of risk for psychopathology as a result of having a parent with a psychiatric diagnosis.

Other studies have also explored familial transmission of specific anxiety disorders. Mancini, Van Ameringen, Szatmari, Fugere, and Boyle (1996) conducted a study of children (*n* = 47) of parents diagnosed with SOP. They found that 49% of the children had at least one anxiety disorder diagnosis with the most common being OAD followed by SOP, SAD and simple phobia. Having a parent with SOP increased the risk of a child developing an anxiety disorder, but did not confer an increased risk for SOP. While this study was small and did not include a control group for

comparison, the findings are in line with previous research associating parental anxiety with increased risk for childhood anxiety disorders in general.

More recent studies have supported the finding that anxious children are more likely to have anxious parents. Suveg, Zeman, Flannery-Schroeder, and Cassano (2005) examined emotion socialisation in the families of 52 children (aged 8 to 12 years). Twenty-six children were diagnosed with an anxiety disorder while the remaining 26 had no psychiatric diagnosis. They found that the mothers of children with an anxiety disorder self-reported more anxiety and depressive symptoms than did mothers of children with no psychiatric diagnosis. Hence, studies examining the first-degree relatives of children with anxiety disorders have typically found high rates of anxiety and depression in these relatives.

Bayer, Sanson, and Hemphill (2006) examined parental anxiety-depression as a predictor of childhood internalising difficulties. Participants were 112 toddlers ranging in age from 2 to 2.5 ($\bar{x}$ age = 2.2 years) and their primary care-giving parents (110 mothers, 2 fathers). Assessment consisted of self-report measures and observation conducted when the children were 2 and 4 years of age. Results indicated that parent anxiety/depression was predictive of child internalising problems at age 2 years but not at age 4 years.

A recent longitudinal study by Ashford, Smit, van Lier, Cuijpers, and Koot (2008) examined whether risk indicators at age 2-3 and 4-5 years were predictive of internalising problems at the age of 11 years ($N = 358$). Results indicated that family psychopathology when the child's was aged 2 to 3 years predicted internalising problems at age 11 years. This finding is in accordance with previous research suggesting that parental lifetime psychopathology predicts adolescents' internalising problems (Ormel et al., 2005). Similarly, Mesman and Koot (2000) reported parental internalising psychopathology to be related to internalising psychopathology in preadolescents. Both maternal (Leve, Kim, & Pears, 2005) and paternal psychopathology (Compas, Phares, Banez, & Howell, 1991; Kane & Garber, 2004) was found to be related to offspring's internalising problems.

Two studies investigating BI and anxiety disorders are also worthy of discussion here. The first study assessed the prevalence of anxiety disorders in parents and their children, aged 4 to 8 years, who had been classified as either behaviourally inhibited or uninhibited. The findings indicated that the parents of children who had both BI and an anxiety disorder, had significantly higher rates of multiple anxiety disorders when compared to other parents in the study (Rosenbaum

et al., 1992). A later study supported and extended these results by finding that children of parents with comorbid panic disorder and major depression were significantly more likely to be behaviourally inhibited (n = 129, prevalence: 29%) than children of parents with no psychiatric diagnosis (n = 84, prevalence: 12%) (Rosenbaum et al., 2000). These results suggest that, as stated previously, behaviourally inhibited children, who also have parent(s) with an anxiety disorder, may be most at risk for developing anxiety disorders.

Parenting behaviours of anxious/depressed parents have also been found to influence the development of anxiety disorders in childhood. Bayer, et al. (2006) described two ways in which parents' anxiety and depression can affect children. Firstly, parent anxiety/depression can directly affect children by exposing them to emotional distress. In turn, children may model their distressed parents' responses to stress, their attributional styles, and their self-cognitions (Cicchetti & Toth, 1998). Secondly, parents' anxiety and depression may indirectly affect children through problematic parenting practices. Problematic parenting is more likely to be low in warmth and sensitivity as anxiety and depression involve the preoccupation with negative happenings, negative affectivity, stress intolerance, and/or low energy (Bayer et al., 2006). These parents may lack energy or patience and are more likely to use power-assertion and punishment and less likely to use inductive reasoning (Bayer et al., 2006). In addition, parental internalising problems may influence the quality of communication and interaction between parent and child (Barrett & Turner, 2004; Krohne & Hock, 1991; Murray, Kempton, Woolgar, & Hooper, 1993; Rapee, 1997; Tarullo, DeMulder, Martinez, & Radke-Yarrow, 1994).

In summary, the research findings provide strong evidence for an increased prevalence of anxiety disorders in children of parents with anxiety disorders. Having a parent with a diagnosed anxiety disorder puts a child at increased risk for developing an anxiety disorder, particularly if the child also has a behaviourally inhibited temperament style. It has also been suggested that certain parenting practices (e.g., exposure to distress, problematic parenting) may influence the development of anxiety disorders in childhood. The majority of this research evidence however, has come from studies focusing on middle childhood and adolescence. Very few studies have examined the influence of parental anxiety on preschool-aged children.

Parenting stress

Poor parent-child relationships have been identified as a risk factor for childhood anxiety (Barrett, Fox, & Farrell, 2005). Research has documented that anxious children are more likely to

come from families characterised by dysfunctional relationships, including parent-child dysfunctional interactions, than are nonanxious children (Crawford & Manassis, 2001; Messer & Beidel, 1994). Attachment theory provides a model as to how the unique relationship between parent and child can influence a child's psychological development.

> According to Siegel and Hartzell (2003):
> attachment research points to the importance of the parent-child relationship in shaping children's interactions with other children, their sense of security about exploring the work, their resilience to stress, their ability to balance their emotions, their capacity to have a coherent story that makes sense of their lives, and their ability to create meaningful interpersonal relationships in the future. (pp. 100-102)

Attachment lays the foundation for how a child approaches the world. A healthy attachment in the early years has been said to provide a secure base to which children can learn about themselves and others (Siegel & Hartzell, 2003). Attachment is an inborn system in the brain that evolves in ways that influence and organise motivational, emotional, and memory processes in regard to care giving figures (Bowlby, 1969). The attachment system motivates an infant to seek proximity to parents (and primary caregivers) and to establish communication with them. Attachment establishes an interpersonal relationship that helps the immature brain use the mature functions of the parent's brain to organise its own processes (Hofer, 1994). The emotional transaction of secure attachment involve a parent's emotionally sensitive responses to a child's signals (Ainsworth et al., 1978) which can serve to amplify the child's positive emotional states and to modulate negative states. More specifically, the aid a parent can give in reducing uncomfortable emotions (e.g., worry, sadness) enables the child to be soothed and provides them with a haven of safety (Bowlby, 1988; Sroufe, 1996). Repeated experiences become encoded in implicit memory as expectations and then as mental models or schemata of attachment (Siegel, 1999). This helps the child feel an internal sense of a "secure base" in the world (Bowlby, 1969; 1988).

Secure parent-child attachment relationships are characterised by sensitive and responsive parenting behaviours which enable the child to develop positive, internal working models of relationships, thus building confidence in their ability to self-regulate emotion and appropriately containing or expressing emotions and feelings (Bowlby, 1969; Karen, 1994; Kochanska, 2001; Southam-Gerow & Kendall, 2002). In contrast, it has been suggested that early family experiences that are dysfunctional, through insensitive or non-responsive parenting lead to the development of insecure attachment (e.g., Bowlby, 1977; Pieglage, Gerlsma, & Schaap, 2000). Accordingly, it has

been argued that insecurely attached children are unable to draw on appropriate cognitive/affective coping strategies (Carlson & Sroufe, 1995; Svanberg, 1998) and their problematic styles of regulating emotion may cause them to be vulnerable to the development of psychopathology (Kochanska, 2001).

In their book, *Parenting from the Inside Out,* Siegel and Hartzell (2003) explain that attachment is created through communication and propose the ABC model of the attachment process: attunement, balance, and coherence. Attunement is the parent's aligning of their internal state with their child's. This usually involves sharing and coordination of nonverbal signals (e.g., eye contact, facial expression, gestures). This nonverbal resonance likely involves a connecting process between the right hemispheres as they mediate nonverbal signals in both people (Siegel & Hartzell, 2003).

Balance is the regulation that the physical presence and the attuned communication of the parent provide to the growing brain of the child. As such, attuned communication provides the external connecting process that enables the child to achieve internal states of balance. This balance involves the regulation of processes such as sleep-wake cycles, responses to stress, heart rate, digestion, and respiration (Siegel & Hartzell, 2003).

Coherence is the outcome of successful parent-mediated balance in which the brain becomes adaptive, stable, and flexible to adjust to changing environmental demands. Siegel and Hartzell (2003) have suggested that a well-integrated, organised brain creates a coherent, adaptive mind, as similar to a secure attachment whereas an insecure attachment generates various forms of incoherence, often seen in extreme cases of abuse and neglect. Recent brain imaging studies on abused and neglected children have revealed the damaging effects of maltreatment on the child's growing brain, smaller overall brain size, decreased growth of the corpus callosum (which connects the right and left sides of the brain), and impaired growth of the gamma amino butyric acid (GABA, an inhibitory neurotransmitter) fibres from the cerebellum that normally serve to clam the excitable emotional limbic structure.

Siegel and Hartzell (2003) have explained that the likely source of these difficulties is the excessive amount of stress hormone released during the traumatic event, which is toxic to neurons, impairing their growth and killing existing cells. It is unclear whether positive events in the future can help overcome the neurological effects although it is known that people can recover from abuse

through a nurturing relationship. What remains unclear is whether the brain damage is repaired or whether alternate circuits are developed in the healing process (Siegel & Hartzell, 2003).

As a whole, the attachment literature suggests that what parents do, does matter. The nurturing way parents interact with their children can have a positive impact on the developing mind by laying the groundwork for healthy brain development, and for creating a foundation for secure attachment. In addition to the unique way the attachment relationship can influence a child's psychological development, parenting stress has also been cited as a factor influencing the development of anxiety disorders in children.

In an examination of early childhood predictors for internalising problems, Bayer, et al. (2006) found that parenting stress predicted early childhood internalising difficulties. Costa, Weems, Pellerin, and Dalton (2006) found that the parent-child dysfunctional interactions of the Parenting Stress Index (Abidin, 1992) showed specificity to child and adolescent internalising symptoms when parental psychopathology was controlled for. In Ashford et al.'s (2008) longitudinal study of early childhood risk factors ($N = 358$), the results demonstrated that parenting stress at the child's age of 4 to 5 years predicted internalising problems of the child at the age of 11 years. This result is supported by previous research indicating that parenting stress is associated with child behaviour and emotional problems (Crnic, Gazew, & Hoffman, 2005). Similarity, Mesman and Koot (2000) found that parenting stress was a generic predictor of both child internalising and externalising psychopathology. In a study of adjustment problems in preschoolers, parenting stress was found to be related more strongly to internalising than externalising problems (Anthony et al., 2005).

Other studies have indicated that anxious children from families where mothers rated themselves high in parenting stress did worse in anxiety treatment programs (Crawford & Manassis, 2001) when compared to families not characterised by high maternal parenting stress. Several family stressors have been linked to children's internalising problems including traumatic events (e.g., death of a loved one), conflict between parents, low social support, daily hassles with parenting, and low socioeconomic status (Cicchetti & Toth, 1998). Such life stressors can directly impact upon the child by eliciting perceptions of low control, negative expectations, self-blame, and hopelessness (Denham, 1998).

Additionally, mothers of children with difficult temperaments have been found to report higher levels of parenting stress and less confidence in their parenting abilities (Gelfand, Teti, &

Fox, 1992). Dadds and Roth (2001) proposed that anxious children may place excessive demands on parents in terms of reassurance and comfort seeking behaviours, which over time, go beyond parental tolerance levels. Fox and Calkins (1993) demonstrated that the anxious child's demands for reassurance and comfort seeking often result in the parent attempting to push the child away towards more independence. The consequence is further anxiety in the child and an increase in demanding behaviour. The parent experiences this as increased pressure to provide comfort and reassurance leading to further parental stress, frustration and rejection of the child. Furthermore, such dysfunctional parent-child interactions may interfere with a child developing confidence in his/her own ability to cope with stressful situations, as the parent alternately offers protection from challenging and novel situations or pushes the child to interact in a manner which creates heightened anxiety and demanding behaviours in the child. Over time, the child fails to develop effective mechanisms to manage his or her anxiety (Dadds & Roth, 2001). This research highlights the potential challenges in parenting a child who is anxious and/or behaviourally inhibited. These challenges may be heightened if the parent has anxiety themselves. It has been suggested that the reciprocal interactions described above could be more problematic for anxious parents who become frustrated by the difficult behaviours of their child, struggle to calm themselves and their child once aroused, and subsequently respond with irritability and criticism to their child's difficult behaviour (Dadds & Roth, 2001).

Accordingly, Hirshfeld, Biederman, Brody, Faraone, and Rosenbaum (1997) studied 20 mothers with and without a diagnosis of panic disorder, and their children aged between four and 10 years. They found that anxious mothers expressed more criticism towards their child. Further, they found that higher criticism interacted with the child's diagnostic status (anxiety disorder) and temperament style (extent of BI) to predict higher levels of criticism. Early research by Goodman and Campbell (1979) and Dodge (1990) also demonstrated that there is frequently more negative emotionality in interactions between a parent and child with psychopathology, such as anxiety, or a difficult temperament. This tendency to express more criticism and negative emotion in response to an anxious or inhibited child's difficult behaviour is unlikely to help the child manage his or her anxiety. In addition, parenting behaviours characterised by overcontrol, overprotection, low maternal warmth and avoidance have been identified as increasing risk for the development of internalising disorders in offspring (Dumas, LaFreniere, & Serketich, 1995; Hudson & Rapee, 2001; Krohne & Hock, 1991; Rapee, 1997).

In summary, parenting stress has been implicated as a risk factor for the development of anxiety disorders in childhood. Dysfunctional parent-child interactions have been found to increase

the risk for childhood anxiety. Research has implicated parenting stress in the quality of care-giving, parent-child interactions, and child behaviour. More specifically, an anxious child's attempt to gain reassurance and comfort from a parent, particularly when distressed by a challenging situation may be perceived by the parent as overly dependent behaviour which goes beyond what the parent feels they can tolerate. This generates frustration and stress in the parent leading to either rejection of the child, disengagement from the relationship or coercive parenting strategies. These processes are likely to be further intensified for anxious parents who struggle to calm themselves as well as their children. Parenting stress may therefore be a useful marker in identifying those parent-child relationships that are dysfunctional and likely to place a child at greater risk for anxiety disorders.

Parenting Practices and Behaviours

Research has indicated that practices and behaviours learned from parents may increase the risk of development anxiety disorders. Two such learning components will be discussed: parental modelling and reinforcement.

Parental Modelling

Considering the high overlap between parental and child anxiety disorders, anxious children are likely to be exposed to anxious parenting behaviours (Muris, Steerneman, Merckelbach, & Meesters, 1996). Observing parents acting or conversing in an anxious manner may teach children to assign comparable fear and apprehension to similar events in the future. Anxious modelling by parents may also contribute to the development of children's threat perception biases and to a limited sense of personal control (Bögels & Brechman-Toussaint, 2006).

Research examining parental modelling draws heavily from Bandura's social learning theory, which suggests that children may learn anxiety or avoidance from their parents in a vicarious manner (e.g., Bandura, 1986). For example, parents may model anxiety by displaying visual signs of fear in the child's presence (e.g., hyperventilation, shaking) and by verbally expressing information about their anxiety in the presence of their child. Children may also observe their parents using avoidance as a coping strategy when confronted with anxiety provoking stimuli. In these situations, an observing child could display avoidant/anxious behaviours by replicating his or her parents.

One of the seminal studies in this area was conducted by Muris et al. (1996) who examined the association between parental modelling of anxiety and child anxiety. The results demonstrated that levels of child-reported fears on the Fear Survey Schedule for Children (FCCS; Ollendick, 1983) varied based on the frequency in which mothers reported expressing fear in their child's presence. That is, mothers who reported "always" expressing fear in their child's presence had children who reported the highest fear scores. Likewise, children with the lowest fear scores had mothers who indicated "never" expressing fears around their children. These results indicate that children may have learned fearful behaviours from that expressed by their mothers. However, it is possible that anxious children exacerbate their mothers' expression of anxiety and that a reciprocal relationship exists between maternal modelling and child anxiety (Fisak & Grills-Taquechel, 2007). Interestingly, the relationship between modelling and child anxiety was not demonstrated for fathers.

In another series of studies, Muris and colleagues (Muris & Merckelbach, 1998; Muris, Meesters, Merckelbach, & Hulsenbeck, 2000) examined the association between parenting and child anxiety, using child report. The findings revealed that children who reported greater anxiety-related symptoms also tended to report greater anxious rearing behaviours engaged in by their parents. Bruch, Heimberg, Berger, and Collins (1989) conducted a retrospective study examining the role of recalled parent behaviours in the development of social fears. The results indicated that individuals with SOP recalled significantly more parental isolation and concern about the opinions of others, as well as family sociability, than those diagnosed with agoraphobia. Follow-up studies (Brunch & Heimberg, 1994; Caster, Inderbitzen, & Hope, 1999) concurred with these results. Thus, it seems that modelling fear and avoidance of socially relevant stimuli by parents may be related to the later development of social anxiety in their children.

Results from observational studies have been mixed, with a number of studies indicating no difference between anxious and nonanxious mothers in their parenting behaviours (e.g. Ginsburg, Grover, Cord, & Ialongo, 2006; Turner, Beidel, Roberson-Nay, & Tervo, 2003) while other studies have found differences between anxious and nonanxious parents in their level of modelling of anxious behaviours (e.g., Buckley & Woodruff-Borden, 2006; Moore, Whaley, & Sigman, 2004; Whaley, Pinto, & Sigman, 1999). For example, Buckley and Woodruff-Borden (2006) found, through observation, anxious mothers appeared to exhibit few adaptive coping strategies (i.e., less able to cope, spend less time modelling positive teaching of the tasks, and expressed more negative emotion) when compared to nonanxious mothers suggesting that anxious mothers may model less adaptive coping behaviours when compared to nonanxious mothers.

In summary, research appears to support the hypothesis that parental modelling of anxious behaviours can be associated with the development of anxiety in children. It seems that parents may model behaviours related to the development of anxiety in a number of ways including expression of their own anxiety or anxious thoughts in front of their child, presenting as visibly anxious, and modelling avoidance behaviours. Despite the research presented, concrete evidence implicating parental modelling as a risk factor for anxiety remains minimal.

Reinforcement of anxious behaviours

A second learning mechanism that has been described in relation to the aetiology of child anxiety is reinforcement of anxious and/or avoidance behaviours (Fisak & Grills-Taquechel, 2007). More specifically, it has been hypothesised that parents may support, assist in, or reward children's anxious/avoidant behaviours (Rapee, 2002). Surprisingly, the only prospective study of parental reinforcement cited in the literature revealed nonsignificant results. That is, no significant relations were found when nonclinical adolescents were interviewed regarding their parents' reinforcement of somatic-anxiety behaviours and their own current anxiety symptoms (Muris, Merchelbach, & Meesters, 2001). However, measurement issues (adolescent self-report, poor psychometric properties of the interview used) may have influenced these results.

Several retrospective studies examining current panic symptoms and recall of parental reinforcement found that the adult participants who reported current panic symptoms recalled more parental reinforcement of panic-related symptoms from their childhood than those without current panic symptoms (Ehlers, 1993; Watt, Stewart, & Cox, 1998; Watt & Stewart, 2000). These results suggest that the panic and anxiety related problems experienced by the adult participants may have developed through parental reinforcement. For example, children may experience and express autonomic arousal in the presence of their parents, which the parents then reinforce in some manner. This, in turn, could lead to an increase in the behaviours that led to the reinforcement (Fisak & Grills-Taquechel, 2007). Investigations into parent-child interactions have shed some light on this aspect of parental reinforcement behaviours.

In an observational study, Barrett, Fox, and Farrell (2005) compared interactions between anxious children and their parents, similar-aged siblings of the anxious children and their parents, and nonclinical children and their parents. The study included two discussion tasks where children interacted with their parents. The first task involved a family discussion about how the child should interpret and respond to a hypothetical, ambiguous social situation (i.e., the child approaches a

group of children to play a game and hears the children laughing). The second task involved discussion of a topic selected by the parent based on the likelihood that it would elicit anxiety in their child (e.g., changing school, sleeping with the light off). Observations examined parental "focus on the negatives versus positives of a situation/demonstration of the belief that the child can cope" (Barrett et al., 2005, p. 226). The results indicated that mothers of anxious children tended to exhibit greater levels of anxious parenting (e.g., focusing on negatives/dangers, expression of doubt that the child could succeed) when compared to mothers of nonanxious children. Further, no differences were found for parental interactions with their anxious children and their non-anxious siblings, suggesting that anxious parenting was not specifically directed toward the anxious child in the family. Thus, it seems that all siblings may experience anxious parenting but that other factors (e.g., genetic predisposition, temperament) may moderate the impact of these behaviours. Similar to these findings, a series of studies have found that parents of anxious children may increase their child's avoidance of ambiguous social situations (Barrett, Rapee, Dadds, & Ryan, 1996; Chorpita, Albano, & Barlow, 1996; Cobham, Dadds, & Spence, 1999; Shortt, Barrett, Dadds, & Fox, 2001).

In summary, with the exception of Muris et al. (2001), research generally appears to support the notion that parental reinforcement of children's anxious/avoidance symptoms can be related to later anxiety problems for the child. This highlights the important role of parents in learning parenting skills (i.e., psychoeducation) in regards to the underpinnings of anxiety. Further research investigating this relationship is required.

Protective Factors for Childhood Anxiety

Compared to the literature on the risk factors associated with childhood anxiety, there has been little investigation into protective factors which may ameliorate a child's risk for developing an anxiety disorder. Within the resilience literature, protective factors have been defined as characteristics of the child, family, and wider environment that reduce the negative effects of adversity on child outcome (Masten & Reed, 2002). It is important to note that protective factors may be more or less salient for different ages or genders, although only a few studies have explicitly examined these roles (Vanderbilt-Adriance & Shaw, 2008a). For example, the protective factor of parental warmth may be particularly important in early childhood when children are most dependent on their parents, rather than in adolescence when influences outside of the family play a larger role (Vanderbilt-Adriance & Shaw, 2008a). Similarly, Werner and Smith (1982) noted gender differences for children with resilient outcomes, with emotional support from extended family being particularly important for girls and family structure more important for boys.

Protective factors will be briefly reviewed within three main areas (a) within the child, (b) within the family, and (c) within the community.

Child Protective Factors

Child attributes that have been found to be associated with positive outcomes including intelligence, emotional regulation, temperament, coping strategies, locus of control, attention, and genetic influences (Masten & Powell, 2003). It is important to note that although child attributes can be protective in the context of adversity, they are also influenced by external factors, such as family environment and the overall context in which the child lives. In other words, they are not entirely "personal" traits (Vanderbilt-Adriance & Shaw, 2008a).

Child IQ has consistently been found to predict a range of positive outcomes, including academic achievement, prosocial behaviour, and peer social competence (Masten et al., 1988; Masten et al., 1999), as well as the absence of antisocial behaviour (Kandel et al., 1988; Kolvin, Miller, Fleeting, & Kolvin, 1988; White, Moffitt, & Silva, 1989), and other types of psychopathology (Radke-Yarrow & Brown, 1993; Tiet et al., 1998; 2001; Werner & Smith, 1982; 1992). Several suggestions have been proposed as to why IQ may be important in high-risk contexts. Children with high IQ's may be more likely to possess effective information processing and problem-solving skills, which enable them to deal with the stresses and challenges they encounter (Vanderbilt-Adriance & Shaw, 2008a). Higher IQ is usually associated with increased performance at school and increased academic success is usually associated with the adoption of social norms and integration into prosocial peer groups (Masten & Coatsworth, 1998).

Emotional regulation refers to monitoring, evaluating, and modifying the intensity and duration of emotional states to achieve social and biological adaptation, as well as individual goals (Eisenberg & Spinrad, 2004; Eisenberg, et al., 1997a, b). Individual differences in emotional regulation and emotion emerge early in childhood and in some children, these basic regulatory patterns become maladaptive and hinder functioning (Hannesdottir & Ollendick, 2007). When this occurs, these patterns are considered symptoms of childhood psychopathology (Cole, Michel, & Teti, 1994), or emotional dysregulation. Emotional dysregulation is referred to as the limited ability to manage and modulate emotions to allow for interpersonal relatedness, prosocial initiative, personal assertiveness, sympathy toward others, and other indicators of successful functioning (Thompson, 1994). Cicchetti, Ackerman, and Izard (1995) have suggested that emotional dysregulation develops as emotions become connected to deviant cognitive and action strategies,

thus leading to difficulties in preventing the emotions from eliciting and from successfully managing the elicited emotions.

Research has indicated that children with anxiety disorders demonstrate emotional dysregulation in numerous ways as they often avoid events and situations, which produce intense emotional arousal (Mash & Wolfe, 2002). Even though avoidance may be an emotional regulatory strategy for preventing or reducing strong emotional responses, it is often maladaptive (Hannesdottir & Ollendick, 2007). For instance, a child with social anxiety may engage in numerous avoidance behaviours to regulate anxiety, but these avoidance behaviours are maladaptive in terms of overall adjustment (e.g., not building friendships because the child refuses to mix with the other children). Anxious children seem to have a limited ability to manage their emotions. Suveg and Zeman (2004) found that anxious children reported experiencing emotions more intensely, had dysregulated expressions, showed less adaptive coping, and had lower self-efficacy in their ability of improve their mood compared to nonanxious children. Similarly, Southam-Gerow and Kendall (2000) demonstrated that anxious children had limited knowledge in their ability to change and hide their emotions to achieve interpersonal goals. This lack of control over emotions is also associated with problem behaviours (Calkins & Fox, 2002).

Conversely, research has indicated that the ability to manage one's own emotional expression predicts more positive social functioning in middle childhood contemporaneously and longitudinally (Buckner, Mezzacappa, & Beardslee, 2003; Eisenberg et al., 1997a, b). In addition, studies of resilience have found that factors associated with emotional regulation (e.g., self-help skills, ego control, and ego resiliency) are related to positive adjustment across risk status, and such factors appear to be particularly important in the context of adversity (Cicchetti & Rogosch, 1997; Cicchetti, Rogosch, Lynch, & Holt, 1993; Werner & Smith, 1982; 1992). Children who are able to manage their emotions may be better able to cope with stressors in a proactive manner (Buckner et al., 2003) and subsequently decrease the associated negative effects.

An easy-going temperament, particularly in infancy and toddlerhood, has also been associated with positive outcomes in childhood and adulthood (Kim-Cohen, Moffitt, Caspi, & Taylor, 2004; Werner & Smith, 1982; Wyman et al., 1999). Children with easy-going temperaments may respond less negatively to stressful situations and be more flexible in their responses to change or unfamiliarity. In addition, children who display high levels of positive affect and are easy to soothe may evoke more sensitive care-giving and attention from adults in their environment (Vanderbilt-Adriance & Shaw, 2008a).

Research with older children has focused on internal attributes such as locus of control, appraisal, and coping skills with associations being observed with a range of positive outcomes including social competence, school grades, and internalising and externalising symptoms (Cauce, Stewart, Rodriguez, Cochran, & Ginzler, 2003; Lin, Sandler, Ayers, Wolchik, & Luecken, 2004; Luthar, 1991; Luthar & Zigler, 1992). Children who appraise difficult situations as less negative, or who believe they have control over situations in their lives, may respond less negatively to difficult situations and be better equipped to problem solve. Conversely, children who think they have no control over external events may feel helpless and be less likely to take action. The attainment of coping skills is therefore important, as children's ability to cope during a difficult situation can moderate the impact of the situation. Teaching coping skills to children may help them develop effective strategies to deal with stressors and minimise anxiety.

Finally, recently researchers have begun to examine gene-environment interactions. Findings have revealed that certain genotypes appear to moderate the effect of environmental risk. For example, a study of child maltreatment found that a functional polymorphism at the promoter of the monoamine oxidase A (MAOA) gene was related to antisocial problems in adolescence and adulthood, such that high MAOA activity was protective in the context of severe maltreatment (Caspi et al., 2002). A study of depression found that a functional polymorphism in the promoter regions of the serotonin transporter (5-HTT) gene moderated the effects of life stress (Caspi, Stewart, Rodriguez, Cochran & Ginzler, 2003). Although this research is still in its infancy, these studies suggest that genetic variation, as well as environmental variation, can act as protective factors.

Family Protective Factors

Researchers agree that the presence of a caregiver represents one of the most important resources for normal development (Masten, 2001). In the absence of a secure caregiver, the chances for normal development are limited. In extreme instances, such as in the case of the Romanian orphanages where children were denied basic nurturance and care, the developmental consequences were harsh and undeniable (Becket et al., 2006; Fisher, Ames, Chisholm, & Savoie, 1997; MacLean, 2003). Even amongst materially privileged children, the absence of a close parent-child relationship is linked with negative outcomes (Luthar & Latendresse, 2005). On the contrary, Masten (2001) contended that a functional care-giving system could help children overcome considerable adversity (see information on attachment in the *Parenting Stress* section of this

chapter). As such, parents teach their children the skills required to succeed in later development and provide them with opportunities for cognitive and social stimulation (Masten & Coatsworth, 1998). Additionally, having a solid relationship with a parent or caregiver prepares the child to engage in healthy, productive relationships with other people.

The resilience research visibly demonstrates the importance of the care-giving system. The literature highlights the importance of having a high quality relationship with at least one parent, characterised by high levels of warmth and openness and low levels of conflict. Such a relationship has been associated with more positive outcomes across levels of risk and stages of development (Emery & Forehand, 1996; Luthar & Latendresse, 2005; Owens & Shaw, 2003; Radke-Yarrow & Brown, 1993; Stouthamer-Loeber et al., 1993; Stouthamer-Loeber, Loeber, Wei, Farrington, & Wilkstrom, 2002; Vanderbilt-Adriance & Shaw, 2008b; Werner & Smith, 1982). Likewise, warm, responsive parenting styles are associated with positive child adjustment across social, emotional, and academic domains (Kim-Cohen et al., 2004; Masten et al., 1999; Werner & Smith, 1982, 1992).

Another protective factor that has been investigated in older children and adolescents is parental monitoring. Research has indicated that parents of adolescents who are familiar with their friends and know their child's activities and whereabouts are less likely to engage in deviant behaviour (Dishion & McMahon, 1998), be diagnosed with a psychiatric disorder (Tiet et al., 1998, 2001), or display problems across a wide range of areas (Buckner et al., 2003). Importantly, however, parental monitoring does not always counteract high levels of risk and may not be enough to overpower certain risk factors (Sullivan, Kung, & Farrell, 2004).

Community Protective Factors

Community level protective factors have been less studied than those of the child and the family, but are still worthy of mention. Neighbourhood quality (Barbarin et al., 2006), neighbourhood cohesion (Gorman-Smith, Tolan, & Henry, 2000; Jaffee, Caspi, Moffitt, Polo-Tomas, & Taylor, 2007; Kliewer et al., 2004; Li, Nussbaum, & Richards, 2007), youth community organisations (Cauce et al., 2003), quality of school environment (Greenberg, Domitrovich, & Bumbarger, 2001; Ozer & Weinstein, 2004), and after-school activities (Wyman, 2003) have all been shown to impact child functioning. Brofenbrenner (1979) has written comprehensively on the importance of such community-level or *exosystem* factors. The exosystem can have an effect on the child directly, through his/her experience of it (e.g., attending school) or indirectly, through influences on parents and family. For example, a single mother living in poverty who has to

commute 2 hours per day to get to her job will be less able to be physically present or provide the same level of care to her child compared to a parent who can afford to work part-time or to pay for high quality after-school care.

Community level influences can be protective factors within the context of family and neighbourhood risk. One study found that adolescent risk for chronic delinquency from inner-city families low on warmth and cohesion was decreased in the context of high social organisation in the community (Gorman-Smith et al., 2000). Gorman-Smith and Tolan (2003) suggested that emotional needs for closeness and belonging could occasionally be addressed at the community level, and recommended that interventions focused on community-level protective factors, as well as improving family functioning.

Summary

This chapter reviewed a of selection of risk factors associated with child anxiety disorders, which highlight the strong interplay between known biological, psychological, familial and environmental risk factors. While each appears to play an important role in the aetiology of anxiety disorders, the complexity of the interconnectedness between these factors renders it impossible to draw definite conclusions regarding causality, particularly for preschool-aged children as the majority of research comes from studies with older children and adolescents.

A brief review of protective factors was presented refecting three domains (a) within the child, (b) within the family, and (c) within the community. This literature highlights the powerful impact of promoting protective factors and the strong need for increased research in this area. Obtaining knowledge regarding factors that ameliorate risk will assist in developing and refining intervention programs for all children

Study One (Chapter Seven) of this thesis presents one of the first attempts to examine risk factors for a sample of preschool-aged children. Identification of these risk factors is key, as it will allow for the development of preventative intervention and treatment programs based on known risk factors – to target specific outcomes. This will also allow a more accurate identification of families and children who are "at risk" of developing an anxiety disorder and will enable the provision of resilience skills and anxiety management skills early in their developmental trajectory (i.e., preschool-aged). Such early intervention programs could focus on teaching children and families coping skills, anxiety management skills, and emotional regulation strategies, by promoting social

support networks and involving extended familial networks and the community within the intervention process. The next chapter reviews the existing literature regarding current treatment for childhood anxiety disorders.

CHAPTER THREE: TREATMENT OF ANXIETY DISORDERS

This chapter will review the treatment literature for childhood anxiety disorders. A brief review will be provided focusing on cognitive behaviour therapy (CBT) delivered in a variety of modalities. These modalities include individual CBT (ICBT), and group CBT (GCBT), with and without parent and family involvement. The examination of anxiety treatment continues in Chapter Four with a larger focus on the *FRIENDS* and *Fun FRIENDS* programs which are of primary relevance to the current PhD thesis.

CBT has been consistently recommended as the first-line treatment for anxious children and adolescents (Costello, Egger, & Angold, 2004). Since the publication of Ollendick and King's (1998) status report on the efficacy of psychosocial treatments for phobic and anxiety disorders in children and adolescents, the research literature has grown significantly (see recent chapters by Barrett & Farrell, 2007; Chorpita & Southam-Gerow, 2006; Silverman & Berman, 2001). Based on their review, Ollendick and King (1998) concluded that behavioural procedures (i.e., imaginal and in vivo desensitisation) were *probably efficacious* for childhood phobias, and cognitive-behavioural procedures with (and without) family anxiety management were *probably efficacious* for childhood anxiety disorders. For a treatment to be classified as *probably efficacious*, at least two good experiments must demonstrate that the treatment is superior to a waitlist control group (see Ollendick & King, 1998 and Silverman et al., 2008). Ollendick and King (1998) recommended that "we need more research that is methodologically sound and that extends the evaluation of our treatment procedures to clinic-referred children in clinic settings" (p. 165). Based on this recommendation, the literature now contains considerably more methodologically sound studies using clinic referred samples. Following from Ollendick and King's (1998) initial report, Silverman, Pina, and Viswesvaran (2008) recently reviewed the psychosocial treatments for phobic and anxiety disorders in children and adolescents. They concluded that several cognitive and behavioural treatments were *probably efficacious* (i.e., ICBT, GCBT, GCBT with parents, GCBT for SOP, and social effectiveness training for children with SOP). The results of Silverman et al.'s (2008) review demonstrate that a variety of CBT treatment modalities can lead to positive treatment outcome for children and adolescents with anxiety disorders. A selection of studies evaluating various CBT treatment modalities will be reviewed.

Individual Cognitive Behaviour Therapy

Kendall (1994) conducted the first randomised controlled trial of CBT for childhood anxiety disorders, published over 10 years ago. Kendall (1994) evaluated the efficacy of the now widely used ICBT program for children, the *Coping Cat* program, with results indicating that the program was effective for 64% of the children who received the treatment program. Since then, the efficacy of ICBT for childhood anxiety disorders has been well-established in the literature, with a number of published replication studies (i.e., Howard & Kendall, 1996; Kendall et al., 1997), long-term follow-up studies (i.e., Kendall & Southam-Gerow, 1996; Kendall, Stafford, Flannery-Schroeder, & Webb, 2004), and further controlled evaluations of ICBT by a number of independent research groups (i.e., Barrett, Dadds, & Rapee, 1996; Cobham, Dadds & Spence, 1998; Silverman et al., 1999) leading to the distinction of an efficacious treatment.

Group Cognitive Behaviour Therapy

Controlled trials of CBT have also demonstrated efficacy in group delivery format (GCBT). Barrett (1998) evaluated the first controlled trial of GCBT family-based intervention for childhood anxiety disorders. Sixty children ranging from 7 to 14 years old were randomly allocated into three treatment conditions: GCBT, GCBT plus family management (GCBT+FAM), and waitlist control (WL). At post-treatment, 56% of children in the GCBT, 71% of children in the GCBT+FAM, and 25% of children in the WL no longer met criteria for any anxiety disorder diagnosis. At 12-month follow up, 65% of children in the GCBT group and 85% of children in the GCBT+FAM were diagnosis free. At post-treatment and 12-month follow-up, comparison of the GCBT and GCBT+FAM conditions revealed that children in the GCBT+FAM condition showed significant improvements on measures of diagnostic status, parent's perception of their ability to deal with the child's behaviour, and change in family disruption by child's behaviour.

Following Barrett's (1998) published trial of GCBT, several other studies demonstrated the efficacy of GCBT for the treatment of anxiety (Flannery-Schroeder & Kendall, 2000; Liber et al., 2008; Manassis et al., 2002; Mendlowitz et al., 1999; Shortt, Barrett, & Fox, 2001; Silverman et al., 1999), with treatment response rates across studies ranging from 60% and 95% diagnosis free following treatment. Studies examining the long-term durability of these results have reported enduring therapeutic gains with improvement maintained up to and beyond 6 years following treatment (Barrett, Duffy, Dadds, & Rapee, 2001; Kendall & Southam-Gerow, 1996; Kendall et al., 2004).

More recently, standard GCBT has been compared to alternate forms of treatment including the Internet and bibliotherapy. Spence, Holmes, March, and Lipp (2006) randomised 72 youths (aged 7-14 years) into one of three conditions: GCBT with parents, GCBT with parents plus Internet, and a waitlist control condition. The GCBT with parents plus Internet consisted of 10 group treatment sessions and half of the sessions included youths using the Internet at home for psychoeducation. In GCBT with parents, parents were seen in six separate group sessions. Results indicated that the proportion of youths in both the GCBT conditions recovered at post-treatment from their primary anxiety diagnosis as compared to the waitlist control condition (65% GCBT with parents, 56% GCBT plus Internet, 13% waitlist). No significant differences were found between the two GCBT conditions on diagnostic recovery rates or questionnaire data, with both groups displaying significant improvements at post-treatment. All gains were maintained at 6 and 12-month follow-up. These results are promising and highlight the potential role of the Internet in anxiety reduction programs for youths.

Rapee, Abbott, and Lyneham (2006) randomised 267 children (6-12 years) into GCBT, bibliotherapy, and/or a waitlist control condition. In bibliotherapy, parents were provided with a commercially available book and children were provided with a workbook containing parallel information. Following treatment, 61.1% of children in the GCBT condition no longer met primary diagnosis compared to 25.9% in bibliotherapy and 6.7% in the waitlist control condition. Significant improvements were observed at post-treatment for the GCBT condition only with intention-to-treat analyses demonstrating the lack of significant effect for the bibliotherapy condition. GCBT gains were maintained at 3-month follow-up, with continued statistically significant superiority over bibliotherapy. These results are of importance in suggesting that bibliotherapy, although perhaps better than no treatment (i.e., waitlist), does not meet the same level of efficacy as GCBT.

In summary, these results suggest that GCBT has been shown to be efficacious in decreasing anxiety symptoms and disorders in children. However, the majority of studies reported using ICBT and GCBT treatment modalities have examined older children and adolescents, with the preschool-aged group representing a neglected area of research. Treatment modalities involving parents and families will now be discussed.

Parental and Family Involvement in Anxiety Treatment

Parents are not always included in the treatment of childhood anxiety disorders. One survey of clinicians in outpatient settings found that parents were not included in 41% of the sessions for the treatment of child emotional and behavioural problems (Duhig, Phares, & Birkeland, 2002). This lack of parental involvement is more noticeable in the school setting (Logan & King, 2001) due to the constraints and time demands of working within the school system. A number of controlled treatment trials varying in ICBT and GCBT have involved parents in treatment (i.e., Barrett, 1998; Cobham, Dadds & Spence, 1998; Manassis et al., 2002; Mendlowitz et al., 1999; Nauta, Scholing, Emmelkamp, & Minderaa, 2003; Shortt, Barrett, &Fox, 2001; Silverman et al., 1999; Spence, Donovan, & Brechman-Toussaint, 2000). Several reviews have suggested that the inclusion of parents in the treatment of childhood anxiety is associated with greater improvement in both children and in their parents (Ginsburg & Schlossberg, 2002; Ginsburg, Silverman, & Kurtines, 1995; Silverman & Berman, 2001). Additionally, when the child has an anxious parent the efficacy of CBT appears to be significantly augmented by adding a parenting training component that addresses parent anxiety management (Cobham et al, 1998).

More recently, Bögels and Siqueland (2006) conducted an open trial of family CBT (FCBT) with 24 youths (aged 8 to 17 years) with primary anxiety disorders. At post-treatment, 46% of youth in FCBT no longer had their primary/targeted diagnosis, and significant changes were found on youth, mother and father-rated anxiety assessment measures. These gains were maintained at 3 and 12-month follow-up. Interestingly, no improvements were found on the Family Functioning Scale (Bloom, 1985) despite the specific targeting of family functioning.

Wood, Piacentini, Southam-Gerow, Chu, and Sigman (2006) conducted another study examining FCBT protocol, with youth aged 6 to 13 years with a primary anxiety diagnosis. Participants were randomised into FCBT or ICBT. At post-treatment, diagnostic recovery rates were 78.9% for FCBT and 52.6% for ICBT, a nonsignificant difference. Statistically significant pre to post-treatment improvement was found for both conditions for youth and the parental self-report anxiety measure (Multidimensional Anxiety Scale for Children; MASC, March, 1998), with significantly greater improvement found for FCBT. In addition, clinicians' rating of impairment indicated that 78.9% of youth in FCBT and 26.3% of youth in ICBT were rated as "completely recovered or very much better", with a statistically significant difference between the two conditions. Creswell and Cartwright-Hatton's (2007) review suggested that FCBT is better than no treatment in most cases although, it remains less clear whether FCBT is significantly better or worse

than child-focused CBT. Creswell and Cartwright-Hatton (2007) pointed out that current knowledge of the efficacy of FCBT with older and younger children is limited.

One recent treatment study evaluating preschool-aged children examined a manualised, 20-session, parent-child cognitive-behavioural intervention adapted for children (n = 9) aged 4 to 7 years who presented with multiple risk factors for anxiety disorders (Hirshfeld-Becker et al., 2008). The *Being Brave* program was loosely based on Kendall's (1994) *Coping Cat* program with age-appropriate techniques. The program consisted of several parent-only sessions focused on psychoeducation, anxiety management strategies for coaching children to face feared situations, maintenance and relapse prevention. Approximately, 13 sessions were held with the children and parent(s) combined focusing on coping skills and graduated exposure (see Hirshfeld-Becker et al., 2008). Children and parents were assessed at baseline, post-intervention and at 2 year follow-up. Results at postintervention demonstrated reductions in rates of anxiety diagnoses and significant decreases in the number of anxiety disorders and symptoms, and significant improvement in parent-rated coping with feared situations. At 2 year follow-up, 67% of the sample were free from anxiety disorders. The results from this trial provide preliminary evidence for the usefulness and efficacy of cognitive-behavioural interventions with young anxious children, aged 4 to 7 years. Controlled trial studies with larger samples and a comparison group are required to examine the efficacy of this CBT intervention further.

Despite the positive findings noted, the question remains as to whether the inclusion of parents in treatment for childhood anxiety is superior to child-focused treatments? In a study that compared families who were randomly assigned to either child-only, parent only, or parent and child treatment groups, Mendlowitz et al. (1999) found that children in the parent and child combined treatment group showed significantly more active coping at termination and parents reported greater overall well-being of the children compared with the children in the other two groups. A study examining treatment of childhood SOP found that there were trends toward greater improvements in children's symptoms when parents were engaged in treatment, but these trends were not statistically significant (Spence et al., 2000). Conversely, another outcome study that compared child-focused treatment with a comparable treatment involving a cognitive parent-training program found no additional symptom reductions based on the additional parental sessions (Nauta et al., 2003). A long-term follow-up study that compared child-focused treatment with treatment that included a parental component found that, at post-treatment and 1 year follow-up the treatment including a parent component was more effective (Barrett et al., 1996), but at 6 year

follow-up neither treatment was superior to the other in reducing the number of children who met criteria for an anxiety disorder (Barrett et al., 2001).

In a summary of outcome studies, Silverman and Berman (2001) also concluded that parental involvement in treatment could enhance treatment effects for both children's anxiety and may help parents manage their own anxiety. Additionally, a number of reviews have suggested that the inclusion of parents in the treatment of childhood anxiety is associated with greater improvements in the children as well as the parents (i.e., Bögels & Phares, 2008; Ginsburg & Schlossberg, 2002; Ginsburg et al., 1995). Conversely, in a critical review of this literature, Barmish and Kendall (2005) concluded that although there were some studies that find superior outcomes when parents are involved in treatment, there is no conclusive evidence for or against the inclusion of parents in the treatment of anxiety disorders in children. Additional random controlled trials investigating the effects of parental involvement are required, which could also examine the specific components of parental involvement that may influence or promote change in the children.

Almost all of the studies mentioned examining parental involvement in anxiety treatment utilised mothers in the parent-treatment groups or only described their participants as "parents" without specifying the number of mothers versus fathers who were engaged in treatment. Very few studies have examined the influence of both maternal and paternal factors. Recent literature has highlighted the important role of fathers in the aetiology, treatment, and prevention of childhood anxiety.

Fathers' involvement in the treatment of childhood anxiety

Fathers are involved in the treatment literature significantly less than mothers. One survey of clinicians found that fathers were included in 6% and mothers were included in 38% of the treatment for developmental psychopathology in childhood anxiety disorders (Lazar, Sagi, & Fraser, 1991). A more recent survey of clinicians found that fathers were included in 30% of therapy sessions while mothers were included in 59% of therapy sessions (Duhig et al., 2002). Despite the small proportion of fathers involved in treatment, there is evidence suggesting that the inclusion of fathers in treatment leads to better long-term effects for various types of developmental psychopathology (Bögels & Phares, 2008).

There is evidence that mothers' and fathers' own functioning relates to children's gains in treatment. Crawford and Manassis (2001) explored familial predictors of treatment outcome for

childhood anxiety and found different patterns of predictors depending on whose reports of child functioning was used. Specifically, children's reports of treatment gains were predicted from children's reports of family dysfunction, children's perceptions of maternal frustration and father's own reports of somatisation. Mother's reports of treatment gains were predicted from both mothers' and fathers' reports of family dysfunction and from mothers' reports of their own parenting stress. Fathers' reports of treatment gains were not associated with any familial predictors. However, there were a number of familial variables that were associated with treatment grains when comparing pretreatment to post-treatment functioning. Additionally, the child-oriented treatment resulted in a decrease of child-reported family dysfunction, maternal psychological symptoms, and maternal and paternal frustration. Overall, this study suggested that even when children were the sole target of treatment, both mothers' and fathers' functioning could be improved and could be associated with children's improvements in treatment. Parental functioning was also found to influence the course of treatment. In addition, fathers' self-reported somatisation, but not mothers' self-reported psychiatric symptoms negatively predicted outcome on child self-rated anxiety (n = 61) after treatment (Crawford & Manassis, 2001). According to the authors, fathers who somatise may model and encourage avoidance behaviour in their children.

Rapee (2002) examined paternal and maternal pretreatment anxiety as predictors of change in a family treatment for five families with an anxiety disordered child (n = 95). Father's high anxiety, but not mother's anxiety, predicted a worse outcome for children at post-treatment and at 12-month follow-up. Unfortunately, it was not investigated whether a decrease in paternal anxiety during treatment predicted better child outcome. That is, those fathers with high anxiety who improved during treatment may have had a positive effect on their child's improvement. Support for this hypothesis was evidenced in Bögels and Siqueland's (2006) study where fathers, but not mothers, improved with respect to their own anxiety after a family treatment directed at their anxiety-disordered child (n = 17).

In a recent review examining the father's role in the aetiology, prevention, and treatment of child anxiety, Bögels and Phares (2008) suggested that fathers played an important role in the protection of anxiety, although, little is known about their specific role. They explained that mothers are for care and fathers are for play. That is, fathers may engage in play with their child that is physical and challenging, which might be crucial in the development of the child's socialisation, in coping with their aggression, and for learning how to cope with anxiety (see Bögels & Phares, 2008 for a review).

Due to their unique role, Bögels and Phares (2008) suggested that engaging fathers in cognitive-behavioural treatments with their children may be more effective than maternal involvement. That is, because of their different role, fathers might be more effective change agents when it comes to guiding their child through exposures, in order to provide security through sensitive and challenging support as a companion when their child's exploratory system is aroused (Grossman et al., 2002). Encouraging fathers to partake in the intervention process is supported by the findings of Bögels, Bamelis, and van der Bruggen (2008). They found that fathers' own anxiety disorder played an important role in parent-child interactions related to child anxiety. They proposed that fathers who were anxious themselves would be less effective in their role of autonomy and encouragement, which may result in child anxiety. In addition, anxiety-disordered fathers but not anxiety-disorders mothers, appear to be less autonomy encouraging to their children.

It is becoming increasingly clear that there is a need to examine the role of fathers in treatment and prevention programs for childhood anxiety disorders. Promising preventative interventions for anxiety disorders have been established in the literature (see Chapter Five) however, no known prevention studies have directly explored fathers' participation. Particularly relevant the current research is the paucity of research on paternal influences on childhood anxiety, as the role of fathers in the development and maintenance of child anxiety disorders remains unclear. Furthermore, to the writer's knowledge, the relationship between paternal anxiety and anxious symptomatology in preschool children has not been specifically investigated. It is therefore imperative that researchers aim to recruit fathers to future studies so that paternal effects can be elucidated.

Summary

In summary, CBT for the treatment of childhood anxiety disorders has been classified as *probably efficacious* in a number of modalities (e.g., ICBT, GCBT, with and without parental involvement), leading clinicians to feel relatively confident in implementing CBT interventions with children. Unfortunately, the majority of studies examined to obtain the *probably efficacious* criterion utilised samples of older children and adolescents. Very few treatment studies have been documented using a preschool-aged sample of children. In addition, high-quality randomised controlled trials are needed to examine the efficacy of these *probably efficacious* treatments (with all age groups) against active, control conditions to obtain the status of *well established treatment.* Research to date has not identified a significant difference between treatment conditions (e.g., ICBT vs. ICBT plus parental involvement). Silverman et al. (2008) suggests that this lack of significant

difference could be in part due to the insensitivity of existing assessment measures in detecting the specific skills that are being targeted in treatment programs.

Recent evidence has also highlighted the important role that fathers may play in the treatment of childhood anxiety disorders. It is recommended that future research examine the specific role father's play in the aetiology and treatment of early childhood anxiety. In addition to both parents, it also seems important to engage siblings and extended family (e.g., grandparents) in the treatment process, to increase generalisability of skills across settings. The important role of siblings and grandparents is described in more detail in the next chapter. The following chapter continues to examine the treatment of childhood anxiety, with the involvement of parents and families. The chapter solely focuses on the *FRIENDS for Life* (Barrett 2004; 2005) programs and the *Fun FRIENDS* (Barrett, 2007a) program as a treatment of childhood anxiety disorders.

CHAPTER FOUR: TREATMENT OF CHILDHOOD ANXIETY DISORDER: THE FRIENDS PROGRAMS

The following chapter is a book chapter that I wrote recently. This chapter is of particular relevance to the current PhD thesis as it provides an in-depth examination of the *FRIENDS* programs (including *FRIENDS for Life* for children and youth programs and the *Fun FRIENDS* program) including the program skills, family skills, and research base. Study Two of this thesis examines the efficacy of the *Fun FRIENDS* program. The *Fun FRIENDS* program originated as a downward extension of the *FRIENDS for Life* program and therefore, information pertaining to all three programs is significant. Some of the information provided in this chapter may be repetitive of the previous chapter. The content of this chapter is presented as it lies in the reference below.

Pahl, K. M., & Barrett, P. M. (in press). Interventions for Anxiety Disorders in Children using Group CBT with Family Involvement. In J. Weisz, & A. Kazdin (Eds.) *Evidence-Based Psychotherapies for Children and Adolescents, Second Edition.* New York: Guildford.

Overview of the Treatment Model

Overview of the Clinical Problem

Anxiety disorders are among the most prevalent psychiatric disorders affecting children and adolescents with prevalence rates ranging from 3% to 24% (Cartwright-Hatton, McNicol, & Doubleday, 2006)**.** Once present, childhood anxiety disorders tend to be chronic and recurrent and rarely remit without treatment and can subsequently affect several areas of life including academic performance, social interaction, self-confidence, and the ability to enjoy everyday life experiences. Fortunately, researchers have demonstrated that anxiety disorders in childhood can be successfully treated with brief psychosocial interventions. Cognitive behaviour therapy (CBT) has been classified as a *probably efficacious* individual treatment (Ollendick & King, 1998; Silverman, Pina, & Viswesvaran, 2008) and group treatment for childhood anxiety (Silverman et al., 2008). For a treatment to be classified as probably efficacious, at least two good experiments must demonstrate that the treatment is superior to a waitlist control group (see Ollendick & King, 1998 and Silverman et al., 2008). CBT treatment modalities for childhood anxiety often involve parents and families in the treatment process to increase generalisability and sustainability of the skills learnt. This chapter will focus on family-based, group CBT (GCBT) interventions for childhood anxiety with a particular focus on the *FRIENDS* programs (Barrett 2004; 2005; 2007a). Although several other

anxiety disorders may be present in the children, the most common anxiety disorders treated in the *FRIENDS* programs include social phobia, specific phobia, separation anxiety, and generalised anxiety disorder.

Conceptual model underlying treatment

As in individual CBT (ICBT), family-based cognitive behavioural treatment (FCBT) focuses on dysfunctional cognitions and how these affect and interact with the child's emotions and behaviour. Cognitive distortions play an important role in the maintenance of anxiety symptoms; however, the family (parents and siblings) is seen as the optimal environment for effecting change in the child's dysfunctional cognition. Parents are in a unique position to facilitate new experiences in which children can test dysfunctional beliefs, and parents living with the child can assist the processing of new experiences on a daily basis. Also, parents are influential role models in children's lives – a parent modelling adaptive beliefs and cognitive processing of day-to-day events and rewarding a child for approaching situations in an optimistic manner can be especially helpful for anxiety reduction. Our family-based approach focuses on the reciprocal interactions in the family. All family members learn skills to become more assertive, confident and happy. Our model follows a strength-based approach to treatment where attention is paid to an individual's strengths and their ability to cope in a given situation.

This chapter focuses on family-based, group treatment for anxiety disorders in children with a central focus on treatment outcome research conducted by our research team and international colleagues. The majority of this chapter describes three developmentally tailored, family-based cognitive-behavioural intervention programs for anxious children. These include: The *Fun FRIENDS* program (Barrett, 2007a), The *FRIENDS for Life* for children program (Barrett, 2004) and the *FRIENDS for Life* for youth program (Barrett, 2005). The program name *"FRIENDS"* is an acronym for the strategies taught in the programs. Throughout the chapter, the term "*FRIENDS* groups" will apply to all three developmental versions, unless otherwise stated. The term "children" will be used throughout the chapter to represent both children and adolescents.

FRIENDS for children and youth	*Fun FRIENDS:*
Feelings	**F**eelings
Remember to relax. Have quiet time.	**R**elax
I can do it! I can try my best!	**I** can try!
Explore solutions and coping step plans.	**E**ncourage
Now reward yourself! You've done your best!	**N**urture
Don't forget to practice.	**D**on't forget to be brave
Smile! Stay calm for life!	**S**tay happy

Main Themes of the Treatment Program

The *FRIENDS* programs follow a cognitive-behavioural model for child anxiety which address *cognitive*, *physiological* and *learning* processes that are thought to interact in the development, maintenance, and experience of anxiety. Cognitive processes are addressed through teaching children positive thinking strategies and encouraging flexibility in thinking through challenging negative thoughts/self-talk. Physiological processes are addressed through teaching children to become aware of their internal, physiological body cues (termed 'body clues' in the programs) by teaching skills that enable children to self-regulate emotional distress and physiological arousal. Finally, learning processes are addressed through the acquisition of new skills that help children cope with and manage anxiety and anxiety-provoking situations.

The underlying philosophy of the *FRIENDS* programs is strength-based; it empowers families to make positive change in their lives, and values the unique knowledge and experiences that parents, siblings and children bring to the group. A collaborative "team" approach is emphasised in which the therapist, parent/s, siblings and the child work together with a shared goal of increasing both the child's and family's confidence and coping skills.

Characteristics of the Treatment Program

Participants and Program Format

The child component of the *FRIENDS for Life* program (Barrett, 2004, 2005) originated with the development of the *Coping Koala* program (i.e., Barrett, Dadds, & Rapee, 1996), an Australian adaptation of Kendall's *Coping Cat* program (Kendall, 1990). The program later became *FRIENDS* when it was adapted for group treatment delivery (i.e., Barrett, 1998; Shortt, Barrett, & Fox, 2001).

The *FRIENDS for Life* program (4th Edition, Barrett, 2004; Barrett, 2005) includes two developmentally tailored workbooks for use with either children, 7 to 11 years, (Barrett, 2004) or youths, 12-16 years (Barrett, 2005). Most recently, Paula Barrett created a downward extension of the *FRIENDS for Life* program for children aged 4 to 6 years – called the *Fun FRIENDS* program (Barrett, 2007a). Each program caters to the developmental differences in children's abilities which are reflected in the session content and activities.

All of the *FRIENDS* programs can be run in both group and individual settings, with group treatment being the more preferred mode of delivery. Clinical experience indicates that individual motivation to overcome fears appears to increase within a group setting, and children can acquire and practice the new skills learned in a safe and interactive environment which fosters supportive peer learning through experiential group exercises. Group therapy also enhances cost-effectiveness as it allows more efficient use of the therapist's time.

Content of Treatment

The *FRIENDS* programs consist of 10 weekly sessions and two booster sessions held 1 and 3 months following the completion of treatment. Each session is designed to run for approximately 1 to 1½ hours. The typical size of an effective group would be between 6 to 10 children, which allows adequate time for everyone in the group to share ideas. The use of co-facilitators in group therapy is very helpful; both to manage the group process by offering reinforcement to children who are trying their best, and to assist children with any reading or writing difficulties. An overview of the program content for the *Fun FRIENDS* program is displayed in Table 4.1, Table 4.2 displays content for the *FRIENDS for Life for Children* program, and Table 4.3 displays content for the *FRIENDS for Life for Youth* program. These illustrate how each strategy is represented by each letter of the *FRIENDS* acronym.

Table 4.1

Outline of Fun FRIENDS session content

Session No.	*Content of Session – Major Learning Objectives*
Session 1	Developing a sense of identity Introduction of "being brave" concept. Acceptance of differences and similarities amongst people
Session 2	**F:** Feelings Awareness of feelings, understanding of feelings in others, Normalisation of feelings, expressing feelings
Session 3	**F**: Feelings Problem-solving with feelings, coping strategies
Session 4	**R**: Relax Identifying physiological symptoms of worry ("body clues") "Milkshake breathing", progressive muscle relaxation, visualisation
Session 5	**I**: I can try! Identifying self-talk, introducing helpful green thoughts and unhelpful red thoughts
Session 6	**I**: I try! Challenging unhelpful red thoughts
Session 7	**E**: Encourage Coping step plans Friendship skills: helping, sharing, listening, smiling
Session 8	**N:** Nurture Discussing our role models

Session 9	**D:** Don't forget to be brave (practicing the *FRIENDS* skills) Support teams
Session 10	**S:** Stay Happy! Review of all skills and party
Boosters 1& 2	Review of *Fun FRIENDS* strategies and preparing for future challenges
Additional social-emotional learning content	Developing a sense of self and positive self-identity Social Skills Responsibility for self and others, self-direction and independence Prosocial behaviour

Table 4.2

*Outline of FRIENDS for Life for Children session conten*t

Session No.	*Content of Session – Major Learning Objectives*
Session 1	Rapport building and introduction of group participants Establishing group guidelines Normalisation of anxiety and individual differences in anxiety
Session 2	Affective education and identification of various emotions Introducing the relationship between thoughts and feelings
Session 3	**F**: Feelings. Identifying physiological symptoms of worry **R**: Remember to relax. Have quiet time Relaxation activities
Session 4	**I**: I can do it! I can try my best! Identifying self-talk, introducing helpful green thoughts and unhelpful red thoughts
Session 5	Attention training - looking for positive aspects in all situations Challenging unhelpful red thoughts **E**: Explore solutions and coping step plans Coping step plans and setting goals
Session 6	Problem-solving skills (6 stage problem-solving plan) Coping Role models Social support plans
Session 7	**N:** Now reward yourself. You've done your best!
Session 8	**D**: Don't forget to practice **S**: Smile. Stay calm for life!

	Reflect on ways to cope in difficult situations
Session 9	Generalising skills of *FRIENDS* to various difficult situations Coaching others in how to use the *FRIENDS* coping skills
Session 10	Skills for maintenance of the *FRIENDS* strategies Preparing for minor set-backs that may occur
Boosters 1 & 2	Review of *FRIENDS* strategies and preparing for future challenges

Table 4.3

Outline of FRIENDS for Life for Youth session content

Session No.	*Content of Session – Major Learning Objectives*
Session 1	Rapport building and introduction of group participants Establishing group guidelines Normalisation of anxiety and individual differences
Session 2	Enhancing self-esteem in self and others Recognition of individual's strengths
Session 3	Affective education, friendship skills Introduction to relationship between thoughts and feelings
Session 4	**F**: Feelings. Identifying physiological symptoms of worry. **R**: Remember to relax. Have quiet time. Relaxation activities
Session 5	**I**: I can do it! I can try my best! Identifying self-talk, challenging unhelpful thoughts Attention training (environmental, intrapersonal and interpersonal)
Session 6	**E**: Explore solutions and coping step plans Introducing coping step plans and setting goals
Session 7	Coping Role models Social support plans Conflict and communication styles: assertive, aggressive, passive CALM: conflict resolution plan
Session 8	6-Stage problem-solving plan

	N: Now reward yourself. You've done your best!
	Thinking like a winner – focusing on positive aspects in every situation
Session 9	**D**: Don't forget to practice
	S: Smile. Stay calm for life!
	Generalising skills of *FRIENDS* to various difficult situations
	Coaching others in how to use the *FRIENDS* coping skills
Session 10	Skills for maintenance of the *FRIENDS* strategies
	Preparing for minor set-backs that may occur
Boosters 1& 2	Review of *FRIENDS* strategies and preparing for future challenges

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Family Skills

In the current edition of *FRIENDS for Life* for children and *FRIENDS for Life* for youth (Barrett, 2004; Barrett, 2005), there are two structured parent sessions outlined in the leader's manuals for flexible use within multiple settings such as community clinics and schools. In the clinic setting, these sessions are generally held outside of the allotted group time (e.g., in the evening) and typically last 2 hours each. During these sessions, program content is explained in detail and behaviour management strategies are discussed (e.g., planned ignoring, quite time, time out).

Within the clinic setting, parents and siblings are also invited to attend the last 20 to 30 minutes of every session to discuss the session content. During this time, parents and siblings may be asked to engage in an activity related to the program skills (e.g., playing a "red" and "green" thoughts game) to reinforce the learning component. With younger children, parents are assigned "homework" activities which involve the entire family in skill acquisition. The process of these parent sessions may vary to meet the needs and preferences of the groups. For example, during this time, younger children (*Fun FRIENDS* and *FRIENDS for Life* for children), are often taken to another area of the clinic with one or two of the cofacilitators, leaving one facilitator to discuss the concepts and strategies with the parents and siblings. For older children and adolescents, group

participants tend to stay in the room (if room size allows) with the parents and siblings with cofacilitators dispersed throughout the room to assist in managing the process.

Skills Emphasised in Treatment

Most of the general anxiety management concepts are consistent amongst all three programs however; method of delivery varies to match the developmental needs of each age group. The program skills will be discussed to coincide with the *FRIENDS* acronym. Variations made for the *Fun FRIENDS* program are noted.

Feelings - This skill involves affective education, focused on understanding feelings in one's self, and in others. The focus is on empathy building, awareness of one's own emotional responses, and emotional regulation. Children are taught to specifically identify physiological indicators (termed 'body clues', e.g., butterflies in the stomach, racing heart) and behavioural indicators (e.g., avoiding anxiety provoking situations) of anxiety.

Fun FRIENDS variation: The feelings concept is introduced through play and activity and utilises colourful pictures to demonstrate feelings. Children are introduced to the concept of being "brave". Brave behaviours (i.e., social skills) can include looking people in the eye, using a brave voice, smiling, standing up tall and giving something a go. To assist in the promotion of a positive self-identity, children are also taught to accept similarities and differences amongst people.

Family Skills: Parents and siblings are encouraged to focus on their physiological responses to fear and anxiety. Families are encouraged to accept individual differences, particularly in response to feelings, and to normalise and validate each other's personal emotional responses. Family members are asked to discuss feelings openly with each other.

Remember to relax. Have quiet time / **R**elax

Children are taught that they can feel more calm and brave if they repair their body clues (physiological arousal) through practicing relaxation exercises. Children are encouraged to think of relaxation as a skill like riding a bike that needs to be practiced regularly before they can really enjoy it and notice the benefits of it. Relaxation strategies taught include: diaphragmatic breathing, progressive muscle relaxation and visualisation.

Fun FRIENDS variation: When discussing body clues, numerous examples must be provided by the facilitator, as it is often difficult for young children to make the connection between the physical symptoms of anxiety and the situations that make them feel worried. This can be demonstrated by providing pictures of other people's body clues (provided in the *Fun FRIENDS* manual; Barrett, 2007a). When working with young children, it is helpful to establish relaxation rules before beginning relaxation. Such rules may include: keeping hands to one's self, keeping eyes closed, listening to the facilitator, and staying quiet.

Family Skills: Families are encouraged to learn relaxation strategies and to practice these strategies regularly as a family by creating *family relaxation plans* where all members of the family practice relaxation on scheduled days. The importance of quiet time is emphasised as a preventive measure for stress and anxiety. Parents are encouraged to ensure the family has regular periods of quiet time, whereby everyone in the family can regulate their stress and achieve relaxation. Examples of quiet time include: lying on the grass under a tree, listening to quiet music at home, going for a walk along the beach or in the forest, reading stories and drawing pictures.

I can do it! I can try my best! / **I** can try!

This step introduces the cognitive strategies of the program. Children are taught to become aware of and pay attention to their inner thoughts or self-talk. Self-talk is described in terms of two different kinds – green helpful thoughts and red unhelpful thoughts. Children are taught that green thoughts are helpful as they make us feel good, happy and brave whereas red, unhelpful thoughts make us feel sad, worried, or scared. They are encouraged to identify their unhappy red thoughts and to challenge those thoughts, and come up with alternate helpful green thoughts. Children are also taught attention training strategies and are encouraged to always look for and pay attention to the positive aspects in every situation.

Fun FRIENDS variation: The concept of red and green thoughts is introduced to the children using the analogy of a traffic light – green means go, red means stop. When we have happy green thoughts, we want to go! When we have unhappy red thoughts we want to stop! Red and green *Fun FRIENDS* puppets are used to practice identifying red and green thoughts along with other play-based activities that involve dancing, "driving cars", art, and role-play.

Family Skills: Parents are encouraged to become aware of their own cognitive style and how they model optimism or pessimism to their children through their individual responses to stress

and challenges. Families are encouraged to use positive green thoughts to help them cope in difficult situations and to notice and reward each other for trying to think in helpful ways. Families are encouraged to challenge one another's thoughts using questions such as, "Is that really true?" "Are you 100% sure that will happen?"

Explore solutions and coping step plans / **E**ncourage

This step aims to teach children ways to solve problems in difficult or worrying situations through a number of proactive plans. First, the Six Block Problem Solving Plan (used in the children and youth versions) involves thinking through a number of steps to solve a problem, including: (1) What is the problem - Define it!, (2) Brainstorm - list all possible solutions, (3) List what might happen for each solution, (4) Select the best solution based on the consequences, (5) Make a plan for putting this solution into practice and do it!, and finally (6) Evaluate the outcome in terms of strengths and weaknesses, and if it did not work return to step 2 and try again.

The second plan for dealing with anxiety provoking situations is the coping step plan (used in all three versions). The coping step plan involves children constructing a graded exposure hierarchy that they will implement during the remainder of the program – it involves exposure and response prevention to feared situations. In implementing the step plan, children are encouraged to use the strategies covered in previous sessions to assist them as they climb each step.

Third, is the CALM model, used only in the youth version. CALM is a conflict resolution plan that teaches teenagers conflict resolutions via the following steps: (C) calm down when in a conflict situation, (A) actively listen to the other person and what they want, (L) list their own needs in the situation; and (M) make a solution that is based on a compromise between both person's needs.

Fun FRIENDS variation: With this young age group, the coping plans work best when created with the parents as they are often more aware of which fears/difficult situations their children ought to conquer. While the coping step plans are a primary focus of the parenting session, children are taught friendship skills – sharing, helping, listening, and smiling via game based activities. Parents are encouraged to praise and reward their children when they demonstrate friendship behaviours.

Family Skills: All family members are taught how to use the problem-solving plan and how to create coping step plans. Everyone in the family is encouraged to create their own coping step plan so that everyone can practice setting goals, focusing on solutions and working towards outcomes. Parents are encouraged to be positive role models for their children (e.g., approaching difficult situations rather than avoiding them and encouraging their child to do the same).

Now reward yourself! You've done your best! / **N**urture

This step teaches children to evaluate their performance in terms of partial success and to set reasonable, achievable goals. Children are encouraged to reward themselves whenever they try their best. The importance of support networks (called support teams) and role models within the home, school, and wider community are discussed.

Family Skills: Parents are encouraged to attend to the positive, desirable behaviours of their anxious children by providing praise or reward. Attending to positive behaviour acts to *reinforce* the behaviour and increases the likelihood that the positive behaviour will be repeated in the future. Children and parents are encouraged to extend and strengthen their support networks.

Don't forget to practice / **D**on't forget to be brave and **S**mile! Stay calm for life! / **S**tay happy

Step D reminds children that the skills and strategies learned in the *FRIENDS* programs need to be practiced on a regular basis. Step S reminds children that they can stay calm because they have effective strategies for coping. Children are encouraged to plan ahead for challenging situations and to identify how they can use their *FRIENDS* plan to help them cope.

Family Skills for D and S: Families are encouraged to always discuss and review challenging situations. As children with anxiety tend to focus on situations in the future, it is important for parents to always talk about upcoming challenges with children. Families are taught to focus on the positive aspects of the upcoming situation and to discuss how they can use the *FRIENDS* skills to help them cope.

Fun FRIENDS variation:

In addition to the cognitive-behavioural skills mentioned above, the Fun *FRIENDS* program also focuses on resilience promotion through the development of social and emotional learning.

The following skills are incorporated: developing a self-identify, emotion-regulation and feelings management, becoming responsible for oneself and others, and increasing prosocial behaviours via the promotion of social skills and friendships skills. All of these skills are administered in a play-based manner with multiple activities per session lasting approximately 5 to 10 minutes each.

Facilitator Manuals and Workbooks

One of the goals in creating the *FRIENDS* programs was to ensure that they were user friendly and could be used in research and community settings. To this end, all three programs are manualised and consist of two parts:

1. A group leader's manual that clearly describes the activities the facilitator needs to implement in each session and detailed content for the parenting sessions.
2. A workbook for each child or youth to complete as they work through the program. In *Fun FRIENDS*, a family activity workbook (called "Family Adventure Workbook"; Barrett, 2007b) is available.

The *FRIENDS for life* for children and *FRIENDS for Life* for youth manuals are published by Australian Academic Press and can be ordered from the *FRIENDS* website *http://www.friendsinfo.net/*. *Fun FRIENDS* manuals can be ordered from the Fun FRIENDS website *www.ourfunfriends.com.au.* Facilitators must attend an accredited training workshop before implementing the programs (see Recommendations regarding implementation in practice). Other supporting materials available including relaxation eye pillows and red and green thoughts koala puppets are available through the Pathways Health and Research Centre website *www.pathwayshrc.com.au/resources.*

Evidence on the Effects of Treatment

How treatment is evaluated

A multiple informant, multimethod approach to the assessment of anxiety is recommended. Clinical interviews with the child (if age appropriate) and his/her parents, self-report measures, and parent and teacher behaviour ratings should be included as matter of course at the beginning, middle,

and end of treatment. Follow-up assessments at 6 months and 12 months following treatment should be included when possible.

When evaluating family-based treatments, there is a clear need to include measures of family functioning, parental psychopathology, and observations of parent-child interaction. It is important to obtain data from *both* parents, particularly fathers. We believe it is important to assess children's level of positive coping, strength, resilience, and happiness to obtain more data on individual strengths and positive changes over time. These measures are now becoming increasingly available in the literature for all age groups. In addition, recent evidence has highlighted the need to examine the contribution of emotional regulation skills training in CBT treatment programs (Hannesdottir and Ollendick, 2007) for childhood anxiety disorders.

Status of the Evidence

Since Kendall's study (1994), researchers have espoused the importance of parental involvement in helping anxious children, and have extended the role of parents in treatment from the typically more passive role of consultants and collaborators, to engaging parents and families as co-clients in therapy. Barrett et al. (1996) conducted the first randomised, controlled trial of CBT plus family anxiety management training (FAM). In this study (Barrett, Dadds, & Rapee, 1996), FAM involved: (a) training parents in contingency management, (b) giving parents skills to better manage their own anxiety, and (c) training parents in problem-solving and communication skills. Barrett et al. (1996) randomly assigned 79 children (aged 7 to 14 years) to either child only CBT (ICBT), CBT + FAM or a waitlist condition. At post-treatment, 61% of children in the ICBT group were diagnosis-free compared to 88% of children in the combined treatment and less than 30% in the waitlist condition. At 12-month follow-up, the relative superiority of CBT+FAM was maintained.

Interestingly, age and gender appeared to moderate the effectiveness of the additional parent component. Specifically, younger children (aged 7-10 years) and girls who completed the CBT+FAM condition were more likely to be diagnosis free than their peers in the ICBT condition. For boys, and children aged 11 to 14 years, the ICBT was as effective as CBT+FAM at post-treatment and at follow-up. Barrett et al. (1996) suggested that enhancing parenting skills and involvement in child anxiety management may be important for younger children, but for older children individual work may be sufficient to reduce anxiety, possibly due to the growing need for autonomy that occurs during adolescence. In a long-term follow-up, Barrett, Duffy, Dadds, and

Rapee (2001) assessed 52 of the 79 original participants. Of these 52 participants, 31 had received ICBT and 21 CBT + FAM. The follow-up results continued to support the efficacy of ICBT and CBT + FAM across all measures, but no significant differences were found between the two conditions on any measure at the follow-up.

In the first controlled trial of a GCBT, family-based intervention for childhood anxiety disorders, Barrett (1998) randomly assigned 60 children (aged 7 to 14 years) into 3 treatment conditions: GCBT, GCBT plus family management (GCBT+FAM), and wait list control (WL). At post-treatment, 56% of children in the GCBT, 71% of children in the GCBT+FAM, and 25% of children in the WL no longer met criteria for any anxiety disorder diagnosis. At 12-month follow up, 65% of children in the GCBT group and 85% of children in the GCBT+FAM were diagnosis free. At post-treatment and 12-month follow-up, comparison of the GCBT and GCBT+FAM conditions revealed that children in the GCBT+FAM condition showed significant improvements on measures of diagnostic status, parent's perception of their ability to deal with the child's behaviour, and change in family disruption by child's behaviour. These results suggested that CBT family interventions for childhood anxiety disorders could be effectively administered in a group format. In support of the findings from Barrett et al.'s (1996) earlier study, the addition of a family management component led to more favourable outcomes.

Following Barrett's (1998) study, Barrett developed the *FRIENDS* program, a family-based group cognitive-behavioural treatment (FGCBT). Shortt, Barrett, and Fox (2001) conducted the first randomised clinical trial evaluating the efficacy of the *FRIENDS* program for children. Seventy-one children ranging in age from 6 to 10 years who met diagnostic criteria for an anxiety disorder were randomly assigned to the *FRIENDS* group or waitlist control. Children in the treatment group participated in 10 weekly sessions in addition to two booster sessions that occurred 1 and 3 months following treatment. Results indicated that children who completed the program showed greater improvement than the waitlist condition. Sixty-eight percent of the children who completed the FGCBT were diagnosis free, as compared to 6% of the children in the wait-list condition. At 12-month follow-up, treatment gains were maintained with 76% of the children in the treatment group diagnosis free. These results are positive and demonstrate the efficacy of the *FRIENDS* program with familial involvement in decreasing anxiety immediately following program implementation and over time.

More recently, Liber et al. (2008) examined ICBT versus group GCBT in the delivery of the Dutch translation of the *FRIENDS* for children program (Utens, de Nijs, & Ferdinand, 2001) with a

group of referred anxious children ($N = 133$). Children were randomly assigned into the ICBT or GCBT conditions and received the *FRIENDS* program. All of the parents received four sessions of CBT parent training. Liber et al. (2008) found no significant difference in treatment outcome between ICBT and GCBT. Similar decreases were found at post-treatment for participants who no longer met criteria for any anxiety disorder (ICBT = 48%, GCBT = 41%) and for those who no longer met the criteria for their primary disorder (ICBT = 62%, GCBT = 54%). These results suggest that anxious children benefited equally from the *FRIENDS* program delivered in both individual and group format, with parental involvement, as evidenced by decreased anxiety at post-treatment. No control group was used in this study.

In summary, research by our team provides positive support for the utilisation of GCBT with parent/familial involvement. In recent years, our research interests have expanded. We have adopted a joint focus on both treatment and prevention, and early intervention is advocated prior to the development of significant anxiety symptomatology. The decision to adopt a joint focus is based on our belief that treating children who are already experiencing significant anxiety problems may not be the most effective or efficient means of reducing the incidence of childhood anxiety in the general population. The *FRIENDS* program has accumulated an evidence base as a universal prevention program with significant decreases in anxiety found immediately following program implementation (Barrett & Turner, 2001; Lowry-Webster, Barrett, & Dadds, 2001; Stallard et al., 2005; Stallard, Simpson, Anderson, Hibbert, & Osborn, 2007), with effects maintained at 12-month follow-up (Lock & Barrett, 2003; Lowry-Webster, Barrett, & Lock, 2003; Stallard, Simpson, Anderson & Goddard, 2008), and at 3 year follow-up (Barrett, Farrell, Ollendick, & Dadds, 2006).

To date, one universal, school-based controlled trial has been conducted ($N = 263$) examining the *Fun FRIENDS* program (Pahl & Barrett, submitted). Results have indicated nearly significant decreases in anxiety, significant decreases in BI and increases in social-emotional strength for children following the intervention program for children in the intervention group and waitlist control group. Interestingly, girls improved more than boys on BI and social-emotional strength. Teacher report indicated that children in the intervention group improved significantly more than children in the waitlist group on BI and social-emotional strength immediately following the program. At 12-month follow-up, significant improvements in anxiety were found from preintervention measures and significant decreases in BI were evident at all time points for girls but not for boys. Improvements on social-emotional strength were found from preintervention to 12-month follow-up with girls scoring significantly higher than boys all time points although, boys scores did increase over time. (Pahl & Barrett, submitted). Due to ethical restrictions, there was no

comparison group at 12-month follow-up and therefore, we lacked the evidence to suggest that the intervention was solely responsible for the long-term positive changes that occurred in the children who received the intervention. Nevertheless, these results are promising and highlight the possible long-term positive impact of the program. Social validity data collected throughout the trial demonstrated that teachers and parents enjoyed the program. The results from this trial demonstrate that intervention programs can be successfully adapted for use with young children, aged 4 to 6 years. Our research team is currently undertaking a large treatment trial of the *Fun FRIENDS* program setting. See Table 4.4 for a summary of research findings.

Table 4.4

Treatment and prevention studies examining the FRIENDS programs

Author(s)	*N*	Format	Comparison Group	Post-intervention Effects	Maintenance Effects
Barrett et al., 1996	79 (aged 7-14 years)	ICBT CBT + FAM	WL	ICBT = 61% diagnosis free CBT + FAM = 88% diagnosis free WL = 30% diagnosis free	At 12-month FU, CBT + FAM superior to ICBT
Barrett et al., 2001	52 Six year FU for Barrett et al., 1996.	ICBT CBT + FAM	WL		Efficacy of ICBT and CBT + FAM supported. No significant differences between groups.
Barrett, 1998	60 (aged 7-14 years)	GCBT GCBT + FAM	WL	GCBT = 56% diagnosis free GCBT + FAM = 71%	12-month FU = GCBT = 65% diagnosis free

				diagnosis free WL = 25% diagnosis free	GCBT + FAM = 85% diagnosis free
Shortt et al., 2001	91 (aged 6-14 years)	FGCBT	WL	FGCBT = 68% diagnosis free WL = 6% diagnosis free	12-month FU = FGCBT = 76% diagnosis free
Liber et al., 2008	133 (aged 8-12 years)	ICBT + parent involvement GCBT + parent involvement	No	No longer met criteria for anxiety disorder: ICBT = 48% GCBT = 41% No longer met criteria for primary disorder: ICBT = 62% GCBT = 54%	
Barrett and Turner, 2001	489 (aged 9-10 years)	Universal, school-based intervention	Psychologist vs. Teacher led conditions MT	Significant reductions in anxiety in psychologist and teacher led conditions in comparison to MT	

Lowry-Webster et al., 2001	594 (aged 10-13 years)	Universal, train the trainer model, preventative intervention	MT	Significant reductions in anxiety in the IG and MT group. Significant reduction in self-reported symptoms of depression for IG only High risk status: IG = 75.3% no longer at risk MT = 54.8% no longer at risk
Lowry-Webster et al., 2003	594 Long-term FU of Lowry-Webster et al., 2001			Prevention effects maintained at 12-month FU with lower anxiety scores for IG vs. MT. 85% at high risk in IG were diagnosis free at

					FU, compared to 31.2% in MT.
Lock & Barrett, 2003	737 *n* = 336 (aged 9 to 10 years) *n* = 401 (aged 14 to 16 years)	Universal school-based preventative intervention	MT	Significant reductions in anxiety in both IG and MT. Reductions larger for IG. Significant decreases in Gr. 6 compared to Gr. 9.	At 12-month FU, significant reductions in anxiety in both IG and MT. Reductions larger for IG. Significant reductions in depressive symptoms for IG.
Barrett et al., 2006	669 Long-term FU (12, 24, 36 month) for Lock & Barrett, 2003	Universal school-based preventative intervention	MT		Significantly lower anxiety in IG. No significant group differences for Gr. 9 students at FU points. Females in IG reported significantly lower anxiety than MT at 12 and 24 month FU, but not 36 month FU.

					Fewer at high risk in IG at 36 month FU.
Stallard et al., 2005	213 (aged 9-10 years)	Universal school-based preventative intervention	No	Significant improvements in anxiety and self-esteem. Significant improvement in over half of children with severe emotional problems.	
Stallard et al., 2007	106 (aged 9-10 years)	Universal school-based preventative intervention	No	Post-assessment conducted at 3 month FU. Significant improvements in anxiety and self-esteem.	
Stallard et al., 2008	63 Long-term follow up of Stallard et al., 2007	Universal school-based preventative intervention	No		Significant effects maintained at 12-month FU. 67% of high risk children at

					baseline were low risk at 12-month FU.
Pahl & Barrett (submitted)	263 (aged 4-6 years)	Universal, school-based preventative intervention	WG at post-intervention only	*Parent report*: nearly significant decreases in anxiety, significant decreases in BI and significant improvements in social-emotional strength for both conditions. *Teacher report:* significant improvements in BI and social-emotional strength for children in the intervention group.	Significant improvements in anxiety, BI (girls only), and social-emotional strength. There was no comparison group at 12-month follow-up.

Note. BI = behavioural inhibition; FAM = family; FGCBT = family group cognitive-behaviour therapy; FU = follow-up; GCBT = group cognitive-behaviour therapy; ICBT = individual cognitive-behaviour therapy; IG = intervention group; MT = monitoring group; WL = waitlist control group.

Overall evaluation of the treatment

The programs encompass a family approach to empower everyone in the family to recognise their skills and strengths, and to utilise these skills to help each other become more assertive and confident. This family approach helps to maintain long-term sustainability of the skills through continual reinforcement and modelling amongst all family members. The approach differs from isolated CBT interventions, which solely focus on treating the child, or on treating the parents (i.e., parenting management training only). The *FRIENDS* programs are child-centred and maintain a focus on developing reciprocal interactions in the family as all members learn positive coping skills. In metaphorical terms, this approach can be compared to learning a language. Attempting to learn a language by oneself or in isolation from others will prove to be difficult and may lead to limited success. In contrast, learning a language as a family unit where all family members practice the language several nights per week will increase the chance of success and the likelihood that the language will be learned and maintained.

The programs also include extended family networks, including grandparents. Grandparents are seen as important participants in the promotion of mental health. They can represent positive, supportive role models to many young children, and can provide children with invaluable knowledge regarding familial history and the continuity of culture and identity. In the *FRIENDS* programs, grandparents are welcomed and encouraged to attend sessions and to be actively involved in their grandchildren's lives whenever possible.

A limitation to our research is the lack of available data assessing positive, strength-based traits such as happiness, resilience, and coping and the subsequent effect the *FRIENDS* programs have on such traits. These data are important to examining the positive changes (i.e., increased happiness) that occur following the *FRIENDS* programs and over time. However, research currently evaluating the *Fun FRIENDS* program has incorporated assessment measures examining resilience and social-emotional strength. Assessment is also warranted to examine the unique contribution of the emotional regulation skills taught in the program (see Hannesdottir & Ollendick, 2007) and to potentially make this a larger component of the program in future revisions.

Recommendations regarding implementation in practice

Family Involvement

Evidence is emerging supporting the inclusion of fathers in treatment for various types of developmental psychopathology as such inclusion has led to better long-term, mental health outcomes (Bögels & Phares, 2008). However, fathers have been neglected in research on the etiology, prevention and treatment of childhood anxiety even though research has highlighted the important role fathers play in the socialisation of children, in protection against severe anxiety, and the potentially important role they may play in the treatment of child anxiety (Bögels & Phares, 2008). In their review, Bögels and Phares (2008) recommended that every effort should be made to involve *all* fathers in anxiety research. A recent modelling study by Pahl and Barrett (submitted) demonstrated the important role of fathers in the aetiology of early childhood anxiety. The study examined risk factors of early childhood anxiety with a sample of 4 to 6-year-olds ($N = 236$). The results indicated that mother's parenting stress and negative affect (anxiety and depression) significantly predicted early childhood anxiety. Mediational analyses revealed that father's parenting stress might affect child anxiety via mother's parenting stress - indicating a reciprocal family interaction of stress and anxiety. These direct and mediational effects demonstrate the contributing role of *both* parents in the development and maintenance of anxiety and reinforced the need to involve both parents in the treatment and intervention process.

Frequently, family involvement overlooks siblings; however, research by our team has demonstrated the negative effects that anxiety disorders have on siblings, and the potential significance and benefits of involving siblings in therapy (i.e., Fox, Barrett & Shortt, 2002). Family involvement in therapy, including parents *and* siblings, increases the social support for the child with anxiety, enhances consistency in contingency management, and encourages greater practice of skills and generalisation of skills, through everyone using the same strategies and approaches in managing stress and anxiety. Practicalities for clinicians in increasing the likelihood of family attendance is to offer after-hour appointments for families, including weekend sessions, to ensure families are aware of the expectations for all to attend in advance, to strongly reinforce fathers and siblings who come along to sessions, and provide specific homework tasks for every family member so that they feel their presence is valued and worthwhile.

Program Delivery and Process

The *FRIENDS* programs can be successfully run in clinic and school settings following the required training (see *Program Training* below). When conducting the *FRIENDS* groups within each setting, it is crucial to consider process issues important to successful program delivery. These can be broken down into several main areas, applicable to all settings:

1. *Family:* it is important to involve parents, siblings, and extended family when possible. In the school setting, parents can be invited to co-facilitate sessions to act as mentors and role models, but should be separated from their own children when doing activities. Mentors may be recruited from higher grades to act as positive mentors and role models.
2. *Setting up the group for an optimal learning experience:* It is often helpful to break the larger group into smaller groups for activities to optimise the learning experience and to allow a greater opportunity for all children to have a turn and share their ideas. Ideas should then be shared with the larger group. After sharing ideas, all group members should clap to positively acknowledge each child and the facilitator can use positive encouragements such as "good idea", "thanks for being so brave and sharing with us", to reinforce their effort. Children should be seated strategically with a co-facilitator beside any disruptive children to impose behaviour management strategies. If siblings are in a group together, we recommend separating them (sitting apart) whenever possible to foster individual independence. As a facilitator, it is important to allow each child in the group to have a turn to speak to the group and to reinforce the shy, introverted children, and to always follow up their efforts with praise.

3. *Behaviour Management*: behaviour management strategies ought to be considered before the program commences. Facilitators should have a clear idea of what behaviour management skills will be implemented if disruptive behaviour occurs. These may include planned ignoring for mild to moderate misbehaviour and time out for severe misbehaviour. For young children, reward charts may be used to reinforce positive behaviours.

Booster Sessions and Follow-up

The *FRIENDS* programs incorporate two booster sessions to be held 1 month and 3 months following treatment. The booster sessions focus on a review of all skills learnt in the programs and on preparing children for future challenges. We recommend offering longer-term follow-up sessions (e.g., at 6 months and 12 months) to assist in skill maintenance.

Program Training

A requirement for implementing the *FRIENDS* programs is to attend an accredited training workshop to learn successful delivery of the program skills. Training workshops are frequently held across Australia and worldwide. Training is available internationally through a license agreement with Pathways Health and Research Centre. The license agreement grants access to specialised training protocols and systems for dissemination of the program by schools, clinics, governmental and non-government organisations, universities and private companies. For more information, please visit the Pathways Health and Research Centre website *www.pathwayshrc.com.au*

Directions for Future Research

Issues for future research in child anxiety treatment include extended evaluations of family-based treatments, focused on outcomes addressing the role of the family in maintaining anxiety, as well as in improving outcomes for child anxiety disorders. Whilst parental psychopathology and family interaction variables may play a role in the maintenance of anxiety, little is known about how these issues can be addressed in treatment, and how family members, and family characteristics (such as interactions) may actually improve outcomes in therapy. Controlled trials evaluating family-based CBT, which includes the entire family in therapy, against child-focussed therapy alone and child plus parent (without siblings), are warranted to determine the genuine effectiveness of family involvement in CBT for child anxiety disorders. Further investigation is also required of the specific role fathers' play in the aetiology and treatment of childhood anxiety.

There is an increasing need to improve available measurement devices. Rating scales used to compare variants of CBT generally show nonstatistically significant differences between treatment conditions (with or without parental involvement). This lack of significant difference may be due in part to insensitivity of the existing measures in detecting the specific skills that are being targeted in treatment programs. For example, the specific parenting skills targeted in parenting programs may be inadequately assessed with the available measures (Silverman et al.,

2008). In addition to the efficient assessment of anxiety disorders, we believe strength-based measures should be incorporated into standard assessment procedures to include measures examining positive coping, resilience, happiness, self-esteem, and social-emotional competence. Such assessment would allow for the examination of alternate outcomes from CBT treatment and shift the focus from psychopathology to strength-based assessment. Further research is needed to examine the contributing role of emotional regulation skills in CBT treatment programs for child anxiety.

There is a need to conduct randomised treatment trials of the *Fun FRIENDS* program to assess its effectiveness in treating young anxious children. Research indicates that approximately 10 to 15% of young children experience internalising problems (Egger & Angold, 2006), yet research and available treatment programs remain scarce for this age group. This may be due to the difficulties posed by assessing this young age group. There is uncertainty as to whether current diagnostic categories for anxiety are reliable or valid for this young age group, as fears during the preschool years are common and a normal part of development. Furthermore, diagnostic assessment tools for preschool children are scarce and still under development. Additional research examining CBT family treatment with young children is required along with the development of appropriate assessment measures.

Conclusions

Research investigating anxiety disorders in children has revealed that a successful treatment outcome can be achieved through group-based interventions (e.g., the *FRIENDS* program) involving parents and families. The *FRIENDS* programs are offered in three developmentally tailored versions and deliver cognitive-behavioural skills. The programs aim to empower families to develop positive coping skills and to work as a "team" in increasing assertive and confident behaviours. Research to date by our team has highlighted the usefulness of the child and youth versions of the *FRIENDS* program in decreasing anxiety immediately following the group program and at long-term follow-up. The results have also suggested that parents play a positive role in the maintenance and sustainability of the program skills.

Additional research is required to examine the influence of family based treatment with the inclusion of siblings, parents, and grandparents. We believe involving all family members is extremely important for skill acquisition, reinforcement, generalisation, and long-term maintenance. We foresee a shift in treatment paradigms over the next 10 years to include all family members in

treatment, including extended family members (e.g. grandparents) as normative, standard practice with multiple benefits being observed in child mental health.

We also foresee a shift in the focus of assessment from psychopathology-based to strength-based assessment (positive coping, happiness, resilience) and the implementation of treatment and intervention programs beginning earlier in the developmental trajectory (e.g., the preschool years). In our opinion, these advances (involving entire families in treatment and starting treatment/interventions early in the developmental trajectory) would significantly benefit the mental health of many children and families. (End of published book chapter).

In recent years, research examining childhood anxiety has shifted from a sole focus on treatment to the examination of preventative efforts. The following chapter describes this shift in the literature and provides an overview of trials examining the prevention of childhood anxiety disorders. These trials are described in three levels – selective, indicated, and universal.

CHAPTER FIVE: PREVENTION OF CHILDHOOD ANXIETY DISORDERS

Despite the demonstrated effectiveness of CBT and the increased availability of treatments through published manualised protocols (i.e., *Coping Cat*, Kendall, 1994; *FRIENDS for Life*; Barrett, 2004; 2005), a large proportion of children in need of a mental health service will not actually receive clinical intervention. An analysis of three surveys in the United States of America (USA) indicated that nearly 80% of children and youth aged 6 to 17 years who were in need of a mental health service did not receive services within the preceding 12 months, with rates approaching 90% for uninsured families (Kataoka, Zhana, & Wells, 2002). Similarly, a recent study in a paediatric primary care setting found that only 31% of anxious youth had received counselling or medication treatment during their lifetime (Chavira, Stein, Bailey, & Stein, 2004). In Australia, research suggests that as few as 5% of children and youth with mental health disorders come into contact with a mental health service (Stanley, 2002). Several barriers may prohibit children and their families from receiving proper psychological treatment including, the cost of treatment, time, and location. Firstly, receiving CBT by an experienced mental health provider is often costly. One study estimated that treatment for GAD in childhood could cost as much as $2,181 per child (Turner, Beidel, Spaulding, & Brown, 1995). Secondly, treatment can be time consuming and dependent on parent, child, and therapist availability and commitment and usually requires weekly visits to a clinic for approximately 3 to 4 months. Lastly, access to treatment is often difficult. In metropolitan areas this is primarily due to strict entry criteria into services, high service demands, overloaded caseworkers, and limited access to treatment for families living in regional and rural areas.

The last few decades have seen a large shift in focus from treatment to prevention and early intervention in the late childhood/adolescent years (e.g., Greenberg et al. 1999). Practice parameters established for the assessment and treatment of child and adolescent anxiety disorders (Connolly & Bernstein, 2007) contend that early intervention and prevention efforts offer a proactive method for alleviating anxiety symptoms by targeting empirically-based risk factors that are amenable to change with evidence-based interventions. In a recent review of the anxiety prevention literature, it was noted that due to the early onset of most anxiety disorders, prevention efforts ought to occur early in the life course – to reduce the overall burden although, but deciding how early has yet to be determined (Bienvenu & Ginsburg, 2007). Bienvenu and Ginsburg (2007) have suggested that prevention efforts could be aimed at expectant parents due to the potential genetic transition of anxiety (e.g., Beidel & Turner, 1997). Alternatively, delivering preventative

interventions when children are very young (e.g., aged 3-5 years) to those with early signs of anxiety or BI may represent the ideal stage of intervention (Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005). The current research holds the same contention – that delivering preventative interventions early in life may lead to positive outcomes. However, there is still much to learn about when in the life course prevention efforts may have the biggest impact.

Levels of Prevention

An important issue in prevention science is 'prevention in whom?'(Bienvenu & Ginsburg, 2007). That is, prevention efforts can be defined in three levels including *indicated, selective* and *universal* prevention approaches (Mrazek & Haggerty, 1994). To date, few preventative interventions have been systematically evaluated at each of these levels. In regards to 'how' to prevent anxiety disorders, most interventions have been based on CBT. In this chapter, each level of prevention is described in terms of its advantages and disadvantages. Following this, examples of preventative interventions targeting each of the three levels are reported.

Indicated prevention approaches are those applied to individuals or groups who are found to already report mild symptomatology, identifying them as being at increased risk for the future development of mental health disorders (Mrazek & Haggerty, 1994). Indicated interventions require screening or interviewing children for emotional disturbance to accurately identify those individuals reporting existing symptoms of emotional distress. *Selective* prevention programs are applied to select individuals or subgroups of individuals who present with a significantly higher than average risk of developing a mental health disorder, based on our understanding of the associated risk factors for that disorder (Mrazek & Haggerty, 1994). For example, selective interventions aimed at preventing anxiety disorders may be delivered to children who have been exposed to trauma, or who have parent/s with diagnosed mental health disorders, or who have been victims of bullying within their peer group. Selective interventions do not require screening of children, but rather rely on some other form of participant selection – often parent, teacher, or school nomination of perceived increased risk. *Universal* interventions are those applied to whole populations, regardless of the risk status of individuals, eliminating the need to screen or accurately identify an at risk subgroup of children (Mrazek & Haggerty, 1994). In some instances, universal interventions are designed to enhance general well-being, whereas others are targeted at preventing a specific disorder (e.g., anxiety disorders). There are a number of advantages and disadvantages associated with each of these three levels of prevention, suggesting that one level is no more optimal than another.

Indicated and selective prevention approaches share many similar advantages, as well as shortcomings. The most obvious advantage of these approaches is that these programs target the most disadvantaged or in need individuals, thereby providing the strongest rationale to attract funding, producing larger effect sizes than universal approaches in terms of statistical significance of outcomes, and having the most robust outcomes at a clinical significance level in terms of reducing suffering (Barrett & Farrell, 2007). When compared to universal approaches, these programs are generally more time, cost and labour efficient, and the benefit/cost ratio is more easily calculated, making these approaches more attractive to funding bodies and stakeholders (Donovan & Spence, 2000). Given that indicated and selective interventions target children with increased risk, or with elevated symptoms, it has been argued that participants involved in these programs may demonstrate increased motivation and compliance with the program due to their increased needs (Barrett & Farrell, 2007).

In terms of shortcomings, indicated and selective programs share a similar fundamental disadvantage in terms of the recruitment of samples. For selective programs, defining suitable "risk" criteria and developing the associated methods for reliably selecting individuals at risk is problematic (Barrett & Farrell, 2007). Likewise, the selection of reliable and valid measures of risk is essential in delivering indicated interventions. Identifying measures that are sensitive to detecting elevated symptomatology and then deciding upon the appropriate cut-offs to define risk reliably, present methodological and clinical difficulties for researchers. To date, there are no gold standards of measurement in assessing and defining level of risk for anxiety disorders within an indicated approach. Timing of selective and indicated interventions present additional challenges to researchers including deciding when the optimal time in a child's development is to screen or identify potential risk for emotional disturbance and deciding when an intervention provide the most effective outcomes and prevent the escalation of symptoms. In addition, given that the nature of these interventions is to "select" or "identify" individuals at increased risk, delivering these programs within the school environment may increase the risk of stigmatisation (e.g., being called out of class for the intervention program).

Universal prevention approaches also have advantages and disadvantages when considering issues associated with both implementation and evaluation. Given that universal approaches target entire populations, these interventions have the potential to be of enormous benefit in terms of reducing the prevalence of childhood anxiety disorders. Furthermore, since all children are targeted, regardless of risk level, those who do need assistance to overcome emotional or behavioural problems, but who may never come to the attention of mental health professionals, are

engaged in a positive program of change. Universal prevention interventions are often conducted within the school setting leading to additional advantages including, the reduced need to screen and recruit participants (all children participate) and the ability to reach a broad range of children with varying levels of risk for psychopathology without stigmatisation or selective identification. This approach to prevention focuses on acquiring skills to cope, enhancing peer support and reducing psychosocial difficulties within the classroom or peer-group, thus promoting learning and healthy emotional development in all children (Evans, 1999; Kubiszyn, 1998).

There are some difficulties associated with universal prevention research. First, dealing with large samples of children means universal prevention research is extremely costly as program evaluation requires screening all children before and after an intervention, and optimally at long-term follow-up to ascertain preventative outcomes (Barrett & Farrell, 2007). Second, is the burden of research on the school system. Utilising schools for prevention research potentially presents plentiful data opportunities; however, the process of engaging schools and conducting longitudinal research is a complex procedure that requires ongoing support and commitment from all involved including educational authorities, school principals, teaching and administrative staff, as well as parents and students. A final questionable disadvantage of a universal approach to prevention is the potentially low dose effect that a universal strategy may offer, and whether classroom-based program delivery offers sufficient program duration and intensity to alter the developmental pathways of children already at substantial risk for anxiety (Barrett & Farrell, 2007). Based on research outcomes to date with older children, it seems that the dose of intervention at a universal level may be sufficient (e.g., Barrett & Turner, 2001; Lock & Barrett, 2003; Lowry-Webster, Barrett, & Dadds, 2001; Stallard et al., 2005, 2007, 2008). Moreover, as comorbidity for childhood anxiety disorders is high, universal preventative interventions have the potential to impact upon multiple problems (Greenberg, Domitrovich, & Bumbarger, 2001).

Despite the inherent obstacles in delivering universal preventative interventions, this population-based approach may offer promising outcomes for the emotional development of children. A number of trials have been conducted at each level of prevention with children and adolescents, with results suggesting favourable outcomes in terms of symptom reduction and reduction of risk for anxiety. These trials will be briefly discussed with a larger focus on those implemented within the school setting and those utilising a preschool-aged sample.

Indicated Interventions for Anxiety Disorders

Four studies in the literature have evaluated school- based indicated preventative interventions for children and adolescents. Kiselica, Baker, Thomas, and Reedy (1994) investigated the effectiveness of a preventative stress inoculation program for adolescents, consisting of a blend of progressive muscle relaxation, cognitive restructuring, and assertiveness training. The program involved eight sessions and was delivered to Grade 9 students (n = 48) who reported elevated anxiety scores on self-report measures. Students were compared with a control group on measures of anxiety, stress, and academic performance. Compared with controls, the students who received the indicated intervention demonstrated significantly greater improvements on self-report measures of trait anxiety and stress related symptoms at postintervention and at 4-week follow-up assessment. There were no significant differences between the two groups in academic achievement at either postintervention or follow-up. This study provided initial support for a school-based psychosocial intervention in reducing anxiety in youth.

Dadds, Spence, Holland, Barrett, and Laurens (1997) examined the effectiveness of a 10-session school-based group CBT intervention for preventing anxiety symptoms in 7 to 14-year-olds, in comparison to a monitoring only control group. Participants were selected on the basis of subclinical or mild clinical levels of anxiety determined by child self-report, teacher nominations and parental interviews. In addition to weekly child sessions, parents were invited to attend three parent education sessions. The program delivered was the *Coping Koala* program (Barrett, Dadds & Rapee, 1996), an Australian adaptation of Kendall's (1994) *Coping Cat* program. The *Coping Koala* program includes group-based delivery of CBT anxiety management strategies, in combination with parent support and training. Results demonstrated positive outcomes for all children involved in the study, with the intervention and control children reporting decreases in anxiety at postintervention. A significant preventive effect on rate of diagnosis, as well as child and family adjustment, was evident at the 6 and 24 month follow-up time points for the intervention participants only (Dadds, Spence, Laurens, Mullins, & Barrett, 1999). Of the participants who had subclinical levels of anxiety (but not a disorder) at preintervention, 54% of these control participants progressed to a diagnosable disorder at the 6 month follow-up, compared with only 16% in the intervention group. This study provided preliminary evidence for the prevention of anxiety disorders through delivering a school-based CBT intervention during late childhood.

Bernstein, Layne, Egan, and Tennison (2005) replicated this study, examining the effectiveness of group-based CBT (the FRIENDS for Life program) for anxiety, in comparison to group-based CBT plus parent training, and a monitoring-only control group. This study involved students 7 through to 11 years of age (n = 61) who reported elevated levels of anxiety based on self-

report, parent and child diagnostic interviews, and teacher nomination. Children who scored above the clinical cut-off on the anxiety self-report measure and/or who were nominated by their teacher as being anxious were interviewed (along with their parents in a separate interview) for an anxiety diagnosis. Inclusion criteria for this study required participants to have a diagnosis of SAD, GAD, and/or SOP or "features" (one of more diagnostic criteria, but not all) of at least one of these disorders.

The results demonstrated that group-based CBT (with and without parent training), delivered within the school environment was significantly more effective than no treatment in reducing anxiety symptoms and diagnoses based on child report, parent report, and diagnostic interviews (Bernstein et al., 2005). This study found significant pre to postintervention effects between CBT conditions and the no-treatment control group, which improves on the outcomes found in the Dadds et al. (1997) study which did not demonstrate significant group differences until 6 month and 24 month follow-up (Dadds et al., 1997). In terms of differences between GCBT and GCBT plus parent training, findings were mixed. On parent report of child anxiety and clinician rated severity, there were significant differences between GCBT plus parent training and the no-treatment control group, but no difference was found for GCBT alone compared to the no-treatment control. Contrary to these findings, there was evidence that GCBT alone was superior to GCBT plus parent training based on diagnostic status, whereby only GCBT alone was significantly different from the no-treatment control group. The results of this study provide some evidence that GCBT programs delivered within the school environment, alone or in combination with parent training, can effectively reduce anxiety symptoms for some children. Longitudinal follow-up of this study is warranted to inform about the longer-term preventative outcomes for nonclinical children who participated in this study.

LaFreniere and Capuano (1997) examined a 6 month integrative, home-based preventative intervention program for anxious/withdrawn preschoolers. Forty-three preschoolers (aged 31 to 70 months) rated as high on anxious withdrawn by their teachers on the Social Competence and Behaviour Evaluation (LaFreniere & Dumas, 1996) were randomly assigned into a parent-child intervention or a monitoring-only control condition. The intervention involved setting up individualised programs focusing on parental psychoeducation, child-directed play sessions, behaviour modification, training in parenting skills, and a focus on building support networks. Results at postintervention demonstrated significant improvements on teacher-rated social competence, however; reductions in anxious/withdrawn behaviour did not differ significantly between conditions.

The results obtained from the above school-based indicated interventions for anxiety disorders in childhood are positive with significant reductions in anxiety demonstrated. LaFreniere and Capuano's (1997) study utilised a sample of preschool-aged children with immediate improvements found on social competence. However, reductions in anxiety were not evident as a result of the intervention. A number of selective interventions targeting those at risk for anxiety disorders will now be discussed.

Selective Interventions

A number of preliminary investigations have been conducted to examine the effectiveness of school-based selective interventions across a range of risk groups, to reduce or prevent anxiety symptoms and disorders. Barrett and colleagues examined the effects of delivering school-based CBT interventions to diverse cultural groups of children. Cultural change and migration have been found to significantly increase risk for the development of anxiety in childhood and adolescence (Barrett & Turner, 2000). To address this risk factor, a number of studies evaluated the effectiveness of the *FRIENDS for Life* program (Barrett, 2004, 2005) in reducing the psychological distress experienced by migrant children and adolescents of former-Yugoslavian, Chinese, and mixed-ethnic backgrounds. Following involvement in the *FRIENDS for Life* program, participants reported improvements on measures of self-esteem, internalising symptoms, and future outlook (Barrett, Moore, & Sonderegger, 2000; Barrett, Sonderegger & Sonderegger, 2001; Barrett, Sonderegger, & Xenos, 2003), with gains maintained up to 6 month follow-up (Barrett et al., 2003).

Cooley, Boyd, and Grados (2004) conducted a pilot trial of the *FRIENDS for Life* program (Barrett, Lowry-Webster, & Turner, 2000) with a group of inner-city African-American children (n = 10; aged 10 to 11 years) exposed to high levels of community violence with moderate reported levels of anxiety. The program was implemented biweekly during class time, with postintervention results indicating significantly reduced self-reported anxiety and significant decreases in contextually relevant anxiety (e.g., safety concerns). In addition, participants reported a high level of program acceptability.

Rapee and Jacobs (2002) piloted the efficacy of a selective prevention of anxiety in preschool-aged (3.5 years to 4.5years, N = 7) children who exhibited parent-rated BI. The intervention, which was delivered to half the sample, was a CBT intervention delivered exclusively to parents. The remaining half of the sample comprised the no-treatment group. Parents

participated in a six-session group program which trained them in anxiety management strategies, understanding of parental modelling and overinvolvement, modelling positive behaviour, promoting independence in children, and instruction on how to develop and assist children with exposure hierarchies to address their child's fears. While no immediate postintervention results were reported, findings at 12-month follow-up indicated that the program was superior to the no-treatment comparison group for reducing BI and the rate of anxiety disorder diagnoses in children. These preliminary results offer encouraging data to suggest that children as young as 3 and 4 years of age may benefit from interventions targeting anxiety and fostering emotional resilience.

In an extension to this study, Rapee, Kennedy, Ingram, Edwards, and Sweeney (2005) conducted a controlled evaluation of this selective CBT intervention, aimed at preventing anxiety disorders in young children. Children were selected for inclusion in this study if they exhibited a high number of withdrawn/inhibited behaviours, based on maternal report and laboratory observation, and were randomly allocated to either a six-session parent education group program (n = 73), or a no-treatment monitoring condition (n = 73). Results of this study demonstrated that children of parents in the education program experienced significantly fewer anxiety diagnoses at 12-month follow-up compared to the monitoring group. However, there were no significant effects between groups on measures of inhibition/withdrawal following this intervention. The mixed findings reported in this study make it difficult to interpret the effectiveness of this brief parent education program for preventing anxiety. However, the results demonstrated a significant reduction in parental report of child anxiety diagnoses. This study suggests that early intervention, targeted at children at increased risk for anxiety, may reduce or prevent the occurrence of anxiety disorders later in childhood. Longer-term follow-up would shed important light on the actual impact of the intervention.

Findings from selective interventions have revealed positive results in the prevention of anxiety symptoms and disorders. Of particular relevance to the current thesis are the two documented studies evaluating preschool-aged children (i.e., Rapee & Jacobs, 2002; Rapee et al., 2005, see Chapter Six for more detail). Although significant results were not reported at postintervention, at 12-month follow-up, children in the intervention group experienced decreased BI and decreased rate of anxiety diagnoses as compared to the waitlist control condition (Rapee & Jacobs, 2002. Similarly, Rapee et al. (2005) found fewer anxiety diagnoses in the intervention group when compared to the waitlist control group. These results provide preliminary evidence suggesting that interventions can be implemented to benefit children of preschool age. As the

intervention implemented in both studies was parent-based, the findings highlight the important role of parent in anxiety prevention.

Universal Interventions

The published research examining universal, school-based prevention outcomes for child and youth anxiety has grown significantly over the past several years. A number of universal, prevention studies will be briefly discussed along with one recent study focusing on preschool-aged children (Dadds & Roth, 2008). Barrett and Turner (2001) conducted the first preliminary trial of the *FRIENDS for Life* program (Barrett et al., 2000) as a universal intervention for the prevention of internalising symptoms in Grade 6 children (aged 9 – 10 years). This study evaluated a "train-the-trainer" model of intervention, whereby, children were assigned to one of three conditions; (a) psychologist led intervention (n = 188), (b) teacher led intervention (n = 263), and (c) standard curriculum, monitoring-only condition (n = 137). Barrett and Turner (2001) trained classroom teachers and psychologists to implement the *FRIENDS for Life* program as part of the standard classroom curriculum. Parents in both the psychologist led and the teacher led intervention were invited to attend four parent evenings. Children were screened for symptoms of anxiety using self-report questionnaires. Evaluation of children's self-report measures at postintervention indicated positive intervention effects, with participants reporting significant reduction in anxiety symptoms across psychologist and teacher led interventions in comparison to the monitoring-only condition. This study provided preliminary evidence for the effectiveness of the *FRIENDS* program, delivered by either trained teachers or psychologists at a school-based population level, integrated within the standard school curriculum.

Following this initial study, Lowry-Webster, Barrett, and Dadds (2001) examined the effectiveness of *FRIENDS for Life* (Barrett et al., 2000) as a universal strategy in comparison to a monitoring-only condition. In total, 594 students, aged 10 to 13 years, were allocated to either an intervention or control condition on the basis of classroom group. Children were screened using self-report measures of anxiety and depression symptoms. At postassessment, children from both the intervention and control conditions reported significant reductions in anxiety symptoms, although these decreases were significantly greater in the intervention group when compared to the monitoring condition. A significant reduction in self-reported symptoms of depression was also found for the intervention group only. Further analysis of change in risk status for those children within the high-risk category (scoring above clinical cut-off on measures of anxiety) showed positive findings. Of the children in the intervention group identified at high-risk at preintervention,

75.3% were no longer at risk at postintervention, compared to 54.8% of high-risk children in the monitoring group. This finding highlights the general improvement in anxiety symptoms over time for all children in upper primary school, a finding which has been reported by a number of others (i.e., Dadds et al., 1999; Last et al., 1996).

Lowry-Webster et al. (2003) continued the above investigation by monitoring these children over the following year to assess outcomes at 12-month follow-up and found that prevention effects were maintained for children who received the *FRIENDS for Life* program. Children in the intervention group reported lower scores on anxiety self-report measures than children in the control condition, and the high-risk anxiety children from the intervention condition reported reductions in both anxiety and depression scores. Diagnostic interview data demonstrated that 85% of high-risk children in the intervention group were diagnosis free at 12-month follow-up, compared to only 31.2% of high-risk children in the control group. This follow-up study demonstrated both statistically and clinically significant reductions in anxiety symptoms and disorders from preassessment to 12-month follow-up following the *FRIENDS for Life* universal program when delivered by classroom teachers within the standard school curriculum.

Similar to Lowry-Webster et al. (2001), Lock and Barrett (2003) conducted a longitudinal school-based study of universal prevention using the *FRIENDS for Life* program across two distinct age groups. This study involved a group of 733 children enrolled in Grade 6 (n = 336; aged 9 and 10 years) and Grade 9 (n = 401; aged 14 to 16 years) from seven socioeconomically diverse schools in Brisbane, Australia. Schools were randomly assigned to an intervention condition or a monitoring control condition (standard curriculum), and all students completed self-report measures on anxiety and coping. Students identified as "high-risk" based on elevated scores on an anxiety measure were interviewed using a structured diagnostic interview. As with previous research (e.g., Dadds et al., 1997; Dadds et al., 1999; Lowry-Webster et al., 2001; Lowry-Webster et al., 2003), this study found general reductions in anxiety across time regardless of intervention condition; however, reductions were significantly greater for students in the intervention condition compared to the monitoring condition at both postassessment and at 12-month follow-up.

In terms of age differences, this study found that children in Grade 6 reported significantly higher levels of anxiety prior to the intervention and at postintervention, yet evidenced greater reductions in anxiety at 12-month follow-up, as well as lower levels of depression across time compared to Grade 9 children. This finding suggests that the optimal time for preventing anxiety may be in late childhood (9 – 10 years of age) versus early adolescence. Lock and Barrett (2003)

further examined gender differences and found that females were more likely than males to be at-risk of an anxiety disorder at pre-intervention and tended to report higher levels of anxiety than boys over time. Moreover, Grade 6 females appeared to be most responsive to the intervention, as they reported greater reductions in anxiety compared to females in Grade 9, and males across grades. Lock and Barrett (2003) also examined the effects of the intervention on depressive symptoms. Results revealed significant reductions in depression; although, this effect was only apparent at 12-month follow-up, suggesting a delayed prevention effect for depression. This finding of a delayed effect is consistent with the finding from the Queensland Early Intervention project (Dadds et al., 1997) and is also consistent with Jaycox and colleagues (1994) prevention trial for depression.

Barrett, Farrell, Ollendick, and Dadds (2006) evaluated the long-term effectiveness of the *FRIENDS for Life* program in reducing anxiety and depression, by reporting long-term follow-up data from Lock and Barrett's (2003) original sample of children across Grade 6 and Grade 9. Longitudinal data from 12-month follow-up through to 24-month and 36-month follow-up were examined. Results of this study indicated that intervention related reductions in anxiety reported in Lock and Barrett (2003) were maintained for students in Grade 6; with the intervention group reporting significantly lower ratings of anxiety at long-term follow-up. There were no significant group differences for students in Grade 9 at any of the follow-up assessment points. This finding strengthens Lock and Barrett's (2003) suggestion that intervening with universal prevention in Grade 6 may be an optimal time for reducing risk for anxiety and depression. This study reported a significant time by intervention group by gender effect on anxiety, with females in the intervention group reporting significantly lower anxiety than females in the monitoring condition at 12-month and 24-month follow-up, but not at 36-month follow-up. This finding suggests that there appears to be a prevention effect for females on anxiety symptoms for up to 24 months, however, this effect disappears by 36 month follow-up.

Interestingly, as in Lock and Barrett's (2003) study, females in this study were at higher risk for anxiety than males. Results also supported a longitudinal prevention effect with significantly fewer high-risk students at 36-month follow-up in the intervention condition than in the control condition. This long-term follow-up study provides evidence for the durability of prevention effects for children who received a prevention intervention in Grade 6, with outcomes evident up to 3 years following the intervention, delivered by classroom teachers. For girls however, who reported the highest scores of anxiety at preintervention, and the largest reductions in anxiety up to 12-month follow-up (Lock & Barrett, 2003), it seems that prevention effects may only be durable up to 24

months follow-up. These studies of universal prevention provide promising outcomes for reducing risk for anxiety disorders in children and youth through school-based delivery of evidence-based prevention programs.

More recently, Stallard et al. (2008) conducted a 12-month follow-up study of a universal prevention school-based trial of the *FRIENDS for Life* (Barrett, 2004) program. Participants were 106 children aged 9 to10 years who were followed up from a previous study (Stallard et al., 2007). Participants completed self-report questionnaires examining anxiety symptoms and self-esteem. Results revealed that the significantly reduced anxiety symptoms and increased self-esteem found at 3-month follow-up (Stallard et al., 2007) were still evident at 12-month follow-up. These findings suggest that the *FRIENDS for Life* program delivered as a universal intervention had both an intervention and a preventative effect. In terms of intervention, 67% of the high-risk group at baseline became low risk by 12-month follow-up. Also, no child who was low risk at baseline had moved in into the high-risk group at 12-month follow-up. These results provide promising support for the *FRIENDS for Life* program as a universal intervention. Noted limitations of this study include a small sample size with dropout attrition rate of 59% of the original sample at 12- month follow-up. In addition, comparisons failed to demonstrate any significant differences in gender or levels of initial symptomatology. Furthermore, this study lacked a comparison group to control for maturation or the passage of time. Nevertheless, these results are consistent with, and support the growing literature demonstrating the positive benefits of the *FRIENDS for Life* program in reducing anxiety symptoms when delivered as a universal intervention.

Dadds and Roth (2008) implemented a universal prevention program ($N = 734$) for parents of children aged 3 to 6 years from 25 preschools in Brisbane, Australia. The intervention program consisted of six parent sessions across 3 months, with group meetings every second week. The program content included cognitive-behavioural and behavioural models targeting self-talk, behavioural change, and problem-solving. Parent and teacher reports on child temperament, social behaviour, inhibition, parent characteristics, and parent-child interactions were collected at four time points over 14 months. Diagnostic interviews were conducted at follow-up. Schools were assigned into an intervention and comparison group. Treatment integrity and social validity data was collected. Mean adherence to the treatment protocol was 96% and participants tended to rate the program as highly acceptable and useful, especially the highly stressed parents who became over-represented in the treatment group. In terms of intervention effects, parents reported no significant changes in their children, but teachers tended to view all of the children as becoming better adjusted over time, with relatively greater improvements on internalising problems at post-

treatment, and greater improvements on externalising problems at post-treatment and follow-up for the treated group, with small effect sizes. When participants were grouped according to pre-intervention risk status a higher percentage of the treatment group moved from at-risk to low-risk status following treatment. Several methodological problems were present in this study including nonrandomisation of participants who attended the program, sampling bias and an over-representation of stressed parents in the treatment condition. Nevertheless, this study provides initial support for the usefulness and acceptability of an early universal preventative intervention program for parents of preschool children.

These studies of universal prevention provide promising outcomes for reducing the risk for anxiety disorders in children through the school-based delivery of evidence-based prevention programs. Recent research conducted by Dadds and Roth (2008) provides initial support for the implementation of universal preventative interventions with preschool-aged children. Study two of the current thesis examines the efficacy of a universal, school-based preventative intervention for preschool children. Based on the research summarised above, there is a clear need to expand the current knowledge regarding the applicability of universal preventative interventions with preschool-aged children.

Summary

This chapter provided a review of the literature pertaining to the prevention of childhood anxiety disorders. The systematic levels of prevention - indicated, selective, and universal were discussed, along with their advantages and disadvantages. Within each level, childhood anxiety prevention studies were reviewed with a larger focus on those implemented within the school setting and those utilising a preschool-aged sample. The evidence presented demonstrates the promise of cognitive- behavioural interventions in groups characterised by varying levels of risk for anxiety disorders.

Related to the identification of risk is an appreciation that these risk factors may not be stable over time and/or may be unique to specific developmental stages or life transitions (e.g., entry into first grade). Thus, identifying what to target might depend on ‘when’ across the lifespan these risks occur. Unfortunately, our knowledge is limited in regards to risk factors occurring in childhood, or early in the developmental trajectory. Study One of this thesis (Chapter Seven) represents one of the first investigations of risk factors for early childhood anxiety. The following chapter presents the general methodology for Study One and Study Two of the current thesis.

CHAPTER SIX: SUMMARY OF PREVIOUS STUDIES AND METHOD

Summary of Works that Influenced the Current PhD Study

At the time of commencement for this PhD project, several studies and research finding were deemed as influential, all of which have been described throughout Chapters One to Five. These studies provided incentive and inspiration to the current hypotheses and investigations. This research will be summarised briefly along with a description of how the current thesis attempts to overcome gaps in the literature at the time of commencement of this thesis.

1) *Universal Prevention*. Universal prevention research that had been conducted by our research team using the *FRIENDS for Life* program (Barrett, 2004; 2005) provided insight into the plausibility of implementing universal, school-based interventions. These influential studies, (Barrett & Turner, 2001; Lock & Barrett, 2003; Lowry-Webster, Barrett, & Dadds, 2001; Lowry-Webster, Barrett, & Lock, 2003;) described in detail in Chapter Five, deemed positive results in decreasing anxiety symptoms with results being maintained over time. These results also provided support for the effectiveness of the *FRIENDS for Life* program in decreasing anxiety and depression. The positive findings that emerged from these studies with children as young as 7 years of age, encouraged Dr. Paula Barrett to create a downward extension of the program more suitable to younger children aged 4 to 6 years, called the *Fun FRIENDS* program. This PhD project represents the first examination of the *Fun FRIENDS* program delivered as a universal, school-based preventative intervention program. Although the previous prevention studies conducted by Barrett and colleagues utilised older age samples (children and adolescents), much was learned by way of methodological requirements, practicalities in implementing universal interventions, and contextual factors important to intervention success (i.e., social validity data, treatment integrity measures) and guided the methodology of the current thesis. At the time of commencement, the authors were unaware of any other school-based universal studies examining a preventative intervention program aimed at decreasing/prevention anxiety in preschool-aged children. Research had indicated the need to develop appropriate interventions for this young age group due to the increasing proportion of young children suffering from anxiety. Therefore, the current research project is innovative in that its primary focus is on preschool-aged children which was (and remains) a relatively "untouched' cohort within the anxiety prevention literature. This research advances the field by (a) utilising a preschool-aged sample of children, and (b) implementing a universal,

school-based preventative intervention program with young children as an attempt to build on previous research examining older children and adolescents.

2) *Anxiety in Preschoolers.* Research had emerged indicating that a significant proportion of young children experienced internalising problems, with the most conservative studies indicating that 1 child in every classroom of 25 children experienced an anxiety disorder (Ford et al., 2003). Research had also indicated that clinically significant anxiety does exist in preschool-aged children and can be subtyped into patterns similar to that of older children. Investigations had been undertaken investigating the appropriateness of current diagnostic criteria for preschool-aged children with modifications to the diagnostic criteria in the DSM-IV (American Psychiatric Association, 2000) being put forth in the RDC-PA (RDC-PA, 2002; Task Force on Research Diagnostic Criteria, 2003). These modifications demonstrated the lack of empirical evidence regarding the nosology of early childhood anxiety disorders. Despite the increasing rates of anxiety prevalence in young children and the more age appropriate adaptations made to the diagnostic criteria, research remained scarce in terms of treatment and prevention approaches in young children. The current thesis attempts to close that gap – to increase the existing literature examining anxiety in preschool-aged children and by implementing a preventative intervention program targeted at decreasing and/or preventing anxiety and increasing social-emotional strength in young children. This thesis will also expand the current literature regarding the aetiology of anxiety disorders through an investigation of risk factors for early childhood anxiety.

3) *Prevention Outcomes with Preschoolers.* Studies investigating prevention outcomes with preschool-aged children were scarce at the time of project commencement. Two selective prevention studies (discussed in Chapter Five)**,** however, provided support for the possibility of utilising a preschool-aged sample within a prevention paradigm. The first study by Rappee and Jacobs (2002) investigated the efficacy of a selective prevention of anxiety in 3.5 to 4.5-year-old children who exhibited parent-rated BI. Results from this parent-based program demonstrated reductions in BI and the rates of anxiety diagnoses in children at 12-month follow-up for the intervention group. Although no immediate postintervention effects were found, this study provided encouraging results for the plausibility of implementing such an intervention and demonstrated that young children can benefit from such interventions over time.

In an extension to this study, Rapee et al. (2005) delivered a selective CBT intervention to parents of preschool-aged children exhibiting inhibited/ withdrawn behaviours. Results demonstrated that children of parents in the educational parenting program experienced significantly fewer anxiety diagnoses at 12-month follow-up compared to the monitoring condition. No significant effects were found between conditions at post-intervention, although rates of child anxiety diagnoses decreased. This study suggested that early intervention, targeted at children of increased risk for anxiety may reduce or prevent the occurrence of anxiety disorders in childhood, as evidenced by improvements at 12-month follow-up. In concordance with Rapee and Jacobs (2002), this study highlighted the plausibility of implementing preventative interventions with young children, with improvements evidenced at long-term follow-up.

These two studies were influential to this PhD thesis as they provided initial evidence indicating that interventions targeting young children were possible and could result in positive effects for children in the long-term. The intervention implemented in both of the studies was parent-based which provided insight into the importance of parental involvement with this young age group. The current thesis attempts to build upon the knowledge obtained from these studies and extend the focus by involving children, parents, and teachers, and schools, in a universal intervention, thereby engaging a larger number of children and families in the intervention process.

4) *Risk Factors for Anxiety*. This PhD project was influenced by the growing research examining risk factors for childhood anxiety. A host of risk factors had been postulated for childhood and adolescent anxiety, with a selection described in Chapter Two of this thesis. Although the research investigating risk factors for childhood anxiety is plentiful, limited investigations have been undertaken with preschool-aged children and therefore, it is unknown whether the same risk factors apply to this early age group. Study One (Chapter Seven) of this thesis examines potential risk factors of early childhood anxiety and BI. The risk factors postulated for anxiety include: BI, mother's and father's parenting stress and mother's and father's parent negative affect. The risk factors postulated for BI include: mother's and father's parenting stress and mother's and father's parent negative affect. Research obtained in Study One will assist in expanding the knowledge related to the aetiology of early childhood anxiety and BI and may help inform prevention efforts.

5) *Social-Emotional Competence.* This PhD thesis was also influenced by the growing literature indicating that the development of social-emotional competence may be an important protective factor for young children. Work conducted by James Heckman (Nobel Laureate in Economics, 2000) conceived that "investing in the young" via the promotion of social-emotional competence may lead to the highest return on human capital. The literature has also highlighted the influence of social-emotional competence on educational performance, indicating that those who experience limitations in their social-emotional development often demonstrate poor social, emotional, and academic success (Aviles, Anderson, & Davila, 2006). This research influenced the development of the *Fun FRIENDS* program as it has a large focus on promoting social and emotional skills in children and families. Social-emotional strength is evaluated as an outcome measure in Study Two of this thesis.

Objectives and Hypotheses

This PhD thesis is comprised of two studies. The objectives and hypotheses for each study will be discussed in turn.

Study One: Objectives and Hypotheses

The objective of Study One was to examine potential risk factors for anxiety and BI during early childhood. Numerous risk factors were examined for anxiety including BI, mother's and father's negative affect (anxiety and depression) and mother's and father's parenting stress. Risk factors examined for BI included mother's and father's negative affect (anxiety and depression) and mother's and father's parenting stress

Hypothesis One: Risk factors for anxiety

It was hypothesised that BI, mother's and father's negative affect (anxiety and depression), and mother's and father's parenting stress would be significant predictors (or risk factors) for early childhood anxiety.

Hypothesis Two: Risk factors for BI

It was predicted that mother's and father's negative affect and mother's and father's parenting stress would significantly predict early childhood BI. These hypotheses were tested through structural equation modelling.

Study Two: Objectives and Hypotheses

This study sought to examine the effects of a school-based universal trial of the *Fun FRIENDS* program for children aged 4 to 6 years. A number of objectives were postulated with corresponding hypotheses.

1) *Objective:* To assess whether children who received the *Fun FRIENDS* program experienced reductions in anxiety, BI, and increases in social-emotional strength following the intervention, as measured by parent and teacher report. Teachers completed measures on BI and social and emotional strength only.

   Hypothesis: It was expected that at postintervention, anxiety and BI would decrease and social-emotional strength would increase in children who received the intervention program. No significant changes were predicted for the waitlist control group at postintervention and at 12-month follow-up.

2) *Objective:* To examine the long-term effects of the Fun FRIENDS program at 12-month follow-up for the intervention group only.

   Hypothesis: It was expected that gains experienced at postintervention would be maintained at 12- month follow-up for participants who received the intervention.

3) *Objective:* To explore whether scores on BI, social-emotional strength and parenting stress (mother and father) predicted risk for anxiety at postintervention and at 12-month follow-up. No specific predictions were made; rather analyses were treated as exploratory.

4) *Objective:* To examine perceived intervention acceptability via the collection of social validity data. No specific predictions were made; rather this information was obtained with the aim of revising the *Fun FRIENDS* program with the feedback gathered from parents and teachers.

General Method for Studies One and Two

Participants

Study One utilised a subset of the Study Two sample. There were 27 less participants in Study One ($N = 236$) versus Study Two ($N = 263$) due to missing data. Participant characteristics

are described in each of the studies (Chapters Seven and Eight). Study One (Chapter Seven) utilised data from pre-assessment only.

Measures

Please note that at the time this thesis commenced (2005), only a limited number of measures were available to assess anxiety and related constructs in preschool-aged children. The measures used across both studies are listed below. Each measure is described in detail in the corresponding study (Chapter Seven and Eight). Sample questionnaire items are provided in the Appendix.

1. *Behavioural and Emotional Rating Scale, Parent and Teacher Report* (BERS, BERST; Epstein, 1998).
2. *The Behavioural Inhibition Questionnaire, Parent and Teacher Report* (BIQ, BIQT; Bishop, Spence & McDonald, 2003).
3. *Behaviour Intervention Rating Scale, Parent and Teacher Report* (BIRS, BIRST; Elliot & Von Brock Treuting, 1991).
4. *Depression Anxiety Stress Scales-Short Form* (DASS-21; Lovibond & Lovibond, 1995).
5. *Parenting Stress Index – Short Form, Parent Report* (PSI/SF; Abidin, 1995).
6. *The Preschool Anxiety Scale, Parent Report* (PAS; Spence, Rapee, McDonald & Ingram, 2001).
7. *Treatment Integrity*, *Group Leaders Report.*

The Intervention – The Fun FRIENDS program

The intervention program was the *Fun FRIENDS* program (Barrett, 2007a) for children aged 4 to 6 years. The program is based on a resilience promotion framework which focuses on the interactions between the individual and his/her surrounding systems/contexts including the community and the family (Garmezy, 1985; Werner and Smith, 1982, 1992). The program uses a multisystem, person-environment approach by actively involving children, families, teachers, and schools in the intervention process.

Throughout the program, children and parents are taught several cognitive-behavioural strategies to manage and prevent worry and emotional distress. The program focuses on teaching

children cognitive problem-solving skills for dealing with interpersonal challenges, recognising and dealing with physiological arousal through breathing control and progressive muscle relaxation, cognitive restructuring, attention training, graded exposure to fears, and family and peer support. The cognitive-behavioural skills are delivered to correspond to several areas of social-emotional learning:

1. Developing a sense of self and a positive self-identify: facilitating positive self-identity to increase sense of self-worth.
2. Social Skills: acquiring social knowledge and social skills through understanding others needs and feelings, problem-solving, expressing emotion, interpreting social situations accurately, and initiating and maintaining friendships.
3. Self Regulation: adjusting to new situations, controlling impulses, becoming aware of one's own feelings.
4. Responsibility for self and others: demonstrating self-direction and independence, respecting and caring for the group environment, following routine and rules.
5. Prosocial behaviour: playing well with others and empathy building.

A detailed description of the *Fun FRIENDS* program skills is provided in Chapter Four. Please note, in the universal trial that was conducted using the *Fun FRIENDS* program (Study Two, Chapter Eight), only sessions 1 through 10 were administered, with sessions 9 and 10 combined into one session. The booster sessions were not implemented during that research trial.

General Procedure

Specific procedural instructions for each study are presented in Chapters Seven and Eight. Prior to project commencement, all parents and teachers were invited to attend an information session held by one of the program co-ordinators to explain the project objectives. This session was held approximately 2 weeks before the program began. Parents were given an informed consent sheet to return to their child's preschool before prior to commencement of the program. Schools were randomly assigned into one of two conditions: the intervention group (IG) and the waitlist control group (WLG). Following attainment of consent, preintervention screening began which consisted of parents and teachers completing self-report questionnaires (see Appendix for self-report measures) on their own time. On certain questionnaire measures, parents were requested to complete them conjointly, and others required independent completion by a mother or a father. Questionnaires were returned to the researchers via a postage paid envelope before the program

commenced. A follow-up letter and reminder phone calls were made to parents who failed to return their questionnaires by the due date. Study One (Chapter Seven) utilised data from preassessment only and did not require the separation of participants into intervention conditions. The remainder of the procedure described below corresponds to Study Two (Chapter Eight) only.

All of the teachers involved in the trial were invited to attend an intensive full day accredited training workshop in the delivery of the *Fun FRIENDS* program. This workshop was conducted before postassessment. Attendance at this workshop was mandatory for teachers in the WLG.

Following the preintervention screen, preschool classrooms that were randomly assigned to the IG received the *Fun FRIENDS* program in by a clinically trained postgraduate psychology student. The WLG received normal curriculum by their teacher. Each session lasted approximately 45 minutes to 1 hour and was run during the morning (between 9am and 11.30 am) and each received nine sessions. Due to school term length constraints, the content of sessions nine and ten were combined. The agenda for each session was outlined in a draft manual (Barrett, 2005) created by Dr. Paula Barrett. Further support was provided by weekly supervision sessions with Dr. Barrett regarding each session's content. Throughout the course of the nine sessions, parents were invited to attend three parent information sessions and were provided with weekly handouts outlining the session content along with suggestions for home reinforcement of the skills.

Upon completion of the intervention program for the IG, parents and teachers from both conditions completed postintervention questionnaires using the same standardised instructions and measures as the preintervention screen. Following postassessment, teachers in the WLG implemented the intervention program within their classrooms. At 12-month follow-up, parents in the *IG only* completed the same questionnaire package as at pre and postassessment. Due to ethical restrictions, only the IG was able to participate in the 12-month follow-up assessment. Teachers did not complete assessment measures at 12-month follow-up. Social validity feedback was collected throughout the trial by parents and teachers and was provided to Dr. Barrett for further revisions of the program.

Summary

This chapter provided a summary of works that had influenced the current PhD thesis at the time of commencement. The research objectives and specific hypotheses were detailed along with the general methodology for Study One and Study Two. The design and methodology for each

study is further discussed in Chapters Seven and Eight. Finally, general research conclusions, clinical implications, ad suggestions for future research are discussed in Chapter Nine.

CHAPTER SEVEN: STUDY ONE

This study has been submitted for publication and has been peer-reviewed. The feedback from the peer-review process has been incorporated into this version. The reference for this article is below.

Pahl, K. M., & Barrett, P. M. (submitted). Examining Potential Risk Factors for Anxiety and Behavioural Inhibition in Preschool-Aged Children. Manuscript submitted for publication.

It is widely acknowledged that anxiety disorders are among the most prevalent psychiatric disorders occurring in children and adolescents (Andrews, Hall, Teesson, & Henderson, 1999; Costello, Egger, & Angold, 2004; Sawyer et al., 2000; Kashani & Orvaschel, 1990) with emergence occurring early in the developmental trajectory (Egger & Angold, 2006). Recently, evidence has demonstrated that clinically significant anxiety can exist during the early years (e.g., preschool-aged) with DSM (Diagnostic and Statistical Manual of Mental Disorders, American Psychological Association, 2000) nosology similar to that of older children (Egger & Angold, 2006). Recent prevalence rates indicate that 10 to 15% of young children experience internalising problems (Egger & Angold, 2006; Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004). Despite this high prevalence, treatment and prevention studies utilising preschool-aged samples are minimal. One potential reason for this lack is the lack of data identifying risk factors for early childhood anxiety. The identification of such factors could also facilitate early identification of 'at-risk' children which could allow for the development of preventative intervention programs (Barrett & Turner, 2004). Unfortunately, the majority of research investigating risk factors for childhood anxiety has focused on middle childhood and adolescence, with the early childhood years appearing to be a neglected area of research.

This paper is one of the first to examine potential risk factors of anxiety specific to young children aged, 4 to 6 years. This paper will also examine risk factors of behavioural inhibition (BI) relevant to young children. We aim to expand the current literature regarding anxiety in early childhood by investigating potential risk factors (i.e., parental negative affect and parenting stress) for early developmental onset, anxiety and BI. Below we briefly review the literature regarding risk factors of anxiety in children and adolescents.

Behavioural Inhibition and Anxiety

Anxiety disorders tend to run in families. One possible reason for this is the inheritance of a general predisposition or genetic vulnerability towards anxiety (Andrews, Stewart, Allen, & Henderson, 1990; Eley, 1997; Hudson & Rapee, 2004). One factor highlighted in the literature as contributing to this vulnerability is a temperament construct termed "behavioural inhibition to the unfamiliar" or BI which is characterised by the predisposition to be irritable as an infant, unusually shy and fearful as a toddler, and quiet, cautious, and withdrawn in the preschool and early school years (Kagan, Reznick, & Snidman, 1987). Research has indicated that children who are behaviourally inhibited are at increased risk for multiple anxiety disorders and phobic disorders (e.g., Biederman et al., 1990; Biederman, Hirshfeld-Becker, Rosenbaum et al., 2001; Gar, Hudson, & Rapee, 2005; Gladstone, Parker, Mitchell, Wilhelm, & Malhi, 2005; Hirshfeld et al., 1992; Kagan, Snidman, Zentner, & Peterson, 1999; Rosenbaum et al., 1992; Rosenbaum et al., 1991).

In one of the few studies to investigate the association between BI and anxiety symptoms in younger children, Shamir-Essakow, Ungerer, and Rapee (2005) assessed BI, child-mother attachment and anxiety disorders in 104 preschool-aged children. Their results indicated that BI and insecure attachment were both independently associated with child anxiety, with inhibited children displaying higher levels of anxiety than uninhibited children. More recently, Hirshfeld-Becker et al. (2007) examined the longitudinal outcomes of BI among a large controlled sample of children at high risk for anxiety disorders. Children were initially evaluated at preschool age (N = 284 children, age range = 21 months to 6 years) for BI and re-assessed 5 years later during middle childhood (N = 215, $\bar{x}$ = 9.6 years). Their results indicated that BI in early childhood represented a specific risk factor for social anxiety *only* during middle childhood among those at risk for anxiety disorders. Additionally, BI predicted new onset of social phobia within the 5-year follow-up period – with BI observations at ages 4 and 6 years having the strongest association with later social anxiety. However, the majority of children with early BI did not develop anxiety indicating that some children may develop positive coping skills and improve over time (Hirshfeld-Becker et al., 2007). A review by Degnan and Fox (2007) suggested that the discontinuity found in childhood BI may be inherent to the child, may be influenced by environment factors, or may be evidence of a resilience process that alters trajectories over time. Certain extraneous factors that may affect the trajectory of BI include maternal behaviour, parenting behaviours, parental childcare, and maternal personality (Degnan & Fox, 2007; Degnan, Henderson, Fox, & Rubin, 2008).

In summary, research evidence suggests that children with stable BI are at a higher risk for developing anxiety disorders; although not all children remain consistently inhibited and/or develop anxiety disorders. This suggests that BI may be a risk factor for the development of anxiety disorders, whilst other variables (e.g., familial) may moderate the effect of this temperament vulnerability. Further research needs to be conducted with this young age group. The earlier these vulnerabilities can be ascertained, the earlier children can be taught to build the resilience skills required to prevent and/or decrease associated emotional and behavioural difficulties.

Parental Psychopathology

Research has implicated parental anxiety as being a risk factor for childhood anxiety problems (Reviews: Bögels & Brechman-Toussant, 2006; Bögels & Phares, 2008). Family aggregate studies indicate that children of anxious parents have an elevated rate of anxiety disorders (Beidel & Turner, 1997; Biederman et al., 1996; Hirshfeld-Becker, Friedman, Robin, & Rosenbaum, 2001; Merikangas, Dierker, & Szatmari, 1998; Petty et al., 2008; Turner, Beidel, & Costello, 1987) and parents of children with anxiety disorders experience higher rates of anxiety disorders (Last, Hersen, Kazdin, Francis, & Grubb, 1987; Last, Hersen, Kazdin, Orvaschel, & Perrin, 1991). Studies have also documented connections between parents' anxiety disorders and children's BI (Rosenbaum et al., 1992; Rosenbaum et al. 2000) suggesting that behaviourally inhibited children who have parent(s) with an anxiety disorder, may be most at risk for developing anxiety disorders. In summary, evidence suggests that having a parent with a diagnosed anxiety disorder puts a child at increased risk for developing an anxiety disorder, particularly if the child has a behaviourally inhibited temperament style.

Parenting Stress

Family stressors linked to children's internalising problems include traumatic events (e.g., death of a loved one), conflict between parents, low social support, daily hassles with parenting, and low socioeconomic status (Cicchetti & Toth, 1998). Such life stressors can directly impact on children by eliciting perceptions of low control, negative expectations, self-blame, and hopelessness (Denhan, 1998). Bayer, Sanson, and Hemphill (2006) examined predictors of 2 and 4-year-old (N = 112) child internalising difficulties. Parental report and independent observation of mothers (n = 110) and fathers (n = 2) led to results showing that parenting stress predicted early childhood internalising difficulties. Costa, Weems, Pellerin, and Dalton (2006) found that the parent-child dysfunctional interactions factor of parenting stress as measured by the Parenting Stress Index

(Abidin, 1992) showed specificity to child and adolescent internalising symptoms when parental psychopathology was controlled for. In Ashford, Smit, van Lier, Cuijpers, and Koot's (2008) longitudinal study of early childhood risk factors, results demonstrated that parenting stress at the child's age of 4 to 5 years predicted internalising problems of the child at the age of 11 years. This is supported by previous research indicating that parenting stress is associated with child behaviour and emotional problems (Crnic, Gazew, & Hoffman, 2005). Similarly, Mesmet and Koot (2000) found that parenting stress was a generic predictor in both child internalising and externalising psychopathology.

Other studies have indicated that anxious children from families where mothers rated themselves high in parenting stress did worse in anxiety treatment programs (Crawford & Manassis, 2001) when compared to families not characterised by high maternal parenting stress. Dadds and Roth (2001) proposed that anxious children may place excessive demands on parents in terms of reassurance and comfort seeking behaviours, which over time, go beyond parental tolerance levels. This reassurance seeking often results in the parent attempting to push the child away towards more independence (Fox & Calkins, 1993) which results in increased anxiety in the child and increased pressure for the parent to provide comfort and reassurance, leading to further parental stress and frustration.

In summary, parenting stress has been implicated as a risk factor for the development of anxiety disorders in childhood. Research has implicated parenting stress in the quality of care giving, parent-child interactions, and child behaviour. More specifically, an anxious child's attempts to gain reassurance and comfort from a parent may be perceived by the parent as overly dependent behaviour which goes beyond what they parent feels they can tolerate. This generates frustration and stress in the parent, leading to further rejection of the child and disengagement from the relationship. Parenting stress may be a useful marker to identify parent-child relationships that are dysfunctional and likely to place a child at greater risk for the development of anxiety disorders.

The current study is one of the first to examine potential risk factors of anxiety during the early childhood years (4 to 6 years). It was predicted that BI, parental negative affect (anxiety and depression), and parenting stress would be significant predictors (or risk factors) of early childhood anxiety. It was also predicted that parental negative affect and parenting stress would significantly predict early childhood BI. These hypotheses were tested through structural equation modelling. This identification of risk is particularly important as it may inform future prevention and treatment efforts for this understudied age group. In addition, little is known about the aetiology of anxiety in

preschool children. This study also examines reports from both mothers and fathers. Fathers have been neglected in the anxiety research, even though they may play a significant role in the protection of anxiety (Bögels & Phares, 2008).

Method

Participants

The current study is part of a larger research project examining the implementation of an anxiety prevention program for preschool-aged children (Pahl & Barrett, submitted). Participants were 236 children (female = 116, male = 120) ranging in age from 4 to 6 years ($\bar{x}$ = 4.54, *SD* = .51). Participants were enrolled in 1 of 16 preschool classes in Brisbane, Australia. Schools volunteered to participate in the study following a presentation at an early childhood development conference. Participation was offered on a voluntary basis. The participating preschools were matched on socioeconomic status, class size and gender balance. Of the families who participated, 232 parents completed information regarding annual income. Fifteen percent had an annual income between 0 – $40,000, 41.1% between $40,001 – $80,000, and 41.5% between $80,000 – over $100,000. Children in the study with language impairments and pervasive developmental disorders were excluded from statistical analysis (*n* = 20). Such impairments were assessed by parent and teacher report followed by the examination of school files (e.g., medical reports), with full parental consent.

Measures

The Preschool Anxiety Scale (Spence, Rapee, McDonald & Ingram, 2001). The PAS is a 34-item parent report assessing DSM-IV child anxiety symptoms for preschool children. High scores indicate psychological distress rather than a psychiatric disorder. Only the total anxiety score was used in the current analyses. The PAS has adequate psychometric properties and has good construct validity against the CBCL (Achenbach, 1991, 1992; Achenbach & Rescorla, 2000) with correlations ranging from .59 to .68. This measure was completely by parents conjointly.

The Behavioural Inhibition Questionnaire, Parent and Teacher Report (Bishop, Spence & McDonald, 2003). The BIQ is a 30-item measure assessing the frequency of behaviours associated with BI. For the current study, only the total BIQ score was used. The BIQ has good psychometric properties with high internal consistency with Cronbach's alpha ranging from .80 (physical challenge) to .95 (total BI) for mother's report, and .72 (physical challenge) to .94 (total BI) for

father's report. The measure also has strong convergent validity. This measure was completed by parents conjointly.

Depression Anxiety Stress Scales-Short Form (Lovibond & Lovibond, 1995). The DASS-21 is a 21-item questionnaire with three subscales assessing adult symptoms of depression, anxiety and stress. For the purposes of this study, the anxiety and depression subscales of the DASS-21 were combined to create a 'negative affect' score for both mothers and fathers. The stress subscale was not used in the analyses. The DASS-21 has good reliability with Cronbach's alpha for the anxiety subscale ranging from .73 to .82 (Clara, Cox, & Enns, 2001; Henry & Crawford, 2005; Lovibond & Lovibond, 1995) and .82 for depression. Evidence of good convergent and discriminant validity has also been found when comparing the DASS-21 with other validated measures of anxiety and depression. This measure was completed by mothers and fathers separately.

Parenting Stress Index (Abidin, 1995). This is a 36-item questionnaire which measures the magnitude of stress in the parent-child relationship. The PSI-SF has been standardized for use with parents of children aged 1 month to 12 years. Studies of test-retest reliability (r = .84) and internal consistency (α = .91) demonstrate high to excellent reliability (Abidin, 1995). The PSI-SF Total Stress score correlates strongly with the Total Stress score on the full-length PSI (r = .95). This measure was completed by mothers and fathers separately.

Procedure

Schools who volunteered their participation were contacted by the research team. An information evening describing the project was held for principals, teachers, and parents before the study commenced. Informed consent was obtained from all of the parties. Only one child was not granted consent by his/her parents. Following consent, preassessment screening began which involved parents completing self-report questionnaires in their own time. Certain questionnaire measures requested that parents complete them conjointly, and others required completion separately by a mother or a father. Questionnaires were returned to the researchers via a provided postage paid envelope before program commencement. Parents were informed that all questionnaire responses were confidential.

Results

Descriptive Statistics and Correlations

In Table 7.1, means and standard deviations are presented for all of the major variables. Table 7.2 reports the bivariate correlations between all of the major variables. Strong correlational relationships were found between mother's depression and mother's anxiety (r = .60) and father's depression and father's anxiety (r = .51). Due to the strength of these relationships and the need to decrease the number of pathways within the structural model, latent factors were formed between mother's depression and mother's anxiety to create mother's negative affect. Latent factors were also formed between father's depression and father's anxiety to create father's negative affect. Table 7.3 reports the bivariate correlations with the constructed latent factors (mother negative affect and father negative affect). The two latent factors were moderately correlated (r = .36).

Table 7.1

Means, Standard Deviations, and Alphas (N = 236)

Construct	$\bar{x}$	*SD*	α
Preschool anxiety	20.51	11.77	.92
Behavioural Inhibition	123.89	7.77	.92
Parenting stress mother	66.70	16.71	.93
Parenting stress father	65.96	15.26	.92
Depression mother	2.20	2.75	.86
Anxiety mother	1.20	1.91	.76
Depression father	1.75	2.2	.80
Anxiety father	.91	1.54	.73
Mother negative affect*	1.86	2.26	.85
Father negative affect*	1.55	1.87	.83

*Note. * represents a latent factor*

Most of the variables and latent factors in Table 7.3 significantly correlate with one another. BI does not significantly correlate with any of the variables or factors. Most of the variables significantly correlated with child anxiety except for BI (r = .07) and mother's negative affect (r = .07). Strong correlational relationships were found between father's parenting stress and mother's parenting stress (r = .60); father's negative affect and mother's parenting stress (r = .48); and mother's parenting stress and child anxiety (r = .45).

Table 7.2

Correlations Between Variables

Variable	1	2	3	4	5	6	7	8
1. Preschool anxiety	-							
2. Behavioural Inhibition	.07	-						
3. Parenting stress mother	.45**	-.05	-					
4. Parenting stress father	.32**	-.13	.60**	-				
5. Depression mother	.31**	.02	.45**	.28**	-			
6. Anxiety mother	.31**	-.01	.41**	.29**	.60**	-		
7. Depression father	.08	-.12	.19**	.36**	.38**	.18**	-	
8. Anxiety father	.11	.04	.14**	.27**	.21**	.08	.51**	-

*Note. **p<.01*

Table 7.3

Correlations Between Variables and Latent Factors

Variable	1	2	3	4	5	6
1. Preschool anxiety	-					
2. Behavioural inhibition	.07	-				
3. Parenting stress mother	.45**	-.05	-			
4. Parenting stress father	.32**	-.13	.60**	-		
5. Negative affect mother	.09	-.09	.20**	.39**	-	
6. Negative affect father	.34**	.01	.48**	.30**	.36**	-

Note. **<.01

The Hypothesised Model

Figure 7.1 depicts the hypothesised model that examined predictors (or risk factors) of early childhood anxiety and BI. Correlational relationships were hypothesised among all of the predictors. The model was constructed using Amos version 6. Absence of a line connecting variables implies lack of a hypothesised direct effect. It was predicted that mother's negative affect, father's negative affect, mother's parenting stress, and father's parenting stress would predict higher

levels of anxiety and BI. It was also predicted that BI would directly predict early childhood anxiety.

Figure 7.1. The hypothesised model of risk factors for early childhood anxiety and behavioural inhibition.

Assumptions

The assumptions were evaluated through SPSS version 15. Prior to conducting analyses, the data were assessed for completeness and normality. Missing values analysis was conducted using SPSS and it demonstrated that the data were missing at random as evidenced by Little's MCAR non significant x^2 (32) = 45.69, p = .55. The following represents missing data prior to expectation maximization (EM) implementation (N = 236): mother's depression (n = 5), mother's anxiety (n =

5), father's depression (n = 33), father's anxiety (n = 33), mother's parenting stress (n = 5), father's parenting stress (n = 33). The EM procedure in the SPSS missing values module was implemented to replace missing values. EM is a technique shown to be robust in structural equation modelling (SEM) analyses (Tabachnick & Fidell, 2007). All variables were examined for outliers. At an item level, mean substitution was used to replace missing values as long as more than half of the items on a variable were not missing. Three extreme cases that were defined as having a z score above 3.29 (Tabachnick & Fidell, 2007) were removed. Transformations were attempted with skewed data; however it did not produce significant changes to the analytic findings. Therefore, untransformed data was reported.

The untransformed data violated the assumption of multivariate normality (Mardia's Normalized coefficient = 19.63, p<.001), and therefore, the model was estimated with an asymptotically distribution free (ADF) estimator. The model was not estimated with Maximum Likelihood as it is not appropriately suited for a Mardia's coefficient above 20 and is sensitive to violations of normality (Cunningham, 2007). Some research has indicated that the ADF estimator was poor with sample sizes under 2,500 (Ullman, 2007). Bentler and Yuan (1999) found that an adjustment to the ADF estimator (Yuan-Bentler statistic) performed very well in models with small sample sizes (N = 60 to 120) and non-normal data. However, this adjustment was not needed in the current study as the x^2 was nonsignificant when the standard ADF estimator was applied.

Model Estimation

Several fit indexes were used to evaluate model fit, including the standardised root-mean square residual (SRMR), the root-mean square error of approximation (RMSEA) and the comparative fix index (CFI). Hu and Bentler (1999) suggested that SRMR values under .08 are desired and represent a good fit while a RMSEA value of .06 or less is indicative of a good fit. A value exceeding .95 for the CFI indicates a good fit (Hu & Benter, 1999).

A structural model reflecting the above hypotheses was found to fit the data well (see Figure 7.2), x^2 (9) = 11.380, p = .251. This model proved to be a good fit (N = 236); SRMR = .04; RMSEA = .03; CFI = .98.

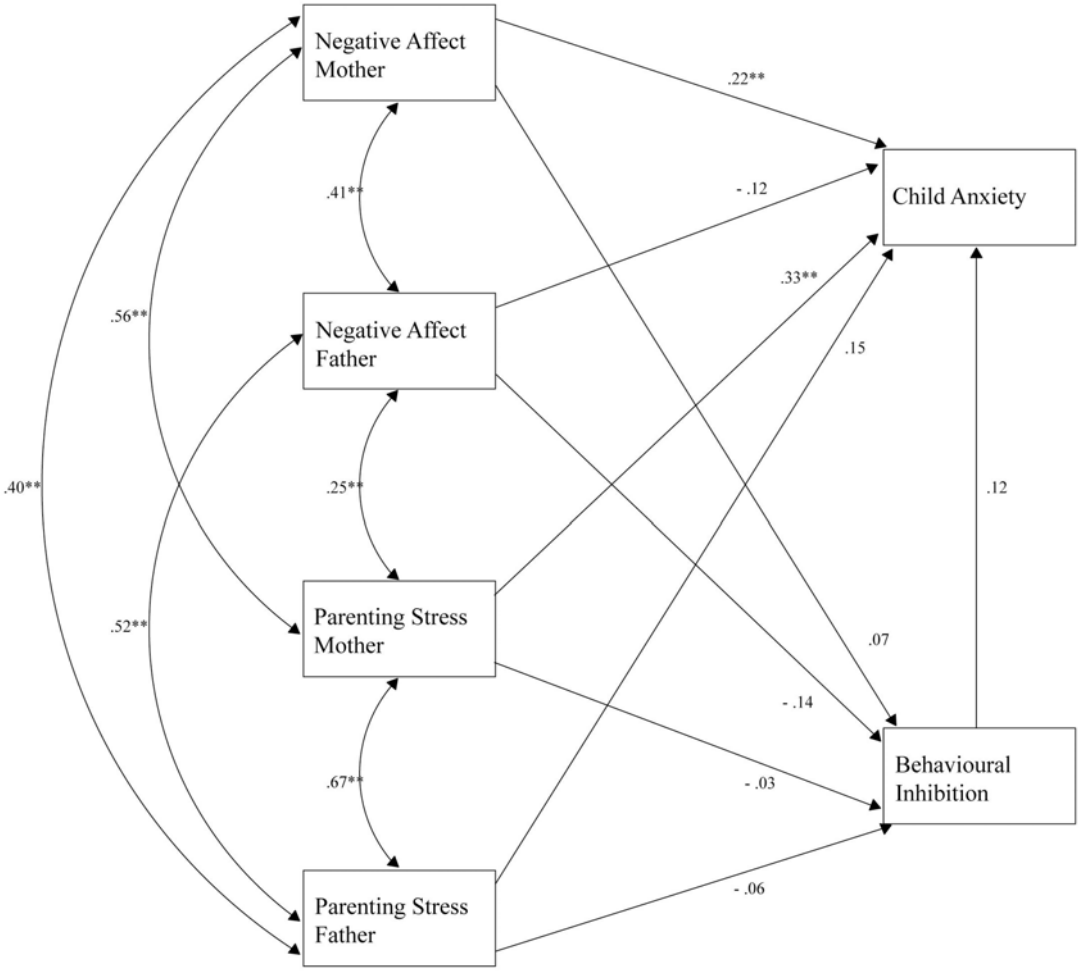

Figure 7.2. The structural model of risk factors for early childhood anxiety and behavioural inhibition.

Direct Effects

Higher levels of anxiety in early childhood was predicted by higher levels of parenting stress in mothers (standardised coefficient = .33, $p<.05$) and by higher negative affect in mothers (standardised coefficient = .23, $p<.05$). No other significant direct effects were found in the model. No significant indirect effects were found. The model explained 32% of the variance in children's anxiety and 3% of the variance in BI.

Mediation

Results from the model indicated that only mother's parenting stress and mother's negative affect directly predicted childhood anxiety. Correlational relationships demonstrated in the model indicated that father's parenting stress was significantly and strongly correlated to mother's parenting stress (see Figure 7.2). Therefore, mediation was tested using the joint significance test. In testing mediation, a review by MacKinnon and colleagues (2002) found that the joint significance test was superior to all other methods. According to the joint significance test, mother's parenting stress could act as a mediator for father's parenting stress because of the significant correlation between father's stress and mother's stress (standardised coefficient = .67, $p < .05$) and the significant relationship between mother's stress and child anxiety (standardised coefficient = .33, $p < .05$). Furthermore, because father's stress does not directly predict anxiety, results indicate that its relationship with child anxiety may be fully mediated by mother's stress.

Discussion

Predictive risk factors for middle childhood and adolescent anxiety have been established within the literature; however research is scarce examining risk factors of anxiety within early childhood. This study was one of the first to examine predictive risk factors of anxiety in early childhood. Identifying risk factors specific to this age group (4 to 6 years) is paramount for understanding the aetiology of early childhood anxiety and in the future fine-tuning of effective preventative intervention programs for young children. Within the presented structural model, child anxiety accounted for a reasonable amount of variance (32%) and BI accounted for a small proportion of the variance (3%) within the model.

Behavioural Inhibition. Based on previous research, it was predicted that BI would directly predict anxiety. This assumption was not supported in the model. This result is surprising given that a large proportion of research has found an association between BI and anxiety, even in preschool aged samples (e.g., Shamir-Essakow et al., 2005), and is contrary with developmental models claiming the independent contribution of BI to child anxiety.

The lack of a direct effect between BI and anxiety may be explained by the assessment of BI used in the current study. The current study assessed BI using one parent-report assessment measure. Although this measure has adequate psychometric properties, self-report measures in general are subject to bias including social desirability, and differences in the informants'

knowledge of which behaviours are developmentally normative versus extreme or unusual. This may be particularly true for parents of preschool aged children as distinguishing between normative developmental fears/shyness and levels which are of concern, may prove to be a difficult task. It may be that parents give their young children more leeway in regards to their shy feelings and may not perceive it as a concern but rather, as a part of normal development. In addition, parents may not have a clear picture of what behaviours constitute concern versus what is developmentally 'normal' or appropriate. This confusion may stem from our lack of research examining such characteristics in young children.

The self-report measure used in the current study may have influenced the findings. A recent review on BI (Hirshfeld-Becker, Micco, Henin, Bloomfield, Biederman, & Rosenbaum, 2008) has recommended that the assessment of BI include both observation and questionnaire measures. Observational protocols (as used in Shamir-Essakow et al. 2005) expose the child to a series of novel settings, objects, people, and tasks, while assessing their responses to the unfamiliar situations. Perhaps, the additional component of observational assessment is imperative for the assessment of BI in early childhood as this would allow for evidence that avoids the biases of parent self-report. It may also be important to collect other data assessing characteristics such as temperament and physiological arousal to gain a greater understanding of the sensitivities pertinent to the child.

The lack of a relationship between BI and anxiety may also be explained by research suggesting that early BI predicts anxiety in *middle* childhood. Longitudinal models utilising this sample are warranted and may demonstrate a relationship between BI and anxiety in the longer term. In addition, many children with BI do not develop anxiety disorders (Biederman et al., 1990) and for those who do, it is usually the most extremely inhibited children (approximately 10%) who remain inhibited throughout middle childhood (Turner, Beidel, & Wolff, 1996).

Parental Negative Affect. Results indicated that mother's negative affect directly predicted child anxiety but not BI. These findings are consistent with the literature indicating that children of parents with anxiety and/or depression are at increased risk for developing an anxiety disorder (Beidel & Turner, 1997). However, it remains unclear whether the link between maternal negative affectivity and child anxiety is due to genetic or environmental (i.e., parenting) influences. Previous studies have provided evidence supporting both genetic factors and shared environmental factors in the expression of child anxiety (Eley & Stevenson, 2000). Father's negative affect did not predict child anxiety or BI. Future effort in gathering both mothers and fathers responses across all measures is crucial for the accurate understanding of family variables.

Parenting Stress. Results indicated that mother's parenting stress directly predicted child anxiety, but not BI. Father's parenting stress did not directly predict anxiety or BI. Closer investigation revealed that mother's parenting stress mediated the relationship between father's parenting stress and child anxiety suggesting that father's stress influenced child anxiety through its impact on mother's stress. This finding is of importance and may suggest that fathers play a more indirect role in shaping the emotional wellbeing of their children.

This indirect role of the father is supported within the developmental literature indicating that fathers indirectly influence their children through their mothers (Lamb, 1980). Fathers who support mothers have been shown to enhance the quality of mother-child relationships and conversely, if fathers are unsupportive, the child-mother relationship is of lower quality (Cummings & O'Reily, 1997). In the same regard, an affectionate marital relationship is associated with better maternal sensitivity (Pederson, Angerson, & Cain, 1977, in: Lamb, 1980) and fathers are found to contribute to their children's psychosocial adjustment through the emotional support of their wife (Clarke-Stewart, 1978). Additionally, Last & Klein (1984) found that fathers' psychopathology indirectly influenced the mother-child relationship when examining Holocaust experiences.

Such systematic effects are often observed in clinical work where high levels of stress in one person have a negative impact on the remaining family members (e.g., parents, siblings). Research investigating obsessive-compulsive disorder has highlighted the systematic effect this disorder can have on siblings (e.g., Barrett, Healy-Farrell, & March, 2004) and the benefits for all family members following treatment. Research has also demonstrated the negative effects that anxiety disorders have on siblings, and the potential benefits of involving siblings in therapy (i.e., Fox, Barrett & Shortt, 2002). Such research highlights the impact of anxiety/stress on all family members, which seems to indicate that a family approach to treatment/intervention, one that involves both parents, is largely important.

Clinical Implications

The findings of this study are supported by past research with older children indicating that parental negative affect and parenting stress represent risk factors for childhood anxiety. Our findings suggest that mother's level of negative affect and mother's level of parenting stress directly predict child anxiety and father's parenting stress may affect child anxiety via mother's parenting stress demonstrating the contributing role of both parents in the development and maintenance of

anxiety. These results highlight the need to involve both parents in early intervention programs so they can learn the necessary skills to cope with their own stressors and to be educated regarding the systemic effects of stress within the family. In examining parental anxiety, Bögels, Bamelis, and van der Bruggen (2008) found that paternal anxiety indirectly affected the child through its effect on mothers' rearing. In other words, paternal anxiety may make mothers of anxious children feel insecure and less effective as parents. Bögels et al. (2008) propose that prevention and treatment efforts should focus more on the role of the father and his anxiety, by involving fathers in parental anxiety management training.

The inclusion of parents in treatment has been associated with greater improvements in both children and in their parents (Bögels & Phares, 2008; Ginsburg & Schlossberg, 2002; Ginsburg, Silverman, & Kurtines, 1995). Involving parents in psychological treatment would entail both parents taking an active role in the treatment/intervention process by learning strategies to manage their child's anxiety and to manage their own anxiety and parenting stress. For example, the *Fun FRIENDS* program (Barrett, 2007a) is an anxiety prevention program for preschool-aged children aimed at building social-emotional competence and resilience (Pahl & Barrett, 2007). This program actively involves parents by teaching them the program skills and subsequent self-management skills (e.g. anxiety and stress management). Future research should examine the alternate role of mothers and fathers in the aetiology, treatment, and prevention of early childhood anxiety.

Interestingly, there was a lack of a direct effect between BI and early childhood anxiety in the presented model (Figure 7.2). Despite the lack of a significant effect, it is suggested that treatment packages be tailored to accommodate children with a behaviourally inhibited temperament. Such interventions could focus on the promotion of known protective factors to buffer children against psychopathology. Such skills include: self-awareness, self-regulation, empathy training, confidence enhancing activities, problem-focused coping strategies, and the enhancement of social support (Brown, O'Keefe, Sanders, & Baker, 1986; Cicchetti & Toth, 1998; Shure & Spivack, 1980). In a long-term examination of BI in young children, Hirshfeld-Becker et al. (2007) suggested that young inhibited children may benefit from preventative cognitive-behavioural interventions to reduce social anxiety and improve coping. In addition to cognitive-behavioural interventions, practical advice given to parents may benefit young inhibited children. Hirshfeld-Becker et al. (2007) explained that parents could be taught to empathise with their child's discomfort with unfamiliar people, yet discourage avoidance and allow their children opportunities to habituate to new settings and encourage graduated exposure to feared situations, facilitated by immediate rewards.

Longitudinal research with the current sample is required to demonstrate whether a direct effect between BI and anxiety would be develop over time.

Limitations

A drawback of the study was the small number of measures used to examine each construct within the structural model due to the limited number of appropriate assessment measures available for preschool-aged children and because of the difficult task of requesting parents complete long assessment packages. In future models, it is recommended that several assessment measures be used to measure each construct to increase the power and generalisability of the results. Additional assessment measures would allow for the examination of parental anxiety and depression as separate constructs, providing a more in-depth examination of specific parental psychopathology risk factors. In addition, when constructing latent factors, typically three or more indicators are required, however, as a whole, our model was identifiable with only two factors (i.e., anxiety and depression comprised parental negative affect).

The assessment measures used in the current study were based on parental self-report which raises reliability issues commonly encountered in research with young children. The reliability of parent report can be questionable as parental report is susceptible to the biased perceptions or motivations of the parent (Rapee, 2002). For the purposes of the current study, children did not complete assessment measures or undergo any form of observation. It remains unclear as to whether preschoolers have the cognitive capabilities to provide valid self-report data on emotional and behavioural problems (Edelbrock, Costello, Dulcan, Kalas, and Conover, 1985). Recommendations for future research are to examine alternate means of assessment including interviews and observations with multiple informant including parents, teachers, and children.

Procedurally, limitations arose in the structure of the questionnaire package. Several assessment measures were supposed to be completed by mothers and fathers conjointly, but it was not determined whether this conjoint completion occurred or whether one parent completed the measures. Some of the measures were provided for mothers and fathers (as noted at the top of the questionnaire) however, these measures were within the same questionnaire package, which may have lent to biased reporting. It is recommended that future research provide two separate questionnaire packages for mothers and fathers in order to produce increased anonymity and confidentially in reporting.

Another limitation in regards to assessment is the lack of diagnostic data for the anxiety factor in the model. Diagnostic interviews were not used in the present study and therefore, children could not be referred to as having an anxiety disorder but rather experiencing psychological distress (i.e. anxiety symptoms). Future research could consider the use of diagnostic interviews (e.g., PAPA, Egger & Angold, 2004) while being mindful of the current diagnostic uncertainty for early childhood anxiety disorders (DelCarmen-Wiggins & Carter, 2004; Egger & Angold, 2006). In addition, future models examining universal populations ought to consider incorporating measures examining constructs such as happiness, resilience, and positive coping. These measures are now increasingly becoming available within the literature. Finally, the participants in the sample were primarily middle to upper class which limits the generalisability of the findings to other sociodemographic groups. Future research examining risk factors of early childhood anxiety and BI needs to examine varying socioeconomic groups within larger sample sizes.

Summary

This study examined potential risk factors for early childhood anxiety and BI and attempted to examine the relationship between mother, father, and child variables. Mother's negative affect and mother's parenting stress directly predicted early childhood anxiety while father's parenting stress affected child anxiety through mother's parenting stress (mediation). This dual parental influence on early childhood anxiety has highlighted the need to include both parents in early childhood intervention and treatment programs. Continuous research is needed to examine the possible direct and indirect effects of fathers parenting stress and negative affect, along with the construction of multimeasure, multi-informant, and longitudinal models to further explore potential risk factors of early childhood anxiety and BI.

CHAPTER EIGHT: STUDY 2.

This study has been submitted for publication. The reference for this article is below.

> Pahl, K. M., & Barrett, P. M. (submitted). Preventing anxiety and promoting social and emotional strength in preschool children: A universal evaluation of the Fun FRIENDS program. Manuscript submitted for publication.

Anxiety disorders are amongst the most common childhood psychiatric disorders occurring in approximately 10 to 15% of young children (Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004; Egger & Angold, 2006). Only recently have researchers indicated that clinically significant anxiety can exist in preschool-aged children (Eley et al., 2003; Spence, Rapee, McDonald, & Ingram, 2001; Sterba, Egger, and Angold, 2007) and can be subtyped into patterns similar to those of older children. A recent review of the prevention literature suggested that prevention efforts should occur early in the life course – to reduce the overall burden of anxiety disorders (Bienvenu and Ginsburg, 2007). However, it is yet to be determined exactly when in the life course is the ultimate time to intervene. Recent investigations have indicated that delivering preventive interventions when children are very young (e.g., 3 to 5 years), when exhibiting early signs of anxiety or behavioural inhibition (BI) may represent the ideal stage for intervention (Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005). The temperament construct of BI - a tendency (observable as early as toddlerhood), to exhibit restraint, avoidance, and reticence in the face of unfamiliar people or settings (Kagan, Reznick, & Snidman, 1988) has been cited as one of the most robust early predictors of anxiety disorders. However, only a small percentage of behaviourally inhibited children actually develop anxiety disorders (Hirshfeld-Becker, et al., 2007) indicating that this risk factor may be modifiable or the discontinuity may be evidence of an underlying resilience process (Degnan & Fox, 2007).

The last few decades have seen a large shift in focus from treatment to prevention and early intervention in the late childhood/adolescent years (e.g., Greenberg et al. 1999). Practice parameters established for the assessment and treatment of child and adolescent anxiety disorders (Connolly & Bernstein, 2007) contend that early intervention and prevention efforts offer a proactive method for alleviating anxiety symptoms by targeting empirically based risk factors that are amenable to change with evidence-based interventions. Most preventative interventions targeting anxiety disorders have utilised cognitive-behaviour therapy (CBT). CBT has received recognition in the treatment literature as a *probably efficacious* individual treatment (Ollendick &

King, 1998; Silverman, Pina, & Viswesvaran, 2008) and group treatment for childhood anxiety (Silverman et al., 2008). The majority of studies analysed to comprise the probably efficacious status investigated older children and adolescents. Studies examining younger children (e.g., preschool-aged) remain scarce, however, a recent pilot trial by Hirshfeld-Becker et al. (2008) has demonstrated that CBT treatment modalities/interventions can be successfully adapted to preschool-aged children (see (Hirshfeld-Becker et al., 2008). Intervening early in the developmental trajectory (e.g., preschool years) may be of additional benefit as preschool-aged children are highly plastic behaviourally and neurodevelopmentally (Derryberry & Reed, 1994) and such interventions may have the capacity to influence self-representations that consolidate during the early years (Derryberry & Reed, 1994; Harter, 1988). Interventions administered in early childhood may also allow young children and parents to master anxiety-management skills and coping skills before entering primary school, thereby reducing the impact of anxiety on academic and social success (Hirshfeld-Becker et al., 2008).

Only recently, have researchers begun to examine preventative interventions for internalising problems in early childhood. LaFreniere and Capuano (1997) examined a 6-month integrative, home-based preventative intervention program for anxious/withdrawn preschoolers (*N* = 45, aged 31-70 months). The intervention involved setting up individualised programs focused on parental psychoeducation, child-directed play sessions, behaviour modification, training in parenting skills, and a focus on building support networks. Results at postintervention demonstrated significant improvements on teacher-rated social competence however; reductions in anxious/withdrawn behaviour did not differ significantly between conditions.

In a larger study, Rapee and Jacobs (2002) piloted the efficacy of a selective prevention of anxiety in preschool-aged (3.5 years to 4.5years) children who exhibited parent-rated BI. The six session intervention focused on training in anxiety management strategies, understanding of parental modelling and overinvolvement, modelling positive behaviour, promoting independence in children, and instruction on how to develop and assist children with exposure hierarchies to address their child's fears. While no immediate postintervention results were reported, findings at 12-month follow-up indicated that the program was superior to the no-treatment comparison group for reducing BI and rates of anxiety disorder diagnoses in children.

In an extension to this study, Rapee et al. (2005) conducted a controlled evaluation of this selective CBT intervention. Children were selected for inclusion in this study if they exhibited a high number of withdrawn/inhibited behaviours, based on maternal report and laboratory

observation and were randomly allocated to either a six session parent education group program (*n* =73), or a no-treatment monitoring condition (*n* =73). Results of this study demonstrated that children of parents in the education program experienced significantly fewer anxiety diagnoses at 12-month follow-up compared to the monitoring group. However, there were no significant effects between groups on measures of inhibition/withdrawal following this intervention. The mixed findings reported in this study make it difficult to interpret the effectiveness of this brief parent education program for preventing anxiety. However, the results demonstrated a significant reduction in parental report of child anxiety diagnoses suggesting that early intervention, targeted at children at increased risk for anxiety, may reduce or prevent the occurrence of anxiety disorders in later childhood.

Dadds and Roth (2008) conducted a large-scale community controlled-trial universal prevention program (*N* = 734) for parents of children aged 3 to 6 years from 25 preschools in Brisbane, Australia. The intervention consisted of six parent sessions across 3 months and focused on cognitive-behavioural and behavioural models targeting self-talk, behavioural change, and problem-solving. Social validity data indicated that participants viewed the program as highly acceptable and useful. As for intervention effects, parents reported no significant changes in their children and teachers tended to view all of the children as becoming better adjusted over time. When participants were grouped according to preintervention risk status, a higher percentage of the treatment group moved from at-risk to low-risk status following treatment. Several methodological problems were present in this study including nonrandomisation of participants who attended the program, and an over-representation of "stressed" parents in the treatment condition. Nevertheless, this study provides initial support for the usefulness and acceptability of an early universal preventative intervention program for parents of preschool children.

The *Fun FRIENDS* program (2007) was created for the prevention of anxiety and the promotion of social-emotional skills and resilience in early childhood. The program is a downward extension of the *FRIENDS for Life* program (Barrett, 2004; 2005) for children and youth. The *FRIENDS for Life* program (Barrett 2004; 2005), based on Kendall's *Coping Cat* program (Kendall, 1994), has accumulated an evidence-base as a universal prevention program for childhood and adolescent anxiety (e.g., Barrett, Farrell, Ollendick, & Dadds, 2006; Barrett & Turner, 2000; Lock & Barrett, 2003; Lowry-Webster, Barrett, & Dadds, 2001; Lowry-Webster, Barrett, & Lock, 2003; Stallard et al., 2005; Stallard, Simpson, Anderson & Goddard, 2008; Stallard, Simpson, Anderson, Hibbert, & Osborn, 2007). The *Fun FRIENDS* program is play-based and teaches children developmentally tailored cognitive-behavioural strategies that correspond to several areas of social

and emotional learning. This paper reports results from the first, school-based universal controlled trial of the *Fun FRIENDS* program for children aged 4 to 6 years. Specifically, this study sought to examine several objectives.

The first objective was to assess whether children involved in the program experienced reductions in anxiety, BI, and increases in social-emotional strength following the intervention as measured by parent and teacher reports. It was expected that at postintervention, anxiety (parent report only) and BI would decrease and social-emotional strength would increase in children in the intervention group (IG). No significant changes were predicted for the waitlist control group (WLG) at postintervention. A second objective was to examine the long-term intervention effects at 12-month follow-up for the IG only. It was expected that postintervention gains would be maintained at 12-month follow-up. A third objective was to examine whether scores on BI, social-emotional strength, and parenting stress of mothers and fathers predicted risk for anxiety at postintervention and at 12-month follow-up. The final objective was to examine perceived intervention acceptability by parents and teachers via the collection of social validity data.

Method

Participants

Participants were 263 (137 male, 126 female) preschool-aged children ($\bar{x}$ age = 4.56, *SD* = .51) attending 1 of 16 preschool classes in Brisbane, Australia. Schools volunteered participation following an invitation announced at an early childhood development conference. Schools were matched on socioeconomic status, class size and gender balance and were randomly assigned to one of two intervention conditions: Intervention Group (IG) or Waitlist Control Group (WLG). This resulted in 134 (71 male, 63 female) children in the IG and 129 (66 male, 63 female) in the WLG. Of the families who participated, 251 participants completed information regarding annual income (4.6% missing). Approximately, 19% of the sample had an annual income under $40,000; 38.7% between $40,001 to $80,000; and 28% between $80,001 to $100,000 and over. Children in the study with language impairments and/or pervasive developmental disorders were excluded from statistical analysis (n = 20, already deducted from N = 263) but were still offered the intervention program. Such impairments were assessed by parent and teacher report followed by the examination of school files (e.g., medical reports) if necessary.

Measures

The Preschool Anxiety Scale, Parent Report (Spence, Rapee, McDonald & Ingram, 2001). The PAS is a 34-item parent report assessing DSM-IV child anxiety symptoms for preschool children. The total anxiety score was used in the current analyses. The PAS has adequate psychometric properties and has good construct validity against the CBCL (Achenbach, 1991, 1992; Achenbach & Rescorla, 2000) with correlations ranging from .59 to .68. This measure was completely by parents conjointly.

Behavioural and Emotional Rating Scale, Parent Report and Teacher Report, Epstein, 1998). This is a 52-item measure designed to assess emotional and behavioural strengths in children and adolescents and provides an overall strength index. The BERS has excellent inter-rater reliability ($r > .83$) and moderate to high test-retest reliability across studies (ranging from .53 to .99) (Epstein, Harniss, Pearson & Ryser, 1999; Epstein & Sharma, 1997). Validity studies have found moderate to high correlations among numerous measures of social competence (Epstein & Sharma, 1997). Several items on the BERS were slightly modified to make them more appropriate for preschool children; however care was taken to ensure the meaning of these items was not altered.

The Behavioural Inhibition Questionnaire, Parent Report and Teacher Report (Bishop, Spence & McDonald, 2003). The BIQ is a 30-item measure assessing the frequency of behaviours associated with BI. The BIQ total score was used in the current analyses. The BIQ has good psychometric properties with high internal consistency with Cronbach's alpha of .95 (total BI for mother's report), and .94 (total BI for father's report). This measure has strong convergent validity and was completed by parents conjointly.

Parenting Stress Index – Short Form, Parent Report (Abidin, 1995). This questionnaire measures the magnitude of stress in the parent-child relationship by providing a Total Stress score. Studies of test-retest reliability ($r = .84$) and internal consistency ($\alpha = .91$) demonstrate high to excellent reliability (Abidin, 1995). The PSI-SF Total Stress score correlates strongly with the Total Stress score on the full length PSI ($r = .95$). This measure was completed by mothers and fathers separately.

Behaviour Intervention Rating Scale, Parent Report and Teacher Report (Elliot & Von Brock Treuting, 1991). This is a 24-item measure used to examine perceptions of treatment acceptability and perceived effectiveness of classroom interventions. This measure has strong

internal consistency (.97) and good content and construct validity. Several items on the BIRS were slightly modified to correspond to the aims of the intervention protocol; however care was taken to ensure the meaning of these items was not altered.

Treatment Integrity, *Group Leaders Report.* To assess the integrity of the intervention protocol all group leaders were required to complete a weekly checklist indicating compliance with the manual content of each session.

The Intervention Program: The Fun FRIENDS Program

The *Fun FRIENDS* program assists children and parents in learning important skills and strategies to promote social and emotional competence and decrease and/or prevent anxiety. [This part of the article was omitted for this thesis. The reader is directed to Chapter Four for a detailed description of the program content].

Procedure

Following the selection and random assignment of preschools, all parents and teachers were invited to attend an information session held by one of the program coordinators to explain the project aims and objectives and to obtain parental consent for participation. Only one child was not granted consent by his parents and was engaged in an alternate activity at the school while the program sessions took place. Preintervention screening began which consisted of parents and teachers completing self-report questionnaires on their own time. On certain questionnaire measures, parents were requested to complete them conjointly, and others required independent completion by a mother or a father. Questionnaires were returned to the researchers via a postage paid envelope before the program commenced. Following the preintervention screen, preschool classrooms that were randomly assigned to the IG received the *Fun FRIENDS* program in their classroom by a clinically trained postgraduate psychology student for 1 hour each week for nine consecutive weeks. Sessions 9 and 10 were combined due to term length constraints, and no booster sessions were held during this trial. All sessions were held between 9.30 and 11.30 in the morning. The agenda for each session was outlined in a draft manual. The WLG received normal curriculum by their classroom teacher.

During program implementation, parents in the IG were invited to attend three parent information sessions which focused on anxiety psychoeducation, detailed information regarding

session content, and parenting strategies to reinforce the program skills. Parents were provided with weekly handouts outlining the session content in detail along with suggestions for home reinforcement of the skills.

All of the teachers involved in the trial were invited to attend an intensive full day accredited training workshop in the delivery of the *Fun FRIENDS* program. The workshop focused on educating teachers regarding the risk and protective factors of anxiety and the physiological, behavioural, and cognitive correlates of anxiety in childhood. Teachers were also taught the program skills, relevant background theory, and implementation guidelines (e.g., they were guided through hands-on activities demonstrating skill implementation). It was assumed that following this workshop, teachers would feel confident in delivering the program based on the volume of information provided to them. Attendance to this workshop was mandatory for teachers in the WLG. Teachers in the WLG were not evaluated for their adherence to the intervention protocol when they delivered the program following the IG but were provided with ongoing support and assistance via telephone or email if required.

Upon completion of the intervention program for the IG, parents and teachers from both conditions completed postintervention questionnaires using the same instructions as the preintervention screen. Following postassessment, teachers in the WLG implemented the intervention program within their classroom. At 12-month follow-up, parents in the *IG only* completed the same questionnaire package as at pre and postassessment. Due to ethical restrictions, the IG was unable to participate in the 12-month follow-up assessment. See Figure 8.1 for a flow diagram depicting participant participation and the methodology.

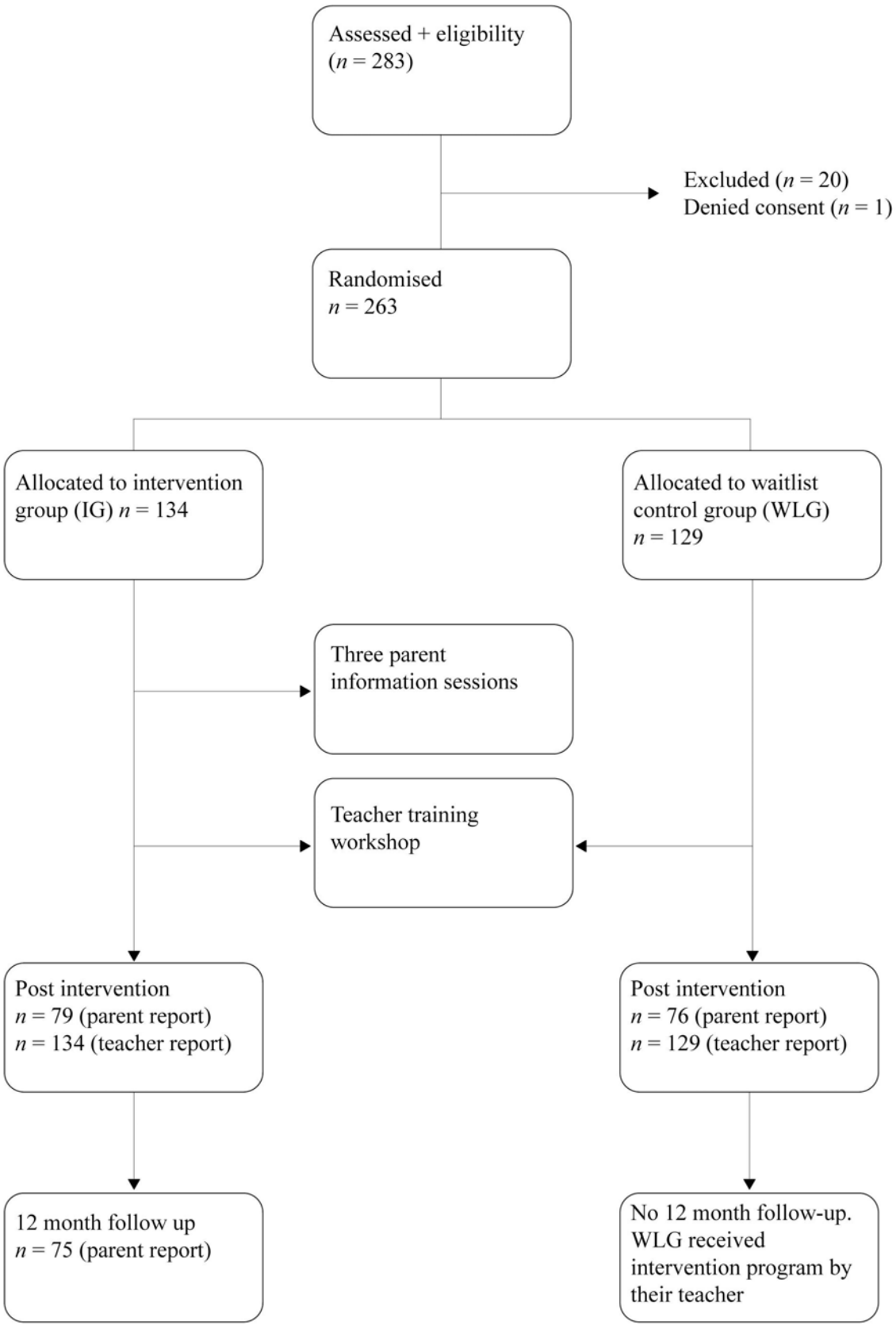

Figure 8.1. Flow diagram of participant participation.

Results

Preliminary Analyses

Preliminary analyses were conducted to ensure that groups of participants within each of the intervention conditions (IG, WLG) did not differ from each other. There were no significant differences in the gender ratio (x^2 = .09, p = .81) across groups and no significant difference between age and intervention groups (x^2 = 2.11, p = .35). Comparisons across a series of one-way ANOVA's revealed no significant differences in the preintervention means across conditions on the PAS [F(1,261) = 2.05, p = .15], the BERS [F(1,261) = 2.99, p = .09], and on the BIQ [F(1,261) = 1.34, p = .25]. For teacher report, there were no significant differences between the IG and WLG on the BERST [F(1.261) =.62, p = .43]. On the BIQT, children in the IG scored significantly higher than children in the WLG at preintervention [F(1, 261) = 34.10, p < .05]. The means and standard deviations for each variable are presented in Table 8.1.

Baseline differences were examined amongst participants who dropped out of the research at post-intervention (non-completers) and those who did not (completers). Frequencies were examined for socio-economic status and revealed a similar distribution across completers ($\bar{x}$ = 7.71, range = 1-11) and non-completers ($\bar{x}$ = 7.25, range 1-11). Preintervention scores were also examined across completers and non-completers on anxiety, BI, and maternal and paternal parenting stress. A series of independent t-tests revealed that preinterevntion anxiety score was significantly different for completers [$\bar{x}$ = 22.08, SD = 12.00] versus non-completers [$\bar{x}$ = 19.16, SD = 10.66, t(261)=2.04, p = .04], with completers scoring significantly higher. For BI, no significant differences were found between completers [$\bar{x}$ = 90.24, SD = 21.31] and non-completers [$\bar{x}$ = 90.30, SD = 26.33, t(261)=-.023, p = .98]. No significant differences were found for maternal parenting stress [completers, $\bar{x}$ = 66.30, SD= 14.92; non-completers, $\bar{x}$ = 69.06, SD = 19.54, t(261)=-1.30, p = .20] and paternal parenting stress [completers, $\bar{x}$ = 66.85, SD = 14.80; non-completers, 65.55, SD = 14.33, t(261)= .72, p = .47].

Table 8.1

Means and Standard Deviations for the PAS, BIQ and BERS, parent and teacher report

		Intervention Group									Waitlist Control Group				
		Pre			Post			Fu			Pre			Post	
Measure and α	Gender	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD	n	$\bar{x}$	SD
PAS	Male	71	23.10	12.30	45	18.58	9.83	38	18.30	12.23	69	18.86	11.31	36	17.67	11.38
α = .87	Female	63	20.51	10.59	34	18.53	11.83	37	16.14	10.92	63	20.87	11.64	40	18.75	10.99
	Total	134	21.88	11.55	79	18.56	10.67	75	17.22	11.57	129	19.85	11.47	76	18.24	11.20
BIQ	Male	71	91.35	23.60	45	92.82	28.52	38	121.70	16.02	66	85.24	22.36	36	82.75	22.65
α = .92	Female	63	92.53	25.98	34	86.56	25.06	37	83.97	27.18	63	92.05	21.45	40	89.13	26.54
	Total	134	91.91	24.66	79	90.13	27.01	75	90.47	26.80	129	88.56	22.10	76	86.11	24.82
BERS	Male	71	118.70	15.54	45	117.51	17.45	38	121.70	16.02	66	122.37	15.69	36	126.17	17.68
α = .95	Female	63	123.19	14.72	34	132.79	12.69	37	129.95	14.78	63	126.00	16.09	40	131.03	16.67
	Total	134	120.95	15.49	79	124.09	17.26	75	125.82	15.86	129	124.14	15.92	76	128.72	17.21
BIQT	Male	71	113.27	6.54	71	88.96	27.12				66	108.15	6.48	66	93.08	22.95
α = .94	Female	63	114.02	5.84	63	74.92	22.39				63	109.46	7.84	63	94.79	20.88
	Total	134	113.62	6.21	134	82.31	25.87				129	108.79	7.18	129	93.91	21.89
BERST	Male	71	116.59	23.20	71	125.04	21.69				66	121.26	22.80	63	126.86	21.13
α = .97	Female	63	127.83	19.89	63	137.81	18.85				63	118.14	20.77	63	122.41	19.19
	Total	134	131.26	21.31	134	131.09	21.30				129	119.74	21.80	129	124.69	20.25

Note. BERS = Behavioural and Emotional Rating Scale; BERST = Behavioural and Emotional Rating Scale Teacher Report; BIQ = Behavioural Inhibition Questionnaire; BIQT = Behavioural Inhibition Questionnaire Teacher Report; FU = follow-up; PAS = Preschool Anxiety Scale.

Data Screening and Attrition

Prior to statistical analyses, the data were screened for completeness, for the presence of outliers and violations of the assumptions of analysis of variance and multiple regression. Missing values analysis was conducted using SPSS version 15 and demonstrated that the data was missing at random as evidenced by Little's MCAR nonsignificant x^2 (9) = 12.37, p = .19. The following percentages represent missing data for parent report prior to expectation maximisation (EM) for both conditions preintervention: PAS (6.5%); BIQ (6.5%); BERS (6.5%), PSIM (6.8%), PSIF (22%). The EM procedure in the SPSS missing values module was implemented to replace missing values at preintervention only. At postintervention, missing values were as follows: PAS (41%); BIQ (41%); BERS (41%), PSIM (45%); PSIF (54%); and at follow-up: PAS (43%); BIQ (43%); BERS (44%); PSIM (45%); PSIF (58%). Due to the large quantity of missing data, data imputations were not utilised as this may have produced bias in the data.

Several extreme cases were found within the data set. Extreme cases were defined as having a z score above 3.29 (Tabachnick & Fidell, 2007). Transformations were attempted with skewed data; however it did not produce significant changes to the data and untransformed data are reported. Scores on extreme outliers were changed to remain deviant, but with less impact. Each outlying case was assigned a raw score that was one unit larger or smaller than the next most extreme score in the distribution (Tabachnick & Fidell, 2001). This process was used at all time points.

For teacher report, preassessment missing data was minimal (less than 2%). Missing values analysis indicated that the data was missing at random as evidence by the nonsignificant Little MCAR's test x^2 (2) = .53, p = .77. Expectation maximisation procedure was used on teacher data at preassessment. At postassessment, five cases were missing data (less than 2%) from each questionnaire and were managed using the intention to treat method of utilising the participants score from preintervention at postintervention. Analyses were also computed without the imputation procedures and revealed similar findings. Therefore, analyses using the data imputations will be presented.

Intervention Effects: Parent Report

To investigate the impact of the intervention, several 2 (time: pre-intervention, post-intervention) x 2 (intervention condition: IG, WLG), x 2 (gender: male, female) mixed between-within subjects ANOVA's were performed for parent and teacher report. The within subject factor

was time and the between subjects factors were intervention condition and gender. On the PAS, a significant main effect for time was found [$F(1, 151) = 7.52$, $p = .<.05$]; with a moderate effect size (partial $\eta^2 = .05$) indicating that anxiety scores did change over time. Inspection of the means indicated that anxiety scores decreased from pre to postintervention for both conditions, with the IG experiencing a larger decrease in scores, but not large enough to produce a significant between groups main effect [$F(1,151) = 1.12$, $p = .29$] for intervention condition. No significant interaction effects were found for time by intervention condition [$F(1,151) = .67$, $p = .42$] or for time by gender [$F(1,151) = .31$, $p = .58$].

On the BIQ, a nearly significant time x intervention type x gender interaction was found [$F(1,151) = 3.6$, $p = .06$], with a small effect size (partial $\eta^2 = .02$). Investigation of mean scores revealed that all children in the IG and WLG decreased in BI scores from pre to postintervention, except for boys in the IG. Interestingly, girls in the IG experienced the largest decrease in BI scores from pre to postintervention. However, there was no significant difference between intervention groups [$F(1,151) = 1.32$, $p = .25$] or gender [$F(1,151) = .40$, $p = .53$].

On the BERS, a significant interaction effect was found between time and gender [$F(1,151) = 6.40$, $p < .05$] with a moderate effect size (partial $\eta^2 = .04$). Over time, girls (in both conditions) scores increased from pre to postintervention and boys (in both conditions) scores remained relatively consistent from pre to postintervention. A statistically significant between groups main effect for gender was also found [$F(1,151) = 11.04$, $p < .005$] with a large effect size (partial $\eta^2 = .07$). Girls experienced higher levels of social-emotional strength than boys at both pre and postintervention. No significant differences were found between intervention conditions [$F(1,151) = 2.11$, $p = .15$].

Teacher Report

On the BIQT, a significant time x intervention type x gender interaction was found [$F(1,259) = 5.39$, $p < .05$], with a small effect size (partial $\eta^2 = .02$) along with a significant interaction effect between time and intervention condition [$F(1,259)= 27.75$, $p < .0001$] with a large effect size (partial $\eta^2 = .10$). Investigation of mean scores revealed that children in the IG (males and females) experienced a significantly larger decrease in scores from pre to postintervention compared to children in the WLG, however, at preintervention, children in the IG scored significantly higher than children in the WLG. A significant between groups interaction between intervention type and gender [$F(1,259) = 8.16$, $p < .05$] was found with a small effect size (partial $\eta^2 = .03$). Investigation

of mean scores revealed that children in all conditions decreased in BI symptoms from pre to postintervention, with girls and boys in the IG scoring significantly higher in BI at preintervention and significantly lower in BI at postintervention. Girls in the IG experienced the largest decrease in BI symptoms at postintervention.

On the BERST, a significant interaction effect between intervention group and time [$F(1,261) = 8.63$, $p < .005$] was found with scores on social-emotional strength significantly larger for children in the IG at postintervention compared to children in the WLG, however the effect size was small (partial $\eta^2 = .03$). A significant main effect for time was found [$F(1, 259) = 88.52$, $p < .0001$] with a large effect size (partial $\eta^2 = .26$). A significant between groups interaction was found [$F(1,259) = 9.81$, $p < .005$], between intervention type and gender, with a small effect size (partial $\eta^2 = .04$). Mean scores revealed that girls in the IG experienced the largest increase in scores from pre to postintervention.

Long Term Maintenance Effects for the IG

To examine the long-term effects of the intervention, a series of one-way repeated measures ANOVA's were conducted for the IG ($N = 61$). On the PAS, a significant effect for time [$F(2,58) = 4.53$, $p < .05$] was found with a large effect size (partial $\eta^2 = .14$). Post hoc analyses using the Bonferonni adjustment indicated that anxiety scores at preintervention decreased immediately following the intervention and nearly reached statistical significant ($p = .06$). A significant decrease in scores was evident from preintervention to 12-month follow-up ($p < .05$). No significant interaction was found with gender [$F(2,58) = .74$, $p = .54$].

On the BIQ, a significant interaction between time and gender was found [$F(2,58)$ 4.71, $p < .05$] with a large effect size (partial $\eta^2 = .14$). Investigation of mean scores revealed that girls BI symptoms decreased at each time point whereas boys BI symptoms increased at each time point. No significant main effect for time was found [$F(2,28) = .10$, $p = .91$].

On the BERS, a significant interaction was found between time and gender [$F(2,58) = 3.19$, $p < .05$], with a large effect size (partial $\eta^2 = .10$). Post hoc analyses using the Bonferonni adjustment demonstrated a significant increase in mean scores from pre-intervention to 12-month follow-up ($p < .05$). Investigation of mean scores revealed that girls experienced higher levels of social-emotional strength at all time points, as evidenced by a significant between groups effect for gender [$F(1,59) = 11.47$, $p < .005$] with a large effect size (partial $\eta^2 = .16$).

Examination of Predictors

Multiple regression analyses were conducted to examine how well scores on the BIQ, PSI (mother and father report), and the BERS predicted anxiety at postintervention and at 12-month follow-up. The dependent variables were anxiety score (PAS) at post-intervention and at 12-month follow-up. The independent variables (predictors) were scores on the BIQ, PSI (mother and father report), and the BERS at the corresponding time point to the dependent variable. All relevant assumptions were met. In both analyses, Mahanobolis distance was below the critical value (post, $\overline{x}$ = 16.32; follow-up, $\overline{x}$ = 11.47).

With the postintervention score on the PAS as the dependent variable, *R* for regression was significantly different from zero, $F(4,115) = 20.73$, $p < .0001$, with R^2 at .42 (see Table 8.2). The adjusted R^2 value of .40 indicates that more than one third of the variability in levels of preschool anxiety at post assessment was predicted by the independent variables. The 95% confidence limits for the two regression coefficients that differed significantly from zero were, 0.144 to 0.273 for BI, and 0.100 to 0.356 for mother's parenting stress.

The five independent variables in combination contributed another 0.08 in shared variability. Altogether, 42% (40% adjusted) of the variance in preschool anxiety at postassessment was predicted by knowing the score in the five independent variables. BI and mother's parenting stress were the only variables that uniquely contributed to the equation. Between the two, however, BI was the most important predictor with 21% of the variance in R^2 whereas mother's parenting stress consumed 6% of the variance. The size and direction of the relationship suggests that participants with higher levels of anxiety at postintervention were likely to also experience higher levels of BI, and have mothers who experienced higher levels of parenting stress. See Table 8.2 for correlations and descriptive statistics.

Table 8.2

Multiple Regression of Post-intervention Preschool Anxiety on a Number of Predictor Variables

Variables	*N*	Post PAS (DV)	Post BI	Post BERS	Post StressM	Post StressF	*B*	ß	*sr²*
Post PAS	155	-							
Post BI	155	.57	-				.21**	.50	.21
Post BERS	155	-.27	-.39	-			.09	.14	.01
Post StressM	152	.46	.32	-.58	-		.23**	.37	.06
Post StressF	121	.27	.14	-.36	.62	-	.01	.03	.00
							Intercept = -.26.86		
$\bar{x}$		18.40	88.15	126.36	64.11	62.98			
SD		10.85	26.90	17.34	17.51	17.15			
							R^2 = .42a Adjusted R^2 = .40 R = .65**		

***p<.0005*

aUnique variability = .27; shared variability = .15

Note. Post PAS = Preschool Anxiety Scale score at postassessment; DV = Dependent variable; Post BI = Behavioural Inhibition score at postassessment; Post BERS = Behavioural and Emotional Rating Scale score at post-assessment; Post StressM = Parenting Stress Index score Mother's report at postassessment; Post StressF = Parenting Stress Index, Father's Report at postassessment.

A second regression analysis was conducted with the same independent variables and with the dependent variable being the PAS score at 12-month follow-up. One extreme multivariate outlier case was removed for this analysis. Descriptive statistics are provided in Table 8.3. *R* for regression was significantly different from zero, $F(4, 53) = 6.59$, $p < .05$, with R^2 at .35. The adjusted R^2 was .30 indicating that approximately 30% of the variability in anxiety at 12-month follow-up was predicted by the independent variables. BI was the only independent variable that uniquely contributed to the equation with 5% of the variance in R^2. Behavioural inhibition was the only variable that significantly differed from zero with 95% confidence limits of -0.002 to 0.284. See Table 8.3 for correlations and descriptive statistics.

Table 8.3

Multiple Regression of Follow-up Preschool Anxiety on a Number of Predictor Variables

Variables	*N*	FU PAS (DV)	FU BI	FU BERS	FU StressM	FU StressF	*B*	ß	*sr²*
Post PAS	74	-							
Post BI	74	.55	-				.14*	.33	.05
Post BERS	74	-.36	-.45	-			-.16	-.22	-.03
Post StressM	73	.41	.59	-.28	-		.18	.52	.03
Post StressF	55	.29	.45	-.38	.90.	-	-.17	-.40	-.02
							Intercept = 23.33		
$\bar{x}$		17.22	90.47	125.82	72.16	69.73			
SD		11.57	26.80	15.86	33.10	27.28			
							R^2 = .35a Adjusted R^2 = .30 R = .59**		

**p<.05*

aUnique variability = . shared variability = .

Note. FU PAS = Preschool Anxiety Scale score at follow-up; DV = Dependent variable; FU PAS = Preschool Anxiety Scale score at follow-up; FU BI = Behavioural Inhibition score at follow-up; FU BERS = Behavioural and Emotional Rating Scale score at follow-up;

FU StressM = Parenting Stress Index score Mother's report at follow-up; StressF = Parenting Stress Index, Father's Report at follow-up.

Treatment Integrity and Social Validity

Facilitators of the program completed weekly treatment integrity checklists to measure protocol adherence. Mean adherence by the facilitators to the manual was 94% (range = 90-98%) averaged across the nine sessions, across the two facilitators and eight classrooms. The BIRS was distributed to parent participants in the IG at all time points. Internal consistency for the BIRS was adequate (α = .94). A one-way repeated measures ANOVA revealed no significant differences in participant responding at each time point [$F(2,33)=.97$, $p = .39$] (partial $\eta^2 = .05$) indicating that participants perceptions of treatment acceptability and perceived effectiveness of the intervention did not significantly change over time. However, mean scores at all time points were relatively high (pre $\bar{x}$ = 108.80(8.99); post $\bar{x}$ = 104.20(14.76); follow-up $\bar{x}$ = 100.82(14.99) indicating a stable perceived enjoyment of the intervention program (maximum score = 120). The large proportion of missing data (67% at post-intervention, 66% at follow-up) on this measure may have contributed to the lack of a significant effect.

Twelve teachers from both conditions completed the BIRS at preintervention with mean scores ($\bar{x}$ = 112.83, SD = 7.27, range = 95-120) indicating that teachers expectations of the program prior to its implementation were positive. At post-intervention, seven teachers in the IG completed the measure with mean scores slightly higher than at preintervention ($\bar{x}$ = 113.71, SD = 7.89, range = 98-120) but not large enough to be statistically significant.

Discussion

The purpose of this study was to asses the effectiveness of a universal intervention program (*Fun FRIENDS*) for preschool-aged children (4 to 6 years) aimed at decreasing and/or preventing anxiety and increasing social and emotional strength within a controlled-trial design. The first objective of the study was to assess changes in anxiety, BI, and social-emotional strength at postintervention. Children in both intervention conditions significantly improved on anxiety at postintervention. At preintervention, study non-completers (drop outs) were found to have lower levels of anxiety than program completers (non-drop outs). This finding indicates that non-completers did not drop out of the program because of symptom relapse (as their anxiety was low) but due to other reasons such as moving house or changing contact details. This finding seems to suggest that participants with higher levels of anxiety at preintervention (program completers) continued their participation in the intervention program due to a greater investment in learning the strategies, possibly due to their higher level of anxiety.

Children in both conditions decreased (nearly significant) in BI symptoms at postintervention, except for boys in the IG. Significant increases in social-emotional strength were found for girls in both conditions, but not for boys. It appears that the majority of children improved on anxiety, BI, and social-emotional strength regardless of intervention condition. Interestingly, girls appeared to improve on social-emotional strength more than boys indicating that girls may be more emotionally and socially developed during the preschool years.

The lack of a significant difference between intervention conditions from pre to postintervention has been commonly cited in universal, school-based trials and may be related to population characteristics. Participants in the current study were not selected for having pre-existing problems leading them to be classified as a relatively "normal" population in which significant differences are difficult to find. The measures used in the current study may not have captured the sample participants accurately as the majority assessed psychopathology rather than characteristics more suited to a universal population (e.g., happiness, resilience, positive coping). Additionally, the lack of significance between conditions at postintervention may also be attributed to the natural maturation of the children in the WLG, increased familiarity within the classroom setting leading to more noticeable assertive behaviours and the increased formation of friendships at the time of postassessment leading to more positive observations and report by parents. Further, the large proportion of missing data at postassessment may have contributed to the lack of significant results.

Parental involvement may have also played a role. Parents were invited and encouraged to attend three parent information sessions however, attendance to these sessions was relatively low. Approximately one half to one third of parents attended these sessions, however, the exact number of parents in attendance was not recorded or analysed. The low level of parental attendance may be reflected in the lack of group differences on parent-report measures. If parental attendance was higher, parents may have adopted the skills more leading to more significant findings. It is recommended that future studies examine the impact of parental involvement on intervention outcome. Strategies for increasing parental involvement are provided in the *Clinical Implications* section of this paper.

For teacher report, children in the IG improved significantly more on BI compared to the WLG at postintervention (with a large effect size) indicating that the intervention program may have had a positive impact on these children in learning strategies to manage BI symptoms.

However, at preintervention, scores on BI were significantly different with the IG scoring higher than the WLG. Therefore, these results should be interpreted with caution. Similar to parent report, girls in the IG experienced the largest decrease in BI symptoms at postintervention. On social-emotional strength, children in the IG improved significantly more than children in the WLG at postintervention (with a small effect size) with girls in the IG experiencing the largest improvement from pre to postintervention as in parent report. Although the effect size was small, these results indicate significant improvement for children in the IG following the intervention program. This suggests that skills taught in the program may have assisted children (particularly girls) in adopting skills to assist in increasing social-emotional strength.

It should be noted that teachers in the IG were fully aware that they were a part of an active intervention (as were parents), which may have influenced their reporting. Although this is true, teachers may potentially be good observers/reporters of child behaviour. A large proportion of children spend the majority of their time awake within the classroom, interacting with peers and teachers, thereby making teachers valuable sources of information. Teachers are able to observe first hand how children manage frustration, how they cope with their feelings, and how they engage with other children and adults, making them an important source when gathering data.

The second objective was to evaluate the long-term intervention effects of the program for the IG. Nearly significant decreases in anxiety were found at postintervention and further significant decreases were found at 12-month follow-up. This finding suggests that program completers who had higher levels of anxiety at preintervention (versus non-completers) benefited from maintaining participation in the program, as evidenced by the significant decrease in anxiety at 12-month follow-up. Improvements in BI were found at all time points for girls but not for boys. Improvements on social-emotional strength were found from preintervention to 12-month follow-up with girls scoring significantly higher than boys all time points although; boys scores did increase over time. This is consistent with other studies analysing similar age groups whereby significance was found at follow-up rather than immediately following the intervention (e.g. LaFreniere & Capuano, 1997; Rapee & Jacobs, 2002; Rapee et al., 2005) indicating a possible delayed prevention effect. As we did not have a 12-month follow-up comparison group, it is unknown whether significant differences would have existed between both conditions at 12-month follow-up. However, the positive improvements evidenced at 12-month follow-up indicate a possible preventative impact of the intervention program. Interestingly, gender differences noted at postintervention were similar at 12-month follow-up with girls experiencing larger improvements in BI and social-emotional strength.

The third objective was to examine predictors of anxiety at postintervention and at 12-month follow-up. At post-intervention, BI and mother's parenting stress was significantly related to anxiety scores, with BI accounting for a larger percentage of the variance (21%). These results are concurrent with previous research supporting parenting stress as a predictor of early childhood internalising difficulties (e.g., Bayer, Sanson, & Hemphill, 2006; Pahl & Barrett, submitted). At 12-month follow-up, BI was the only variable that was significantly related to anxiety with a unique variance of 5% which is consistent with previous research indicating that early BI may be a risk factor of anxiety disorders (e.g., Biederman et al., 1990; Kagan, Snidman, Zentner, & Peterson, 1999).

Interestingly, a recent modelling study (Study One; Pahl & Barrett, submitted) using a subset of this sample at pre-assessment did not find a predictive link between BI and anxiety. At preintervention, study completers were found to be significantly more anxious than study non-completers (drop outs). Thereby, the completers who remained in the study at postintervention were more anxious (than non-completers) and subsequently, experienced higher levels of BI at postassessment. The data at preassessment (Study One) may have been influenced by the lower level of anxiety found in the study non-completers leading to a non-significant relationship between BI and anxiety. It is important to note however, that there were no differences in BI scores amongst study completers and non-completers at preassessment.

Our long-term results examining the intervention program demonstrate that BI and anxiety significantly decreased at 12-month follow-up, indicting that the skills taught in the program have a strong impact on BI and levels of anxiety. This is an important finding given that our results suggest that anxiety and BI are correlated in the long-term. This positive effect on both BI and anxiety is not surprising considering that a great part of the intervention program focuses on how to relate to people in confident ways and how to develop social and emotional coping skills. The final objective was to assess the social validity of the intervention program. Both parents and teachers rated the program favourably at all time points demonstrating the acceptability and usability of the intervention program.

Clinical Implications

This was the first study to examine the effectiveness of the *Fun FRIENDS* intervention program implemented as a universal, school-based preventive intervention program. Our findings

highlight the long-term impact of the program as significant improvements were found at postintervention (for teacher report) and at 12-month follow-up (parent report) for children who received the intervention. These results suggest that intervention programs can be adapted for use with young children aged four to six years and such programs can involve both children and parents. When teaching skills to young children it is imperative that the techniques be implemented with flexibility, creativity, and developmental sensitivity (Kendall, Chu, Gifford, Hayes & Nauta, 1998). All of the *Fun FRIENDS* skills were delivered in a play-based manner with a large focus on experiential learning.

Several reviews have suggested that the inclusion of parents in the treatment of childhood anxiety is associated with greater improvements in both children and in their parents (Bögels & Phares, 2008; Ginsburg & Schlossberg, 2002; Ginsburg, Silverman, & Kurtines, 1995). Parents can play an important role in monitoring progress and reinforcing the skills within the home environment. Throughout the trial, parental participation was encouraged through organised information sessions and written summaries that were provided to parents explaining the program skills. Although encouraged, parental participation in the current study was relatively low. It is often difficult to recruit parents to attend school-based information sessions. To increase parent attendance, it is recommended that future researchers organise parent information sessions at convenient times when parents are already at the school (e.g., at drop off or pick up time); get the teachers and principal involved in advertising for the sessions highlighting its importance and the value; provide food and beverages and engaging incentives for parents (e.g., lucky dip draw for a gift voucher); ring parents to remind them of the sessions and thereby providing each family an opportunity to speak with a researcher/program facilitator. It is also recommended that the researchers obtain numerous contact details from participants (including extended family members contact details) to increase the likelihood of contact at follow-up and potentially decreasing the amount of missing data.

Evidence has also highlighted the importance of the inclusion of fathers in treatment for various types of developmental psychopathology (Bögels & Phares, 2008). Results of the current study demonstrate the important role of parents on child anxiety with mother's parenting stress presenting as a significant predictor of anxiety at postintervention. Fathers parenting stress did not present as a significant predictor of child anxiety, however, recent evidence has highlighted the important contribution of fathers in the aetiology, treatment, and prevention of child anxiety (Bögels, Bamelis, & Bruggen, 2008; Bögels & Phares, 2008). Future research should examine the roles of both parents in predicting early childhood anxiety and their influences on the prevention outcomes.

BI was found to significantly predict anxiety at postintervention and at 12-month follow-up. Based on these findings, we suggest tailoring intervention packages to provide young children and parents with the skills to manage and cope with a behaviourally inhibited temperament. In doing this, Hirshfeld-Becker et al. (2007) suggest that parents ought to be taught to empathise with their child's discomfort with unfamiliar people, and to discourage avoidance. Inhibited children may benefit from opportunities to habituate to new settings (e.g., advanced visits to a new classroom or play dates with new classmates before the beginning of school), as well as from graduated exposure to feared situations, facilitated by immediate rewards (Hirshfeld-Becker et al., 2007). Such interventions could focus on the promotion of known protective including: self-awareness, self-regulation, empathy training, confidence enhancing activities, problem-focused coping strategies, and the enhancement of social support (Brown, O'Keefe, Sanders, & Baker, 1986; Cicchetti & Toth, 1998; Shure & Spivack, 1980).

Limitations

A drawback of the study was the lack of a comparison group at 12-month follow-up. Due to ethical obligations, we were unable to obtain ethical clearance to have a long-term comparison group. This lack of a comparison group prohibits us from comparing the positive results achieved at 12-month follow-up to a waitlist control condition. We therefore, lack the evidence to suggest that the intervention group improved more than the waitlist control group or that the intervention is solely responsible for the positive changes that occurred in the children who received the intervention. The long-term changes in anxiety, BI and in social-emotional strength may reflect developmental changes which could have occurred naturally. It is recommended that future research include a 12-month waitlist control comparison group if ethical restrictions allow.

There was a significant proportion of missing data (around 40%) at postintervention and at 12-month follow-up for parent report which made it difficult to impute the missing data due to potential biases created with such a large proportion of attrition. We were unable to use intention-to-treat or expectation maximisation procedures at postintervention and 12-month follow-up due to the risk of the data being biased following imputation (i.e., masking significant results). Despite the significant proportion of attrition, a number of measures were taken to minimise this occurring including follow-up phone calls, incentives (lucky dip draws), and the availability of questionnaire completion assistance. Comparable rates of missing data have been evidenced in other 12-month follow-up evaluations of the *FRIENDS* program for children and youth when delivered as a universal, school-based intervention (e.g., Barrett, Lock & Farrell, 2005; Lock & Barrett, 2003; Stallard et al., 2008).

The assessment measures used in the current study were based on parent and teacher self-report which raises reliability issues commonly encountered in research with young children. The reliability of parent report can be questionable as parental report is susceptible to the biased perceptions or motivations of the parent (Rapee, 2002). Several questions on the BERS and BIRS were slightly modified to make them more appropriate for preschool aged children and to correspond to the intervention protocol. Care was taken to ensure the meaning of these items was not altered however; this may have slightly influenced the results. Recommendations for future research are to examine alternate means of assessment including observation, child report, and diagnostic interviews (e.g., PAPA, Egger & Angold, 2004). In addition, the participants in the sample were primarily middle to upper class which limits the generalisability of the findings to other sociodemographic groups.

Summary

This study was the first to examine the efficacy of the *Fun FRIENDS* program implemented as a universal, preventative intervention program. The results have indicated that cognitive-behavioural interventions, such as the *Fun FRIENDS* program, can be successfully implemented with young children and can demonstrate positive changes in anxiety, BI, and social-emotional strength over time. Social validity data indicated that the program was found to be enjoyable and useful by parents and teachers. Examination of anxiety predictors highlighted the importance of BI and maternal parenting stress in the aetiology of anxiety. Continuous research is needed to examine the following: (a) the long-term preventative impact of the *Fun FRIENDS* program with a comparison group at follow-up,(b) program effectiveness using measures more suited at a universal population, (c) the *Fu*n *FRIENDS* program as implemented by teachers using a train the trainer intervention system and; (d) to assess the influence of both parents on intervention outcome. Our results provide initial support for the usability of the *Fun FRIENDS* program with positive changes being evidenced immediately following the program (teacher report) and at 12-month follow-up (parent report).

CHAPTER NINE: GENERAL DISCUSSION

The current PhD thesis was innovative and provides a significant contribution to the literature in the area of early childhood anxiety. At the time of thesis commencement, the literature investigating anxiety in preschool-aged children was sparse. Studies had just begun to note that clinical anxiety was evident in preschool-aged children and had a similar nosology to that of older children. Assessment measures examining anxiety in preschool children were difficult to find, as many did not have appropriate age norms (i.e., they had been developed for older children) or had inadequate psychometric properties. Due to the lack of assessment availability, limited treatment and/or prevention investigations had been undertaken. In addition, literature investigating risk factors of early childhood anxiety was lacking.

At the time this thesis began, the author was unaware of any other studies that had been conducted specifically investigating risk factors of early childhood anxiety and this became the sole focus of Study One (Chapter Seven). The results from this study (summarised below) may influence the development and refinement of preventative intervention programs for young children. Furthermore, at the time of thesis commencement, very few investigations had been undertaken examining preventative intervention programs for preschool-aged children, as the majority of studies in the literature examined older children and adolescents. The few studies cited within the literature, which had examined preschoolers, involved intervention programs implemented exclusively to parents, within a selective or indicated prevention paradigm. The construction of Study Two of the current thesis sought to expand the literature and examine a universal, school-based intervention for preschool aged children which involved children, families, teachers, and schools in the intervention process. A summary of findings from both of these studies is provided below.

Summary of Findings in Study One and Study Two

The investigations of this thesis were comprised of two studies: (a) Study One aimed to extend the literature in the field of anxiety by examining the aetiology of early childhood anxiety through the investigation of potential risk factors; and (b) Study Two aimed to examine the efficacy of *Fun FRIENDS*, a preventative intervention program (Barrett, 2007a) for preschool-aged children, delivered as a school- based, universal intervention. Findings from these two studies will be along with their clinical implications, areas needing improvement and suggestions for future research will be discussed.

Study One of this thesis represented one of the first investigations within the literature to examine potential risk factors for early childhood anxiety. Based on the literature with older children and adolescents, several risk factors were proposed for analyses. For anxiety, the proposed risk factors were: BI, mother's and father's parenting stress, and mother's and father's negative affect. For BI, the proposed risk factors were mother's and father's parenting stress, and mother's and father's negative affect. It was also expected that BI would significantly predict higher levels of anxiety. These predictions were tested through structural equation modelling.

Findings revealed that child anxiety accounted for 32% of the variance in the structural model and BI accounted for only 3 % of the variance. Within the model, BI did not significantly predict child anxiety, contrary to some available data with older children. This may be explained by the fact that not all behaviourally inhibited children develop anxiety disorders (e.g., Biederman et al., 1990), that discontinuity exists in behaviourally inhibited children (see Degnan & Fox, 2007) or it may be evidence of a resilience process buffering the child from developing anxiety (e.g., Degnan & Fox, 2007). Parental negative affect was examined as a predictor of anxiety and BI. Parental negative affect represented a latent factor comprised of anxiety and depression symptomatology. Results demonstrated that mother's negative affect (but not father's) significantly predicted child anxiety, but not BI. These results are consistent with the literature suggesting that children of parents with anxiety and/or depression are at increased risk for the development of an anxiety disorder (e.g., Beidel & Turner, 1997), although the effect was not significant for fathers.

Results also revealed mother's parenting stress predicted child anxiety, but not BI. Father's parenting stress did not directly predict anxiety or BI however, mediational analyses revealed that mother's parenting stress mediated the relationship between father's parenting stress and child anxiety. This indicates that increased levels of father's parenting stress may affect mother's level of parenting stress leading to increased anxiety in the child. These findings demonstrate the systematic effect of stress within the family and the impact of both mothers and fathers on the development of early childhood anxiety.

Study Two of this thesis examined the efficacy of the *Fun FRIENDS* program delivered as a universal, school-based preventative intervention. This was the first study conducted evaluating the *Fun FRIENDS* program and one of only a few prevention trials cited within the literature examining anxiety in children aged 4 to 6 years. Objectives of this study were to assess intervention effects immediately following program implementation (postintervention) for parent and teacher report,

and at 12-month follow-up for parent report only. It was expected that improvements at postintervention would be evidenced for children in the intervention group (IG) and these would be maintained at 12-month follow-up. No significant changes were expected for children in the waitlist control group (WLG). Predictors of anxiety (e.g., BI, mother's and father's parenting stress, social emotional strength) at postintervention and 12-month follow-up were analysed using multiple regression analyses. Lastly, perceived intervention acceptability was examined by the collection of social validity data.

Parent report data revealed no significant differences between intervention conditions on anxiety at postintervention. Children in both conditions decreased in BI symptoms at postintervention, except for boys in the IG. Significant increases in social-emotional strength were found for girls in both conditions, but not for boys. It appears that the majority of children improved on anxiety, BI, and social-emotional strength at postintervention regardless of intervention condition.

The long-term impact of the intervention was examined using the IG only (from pre to postintervention to 12-month follow-up). The WLG was not part of the 12-month follow-up due to ethical restrictions. Nearly significant decreases in anxiety were found at postintervention and further significant decreases were found at 12-month follow-up. Improvements in BI were found at all time points for girls but not for boys. Improvements on social-emotional strength were found from preintervention to 12-month follow-up with girls scoring significantly higher than boys at all time points although boys' scores did increase over time. The significant findings at long-term follow-up are consistent with other studies analysing similar age groups whereby significance was found at follow-up rather than immediately following the intervention (e.g., LaFreniere & Capuano, 1997; Rapee & Jacobs, 2002; Rapee et al., 2005) possibly indicating a delayed prevention effect. The lack of a 12-month follow-up comparison group limits these findings as it is unknown whether significant differences would exist between both conditions at the follow-up time point. Gender differences noted at postintervention were similar at 12-month follow-up with girls experiencing larger improvements in BI and social-emotional strength compared to boys.

For teacher report, children in the IG improved significantly more on BI compared to the WLG at postintervention with girls experiencing a larger decrease in scores compared to boys. These results must be interpreted with caution as preintervention scores on BI were significantly different with the IG scoring higher than the WLG. On social-emotional strength, children in the IG improved significantly more than children in the WLG at postintervention with girls in the IG

experiencing the largest improvement from pre to postintervention. These results demonstrate the significant improvements evidenced in children who received the *Fun FRIENDS* program. Teachers (and parents) were aware that they were part of an active intervention program. Similar gender differences were observed amongst parent and teachers report.

Previous studies examining universal, school-based interventions using the *FRIENDS* program have found gender to play an important role in intervention outcome (e.g., Barrett et al., 2006, Lock & Barrett). These studies demonstrated that girls (aged 10 -11 years) tended to be at higher risk for anxiety than boys but also tended to be more responsive to an intervention up to 12-month follow-up. The gender differences of BI in the current thesis follow a similar pattern. Girls in the IG improved on BI more than boys at postintervention and at 12-month follow-up. These results may indicate that girls are more receptive to the adoption of the intervention skills at this early age or that boys may need an additional dose of intervention (e.g., more sessions over a longer period of time). Longitudinal data will shed light on whether these gender patterns exist in the longer-term.

Gender differences were also evidenced on levels of social-emotional strength with girls scoring higher at all time points. Prevailing theories examining early empathy development suggest that gender differences (i.e., girls tend to develop more empathy earlier than boys) result from differences in the brain structures or hormones of human males and females (Greenspan & Wieder, 2006). However, it has also been suggested that preverbal learning experiences could be responsible (Greenspan & Wieder, 2006). That is, girls may develop deeper empathy because adults engage female infants and toddlers in longer preverbal emotional "conversations" than they do boys. As a group, boys tend to be more active as babies, inviting shorter bursts of back-and-forth signalling and more physical play. By regularly engaging girls in longer chains of communication, they may become better enabled to recognise, modulate, and regulate a wide range of emotions. These early childhood experiences in navigating emotions may help the child grow up being better able to understand and express emotion (Greenspan & Wieder, 2006), possibly leading to higher levels of social and emotional strength.

In a comparison of mean scores on social and emotional strength, parents and teachers were found to be relatively concordant in their responding. That is, parents and teachers' mean scores at pre and postintervention followed a similar pattern, and gender differences amongst parent and teacher report were similar. Both parents and teachers reported that girls improved more than boys on social and emotional strength from pre to postintervention. These reported similarities are of

importance as low concordance is typically found between parent and teacher report in research with older children (e.g., Glaser, Kronsnoble, & Forkner, 1997; Klein, 1991; Stanger & Lewis, 1993) making it difficult to accurately assess the child. This high concordance suggests that parents of preschoolers may be more aware of their child's internal states due to a higher degree of parental involvement in the care and guidance of children at this young age. Similarly, preschool teachers may be in a better position to observe and get to know preschoolers due to small class sizes and the small teacher to child ratios typically found in preschools. It could also infer that parents and teachers are highly communicative during the early years and observe similar patterns in the children, indicating that assessment may be more accurate during this time leading to the assumption that this may represent an ideal time to intervene.

Given that concordance between teachers and parent report is generally rare with older children, this finding has important implications. These findings highlight the importance of collecting multi-informant data from both parents and teachers when conducting an assessment for a preschool aged child. It is recommended that assessment measures be given to both parents and teachers along with personal communication (e.g., ringing teachers) if permitted under work circumstance. These findings also indicate that parents and teachers observe similar symptoms and patters in young children suggesting that they are 'on the same page' or that they engage in frequent communications about the child. In terms of prevention research, these results suggest that intervening while children are young may be idyllic, as parents and teachers seem to be collective as evidenced by their concordant responding in measuring social and emotional strength.

Regression analyses were also conducted in Study Two to examine predictors of early childhood anxiety at postintervention and at 12-month follow-up. At postintervention, BI and mother's parenting stress significantly predicted anxiety, with BI accounting for a large percentage of the variance (21%). At 12-month follow-up, BI was the only significant predictor of anxiety with a unique variance of 6%. Interestingly, Study One used a subset of this sample at preassessment and did not find a predictive link between BI and anxiety. This could suggest that the predictive ability of BI increases with age, that there may be other variables accounting for anxiety that were not measured within the regression analyses, or that the less anxious participants at preassessment dropped out of the study before post assessment (study non-completers), leaving more highly anxious participants in the study (who also had higher BI). Lastly social validity data revealed that both parents and teachers rated the program favourably at all time points demonstrating the perceived acceptability and usability of the intervention program.

Clinical Implications

Results obtained from Study One and Study Two have implications relevant to the practice of clinical psychology. Both studies examined the potential relationship between BI and anxiety. Although Study One did not find a significant relationship between the two, it remains important to tailor intervention packages to provide young children and families with the skills to manage and cope with a behaviourally inhibited temperament in conjunction with anxiety symptoms. Hirshfeld-Becker et al. (2007) suggested that cognitive behavioural preventative interventions delivered to behaviourally inhibited children may assist in reducing and/or preventing anxiety by improving their coping strategies. In conjunction with standard cognitive-behavioural packages, these interventions could also focus on the promotion of known protective factors including: self-awareness, self-regulation, empathy training, confidence enhancing activities, problem-focused coping strategies, and the enhancement of social support (Brown, O'Keefe, Sanders, & Baker, 1986; Cicchetti & Toth, 1998; Shure & Spivack, 1980). In addition, Hirshfeld-Becker et al. (2007) highlighted the important role of parents in the intervention process for inhibited children. They suggested that parents should be taught to empathise with their child's discomfort of interacting with unfamiliar people, and to discourage avoidance. Also they suggested that inhibited children may benefit from opportunities to habituate to new settings (e.g., advance visits to a new classroom or play dates with new classmates before the beginning of school). Parents should also be encouraged to engage in graduated exposure exercises to feared situations, facilitated by immediate rewards (Hirshfeld-Becker et al., 2007). Based on the above information, it is recommended that these suggestions be incorporated into interventions for young children, for those 'at risk' or displaying signs of a behaviourally inhibited temperament. Implementing such interventions with inhibited children may increase the chance of preventing the development of anxiety disorders.

Findings from both Study One and Study Two of this thesis highlighted the important role of *both* parents in the aetiology and in the prevention of early childhood anxiety. Taken together with recent research (e.g., Bögels & Phares, 2008; Ginsburg & Schlossberg, 2002; Ginsburg, Silverman, & Kurtines, 1995), it is suggested that both parents be involved in the intervention/treatment process by learning skills to help themselves cope with stress and worry and to subsequently learn skills to help their children cope with anxiety. Bögels et al. (2008) recently highlighted the importance of involving fathers in cognitive-behavioural treatments with their children and suggested that fathers might be more effective change agents in guiding their child through exposures. They recommend that a large proportion of parent anxiety training should focus

on promoting skills in the father which would be a significant alteration to current clinical practice where mothers often participate in parent training groups alone and few fathers participate without their partner (e.g., Phares, Lopez, Fields, Kamboukos, & Duhig, 2005). Research investigating the potential impact of paternal involvement in the therapy process is warranted.

In addition to parents, siblings have been shown to play an important role in childhood anxiety treatment. Research has demonstrated the negative effects that anxiety disorders may have on siblings, and the potential benefits of involving siblings in therapy (e.g., Fox, Barrett, & Shortt, 2002). Family involvement in therapy, including parents *and* siblings, may increase the social support for the child with anxiety, enhance consistency in contingency management, and encourage greater practice of skills and generalisation of skills, through everyone using the same strategies and approaches in managing stress and anxiety. Practicalities for involving siblings in school-based trials include, inviting siblings to the information sessions held at convenient times (e.g., after school) and inviting siblings to participate in the program sessions, particularly if they attend the same school. It also seems important to involve extended family networks in the intervention process, particularly grandparents. Grandparents can represent positive, supportive role models to many young children, and can provide children with invaluable knowledge regarding familial history and the continuity of culture and identity. It is recommended that grandparents be welcomed and encouraged to attend therapeutic sessions and to be actively involved in their grandchildren's lives whenever possible. Although, it is recommended that both parents be involved in the intervention process to increase generalisabilty and maintenance of the skills learnt and to promote the active involvement of both parents in the intervention process.

The positive social validity data obtained from parents and teachers in Study Two along with the encouraging long-term improvements found in anxiety, BI, and social-emotional strength suggest that manualised, cognitive-behavioural intervention programs can be adapted for use with young children aged 4 to 6 years and can be implemented successfully with the involvement of children, parents and teachers. This is encouraging and allows for an expansion of research within the childhood anxiety literature, which has predominantly focused on older children. The ability to successfully implement interventions with young children has implications for practicing clinicians – that young children can receive psychological interventions aimed at decreasing and/or preventing anxiety and increasing social-emotional strength. Such interventions can involve parents, families, and teachers by empowering them with positive coping skills. It is recommended that future research embark on this opportunity to implement preventative intervention programs with young children, parents and teachers and to continue refining and developing programs most suitable for

this young age group. When implementing such programs, it is important that the techniques be implemented with flexibility creativity, and developmental sensitivity (Kendall et al., 1998). For example, all of the *Fun FRIENDS* skills were delivered in a play-based manner utilising games, puppetry, role-play, story telling, and art. In addition, the length of each activity is kept to 5 to 10 minutes to maintain engagement and interest of the children.

Areas Needing Improvement

A significant limitation to the state of prevention research is the dearth of studies, particularly with preschool-aged children. On the positive side, this means that the field is ripe for researchers who wish to make significant contributions. On the negative side, it means that researchers are limited in their ability to draw firm conclusions about whether, how, and in whom anxiety disorders can be prevented (Bienvenu & Ginsburg, 2007). In their review of the anxiety prevention literature, Bienvenu and Ginsburg (2007) explained that most prevention studies have had small sample sizes, limiting the power to detect prevention effects. Also, most studies have used a narrow range of assessment measures (e.g., only self-report or only anxiety disorder diagnoses) and have had limited follow-up periods (i.e., 3 years or less). The last, they contend, is a particular disadvantage, given that the impact of preventative interventions is hypothesised to be long-term, rather than short-term. There is a need for longer-term prevention trials utilising a wide range of assessment measures, particularly with young children.

To overcome these gaps in the literature, it is recommended that the field continue to investigate and identify risk and protective factors for the development of anxiety disorders. Theoretical models that specify how prevention might work (i.e., the mechanism through which proximal and distal outcomes are expected to occur) must be articulated and tested. Additionally, preventative interventions should be designed to change modifiable risk factors and promote protective factors, based on current research and theory (Bienvenu & Ginsburg, 2007). Results from Study One (Chapter Seven) of this thesis indicate that risk factors can be identified at an early age and can be integrated into preventative intervention programs for young children.

There are several areas needing improvement specific to Study One and Study Two of the current thesis. The first issue revolves around measurement. In Study One, only a small number of measures were used to examine each construct within the structural model due to the difficulty in sourcing measures adequate for preschool-aged children. To increase the power and generalisability of the results, it is recommended that future models obtain additional assessment measures for child

and parent characteristics (e.g., approximately 3 measures per construct). Alternate forms of assessment may be beneficial including observation, diagnostic interviews suitable for preschool-aged children (e.g., PAPA, Egger & Angold, 2004), and self-report assessment (see *Future Directions* section of this chapter). In the current studies, children did not complete assessment measures or undergo any form of observation. The majority of current self-report measures for childhood anxiety are designed for middle childhood and adolescence and are not valid when used with younger children.

Procedurally, limitations arose in the organisation and structure of the questionnaire package. Several assessment measures were supposed to be completed by mothers and fathers conjointly, however, we did not record whether this conjoint completion occurred or whether one parent completed the measures. Some of the measures were provided for mothers and fathers individually (as noted at the top of the questionnaire) however, these measures were presented within the same questionnaire package, which may have lent to biased reporting. It is recommended that future research provide two questionnaire packages to enable mothers and fathers to complete these separately in order to increase anonymity and confidentiality.

A limitation in Study Two of this thesis was the high proportion of missing data (around 40%) at postintervention and at 12-month follow-up. The significant proportion of missing data made it impossible to use intention-to-treat or expectation maximisation procedures due to the risk of the data being biased following imputation (i.e., masking significant results). Comparable rates of missing data have been evidenced in other 12-month follow-up evaluations of the *FRIENDS* program for children and youth when delivered as a universal, school-based intervention (e.g., Barrett, Lock & Farrell, 2005; Lock & Barrett, 2003; Stallard et al., 2008). For the current thesis, a number of measures were taken to minimise this occurring including follow-up phone calls, incentives (lucky dip draws), and the availability of questionnaire completion assistance. Common explanations for the lack missing data included: (a) the participant moved interstate or overseas, (b) the telephone was disconnected, (c) lack of alternate contact details, (d) withdrew consent, and (e) the lack of desire to complete assessment packages. Suggestions for future researchers in minimising missing data include: (a) obtaining numerous contact details of each parent (e.g., home phone number, mobile phone number, email address), grandparents, and friends, (b) conducting regular follow-up calls, (c) providing incentives (e.g., prizes), and (d) creating assessment packages that consume little time (e.g., using shorter measures). Incentives for teacher participation could include free professional development opportunities.

A further limitation of Study Two is the absence of a waitlist control group at 12-month follow-up to control for maturation or passage of time effects. In the absence of a comparison group, it is not possible to attribute the long-term improvements obtained in Study Two solely to the Fun FRIENDS intervention as they may reflect developmental changes which could have occurred naturally. It is recommended that future research include a 12-month waitlist control comparison group if ethical restrictions allow.

Future Directions

Research is lacking in the area of early childhood anxiety disorders. Preschool-aged children are woefully underserved within the prevention literature and within treatment services. Most specialist psychiatric services are delivered to much older children and teenagers, despite the fact that the current evidence indicates that rates of DSM-IV disorders in preschoolers are not very different from those in older children and adolescents (Egger & Angold, 2006). There have been very few treatment studies of anxiety disorders in young children and only a handful of prevention studies. Of course, a major reason for this lack of research in younger children is the lack of appropriate assessment measures to examine this population. However, recent research has indicated that childhood psychopathology can be assessed within the DSM framework down to the age of 2 years old (using the PAPA, Egger & Angold, 2004). Dimensional assessments such as the CBCL, 1½ - 5 (Achenbach, 1991, 1992; Achenbach & Rescorla, 2000) and the PAS (2.5 to 6.5 years, Spence, et al., 2001) are also available with adequate psychometric properties. The availability of these measures provides tools to allow continued investigation into the aetiology, prevention and treatment of anxiety with this young age group.

Within the developmental literature, alternate forms of assessment have been used when assessing young children. These mainly consist of interactive tasks conducted to assess children's emotions and/or beliefs (see Chapter One for a detailed explanation). Thus, experimental clinical research ought to focus on the development of such interactive assessment tasks for young children in the form of nonstructured clinical interviews using props such as puppets, toys, and drawing tasks. This would enable researchers and clinicians to obtain more insight into the beliefs, thoughts, and behaviours of young anxious children. Research has demonstrated that young children can describe and explain human behaviour in terms of what the person 'wants', 'thinks', and 'knows' (Dunn, 1995) indicating that such techniques would be plausible in obtaining information from young children. Incorporating child self-report with parent and teacher reports (including

diagnostic interviews) would allow for a multi-informant assessment, leading to stronger case conceptualisation and increased insight into the experience of anxiety for young children.

With assessment measures becoming increasingly available, there is a need to conduct randomised controlled trials examining anxiety prevention and treatment programs with young children (e.g., *Fun FRIENDS*). Silverman et al. (2008) recently noted the importance of obtaining *well-established* treatments (i.e., demonstrated efficacy in at least 2 group-design experiments showing statistical significance over another treatment/placebo) within the anxiety literature. As discussed in the Introduction of this thesis, several treatment modalities have been classified as *probably efficacious*, but none as *well-established*. Additionally, the majority of studies conducted to obtain the probably efficacious criterion used samples of older children and/or adolescents. Future research ought to focus on conducting more randomised controlled trials for childhood intervention programs in order to obtain the *well-established* criterion.

Of particular interest is the implementation of randomised controlled trials with preschool-aged children. Study Two of this thesis examined the *Fun FRIENDS* program as a cognitive-behavioural intervention for preschool-aged children. As this was the first universal trial, additional randomised controlled trials are required to further establish its efficacy. Currently, our research team is undertaking a large-scale universal trial and a clinical trial of the *Fun FRIENDS* program. Data from these trials will shed additional light on the efficacy of this program. Research is also warranted examining the applicability of such early childhood interventions with children and families from varying sociodemographic and cultural backgrounds. This would allow for cultural program adaptations thereby, increasing the generalisability and applicability of the intervention.

In terms of the preventative intervention programs, future research ought to examine which specific strategies are most effective. Currently, most interventions combine numerous cognitive-behavioural techniques and therefore, it is difficult to determine which ones have the most impact in the short and long-term. It is also relatively unclear as to whether preventative interventions are most effective when delivered in a community based setting (e.g., public education), or in smaller groups with individual families. Based on the research conducted to date it seems that utilising schools for providing mental health promotion and prevention offers an encouraging alternative to a community health care system.

An important area for research involves the role of the family. Both studies in this thesis demonstrated the contribution of both parents in the aetiology of early childhood anxiety. Future

models can build on these findings by investigating the specific role of fathers and mothers in the development of early childhood anxiety. More specifically, future models could investigate the indirect role of fathers (as found in Study One) and build upon this by investigating direct and indirect pathways. The resilience literature highlights the important role of interactional patterns amongst family members and the community. This alerts researchers to the importance of recognising that children grow up as *family members*, and that the interactions amongst all family members affect each individual child. It is important to acknowledge these interactional patterns when assessing, conceptualising, and treating children and families to plan the best possible treatment. Future research should consider examining the specific interactional patterns amongst family members and investigate how these affect the young anxious child. For example, future models could examine the interplay between child and parent individual characteristics (e.g., anxiety, sadness) and external factors (e.g., level of involvement with community, level of social support) and examine multiple pathways of these relationships (e.g., does the child's level of anxiety impact on the mother or does the mother's anxiety impact on the child?).

In considering the suggestions posed for future research, if I were to undertake the current research project for a second time, there are a couple of things I would do differently. Firstly, I would make a stronger effort to involve parents, grandparents, and siblings in the intervention process. As I and other researchers are now aware, fathers play an important role in the aetiology and prevention of anxiety (see Bögels & Phares, 2008). Although fathers were included in our assessment package, I would now make a greater effort to ensure their participation. Such strategies for engaging fathers may include calling them personally to discuss participation, inviting them to information sessions to educate them regarding their unique role in the prevention of anxiety, and by teaching both mothers and fathers the skills to manage their *own* anxiety and stress.

I would also involve grandparents in the intervention process by inviting them to attend and participate in sessions. For example, when discussing role models, each child could bring a grandparent to the session. Grandparents could then discuss ways they were brave/assertive when they were young, acting as role models for the young children. I would also try to involve siblings whenever possible, particularly if they attend the same school. Older siblings could act as mentors and role models to all of the children. This would also allow for all family members to learn the program skills and increase reinforcement and maintenance of the skills within the home.

Secondly, I would place a larger focus on engaging teachers in the intervention process. In the current thesis, teachers did attend a full day training workshop however, I would now emphasise

additional aspects of program implementation. For example, I would discuss ways teachers could implement the program skills "on the spot", during daily activities through role-playing common situations (e.g., best friend not wanting to play, having a "yucky" snack, not being able to play at the paint station) that occur within the classroom. As a collective group, we could discuss ways the skills could be implemented during those situations (e.g., taking three deep breaths, talking about unhelpful "red" thoughts and trying to come up with helpful "green" thoughts). This may provide teachers with increased confidence in reinforcing the program skills, which could lead to more positive outcomes for the children.

In addition, it may be useful to rearrange the structure of session delivery. For instance, rather than implementing the program in a 10 sessions, 1 hour each session block, teachers may consider covering the content over 20 smaller sessions (while continuing the deliver the program content in its recommended sequence). This would allow for shorter individual sessions, thereby consuming less class time per session (a factor which may increase dissemination) and promoting reinforcement of the skills over several days, rather than during one longer session each week. With skill reinforcement occurring on multiple days, this may increase the likelihood that young children will remember, maintain, and generalise the skills to alternate settings. I believe these suggestions for change would be helpful to those considering implementing the *Fun FRIENDS* program (or alternate programs) within the school setting.

Summary

Much research is still required in defining, assessing, treating, and preventing anxiety disorders in young children. In one of the first studies to investigate early childhood risk factors of anxiety, the results revealed that mother's negative affect and mother's parenting stress directly predicted anxiety while father's parenting stress affected child anxiety through mother's parenting stress (mediation). This dual parental influence on early childhood anxiety has highlighted the need to include both parents in early childhood intervention and treatment programs. Continuous research is needed to examine the possible direct and indirect effects of father's parenting stress and negative affect, along with the construction of multimeasure, multi-informant, and longitudinal models to further explore potential risk factors of early childhood anxiety and BI. This thesis also investigated, for the first time, the efficacy of the *Fun FRIENDS* program implemented as a universal, school-based, preventative intervention program. The results from this trial have indicated that cognitive-behavioural interventions, such as the *Fun FRIENDS* program, can be successfully implemented with young children and can demonstrate positive changes in anxiety, BI,

and social-emotional strength over time. An examination of early childhood anxiety predictors highlighted the important contribution of BI and mother's parenting stress in the aetiology of anxiety. Continuous research is needed to examine the long-term preventative impact of the *Fun FRIENDS* program with a comparison group at 12-month follow-up.

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APPENDIX

The Appendix contains the questionnaire package used in the current research. This is the package given to participants at preassessment. An identical package of measures was given at postintervention and at 12-month follow-up. The treatment integrity checklists that were used by the program facilitators are also provided.

INFORMATION ABOUT THESE QUESTIONNAIRES

Thank you for agreeing to participate in a trial of the Positive Coping Resilience Program for Early Childhood at your child's preschool. Your participation in this program is valuable to us and will help us to better understand the social-emotional adjustment of preschool children. As part of the program we ask that you take some time to complete the following questionnaires which ask you some things about your child and family and also about your own emotional resilience. Everything you write is confidential and will only be seen by a few researchers at the University of Queensland. It is also important to understand that there are no right or wrong answers so we ask that you please answer each question as honestly as possible. Do not spend too much time thinking about any one question.

If you have any queries while completing the questionnaires or are having trouble understanding the meaning of a particular question, please do not hesitate to call us on _____. Kristy Pahl, one of the program co-ordinators, will be available to answer any queries you may have.

Once you have completed the questionnaires, it would be much appreciated if you could return them in the attached envelope by FRIDAY 8 JULY 2005. As a token of our appreciation, all returned questionnaires will be entered into a lucky dip for a Myer voucher to the value of $50.

Thank you for helping in this research project. Your involvement will help us to improve our intervention programs for our children so that we can help them to become socially and emotionally well adjusted and ease the transition to primary school.

Thank you once again for taking the time to fill in these questionnaires!!

USED IN STUDY 1 AND 2

Preschool Anxiety Scale, Parent Report

Below is a list of items that describe children. For each item please circle the response that best describes your child. Please circle the 4 if the item is very often true, 3 if the item is quite often true, 2 if the item is sometimes true, 1 if the item is seldom true or if it is not true at all circle the 0. Please answer all the items as well as you can, even if some do not seem to apply to your child.

		Not True At All	Seldom True	Sometimes True	Quite Often True	Very Often True
1.	Has difficulty stopping him/herself from worrying……	0	1	2	3	4
2.	Worries that he/she will do something to look stupid in front of other people…….	0	1	2	3	4
3.	Keeps checking that he/she has done things right (eg., that he/she closed a door, turned off a tap)…….	0	1	2	3	4
4.	Is tense, restless or irritable due to worrying……	0	1	2	3	4
5.	Is scared to ask an adult for help (eg., a preschool or school teacher)……..	0	1	2	3	4
6.	Is reluctant to go to sleep without you or to sleep away from home…….....	0	1	2	3	4
7.	Is scared of heights (high places)…….....	0	1	2	3	4
8.	Has trouble sleeping due to worrying…….....	0	1	2	3	4
9.	Washes his/her hands over and over many times each day……..	0	1	2	3	4
10.	Is afraid of crowded or closed-in places……	0	1	2	3	4
11.	Is afraid of meeting or talking to unfamiliar people…...	0	1	2	3	4
12.	Worries that something bad will happen to his/her parents……	0	1	2	3	4
13.	Is scared of thunderstorms……...	0	1	2	3	4
14.	Spends a large part of each day worrying about various things……..	0	1	2	3	4
15.	Is afraid of talking in front of the class (preschool group) eg., show and tell……..	0	1	2	3	4
16.	Worries that something bad might happen to him/her (eg., getting lost or kidnapped), so he/she won't be able to see you again……...	0	1	2	3	4
17.	Is nervous of going swimming…….....	0	1	2	3	4

18.	Has to have things in exactly the right order or position to stop bad things from happening……..	**0**	**1**	**2**	**3**	**4**
19.	Worries that he/she will do something embarrassing in front of other people……..	**0**	**1**	**2**	**3**	**4**
20.	Is afraid of insects and/or spiders……	**0**	**1**	**2**	**3**	**4**
21.	Has bad or silly thoughts or images that keep coming back over and over…….	**0**	**1**	**2**	**3**	**4**
22.	Becomes distressed about your leaving him/her at preschool/school or with a babysitter……	**0**	**1**	**2**	**3**	**4**
23.	Is afraid to go up to group of children and join their activities……	**0**	**1**	**2**	**3**	**4**
24.	Is frightened of dogs……	**0**	**1**	**2**	**3**	**4**
25.	Has nightmares about being apart from you……	**0**	**1**	**2**	**3**	**4**
26.	Is afraid of the dark……..	**0**	**1**	**2**	**3**	**4**
27.	Has to keep thinking of special thoughts (eg., numbers or words) to stop bad things from happening…….....	**0**	**1**	**2**	**3**	**4**
28.	Asks for reassurance when it doesn't seem necessary……..	**0**	**1**	**2**	**3**	**4**
29.	Has your child ever experienced anything really bad or traumatic (eg., severe accident, death of a family member/friend, assault, robbery, disaster)……..	**YES**	**NO**			

Please briefly describe the event that your child experienced……_____

_____

If you answered NO to question 29, please do not answer questions 30-34. If you answered YES, please DO answer the following questions.

Do the following statements describe your child's behaviour since the event?

30.	Has bad dreams or nightmares about the event..	**0**	**1**	**2**	**3**	**4**
31.	Remembers the event and becomes distressed.	**0**	**1**	**2**	**3**	**4**
32.	Becomes distressed when reminded of the event……	**0**	**1**	**2**	**3**	**4**
33.	Suddenly behaves as if he/she is reliving the bad experience……..	**0**	**1**	**2**	**3**	**4**
34.	Shows bodily signs of fear (eg., sweating, shaking or racing heart) when reminded of the event……	**0**	**1**	**2**	**3**	**4**

USED IN STUDY 1 AND 2

Behavioural Inhibition Questionnaire, Parent and Teacher Report

The following statements describe children's behaviour in different situations. Each statement asks you to judge whether that behaviour occurs for your child hardly ever, infrequently, once in a while, sometimes, often, very often or almost always. Please circle the number 1 if the behaviour hardly ever occurs, the number 2 if it occurs infrequently etc. Try to make this judgement to the best of your ability, based on how you think your child compares with other children about the same age.

1 Hardly Ever	**2** Infrequently	**3** Once in a While	**4** Some-times	**5** Often	**6** Very Often	**7** Almost Always

1.	Approaches new situations or activities very hesitantly……..	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2.	Will happily approach a group of unfamiliar children to join in their play…….	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3.	Is very quiet around new (adult) guests to our home……..……	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4.	Is cautious in activities that involve physical challenge (eg., climbing, jumping from heights)……..	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5.	Settles in quickly when we visit the homes of people we don't know well…….....	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6.	Enjoys being the centre of attention……..	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7.	Is comfortable asking other children to play……..…	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8.	Is shy when first meeting new children……	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9.	Happily separates from parent(s) when left in new situations for the first time (eg., kindergarten, preschool, childcare)……...	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10.	Is happy to perform in front of others (eg., singing, dancing)……	**1**	**2**	**3**	**4**	**5**	**6**	**7**
11.	Quickly adjusts to new situations (eg., kindergarten, preschool, childcare)……	**1**	**2**	**3**	**4**	**5**	**6**	**7**
12.	Is reluctant to approach a group of unfamiliar children to ask to join in……..	**1**	**2**	**3**	**4**	**5**	**6**	**7**

13.	Is confident in activities that involve physical challenge (eg., climbing, jumping from heights)……..	1	2	3	4	5	6	7
14.	Is independent……...	1	2	3	4	5	6	7
15.	Seems comfortable in new situations……	1	2	3	4	5	6	7
16.	Is very talkative to adult strangers……..	1	2	3	4	5	6	7
17.	Is hesitant to explore new play equipment……	1	2	3	4	5	6	7
18.	Gets upset at being left in new situations for the first time (eg., kindergarten, preschool, childcare)……	1	2	3	4	5	6	7
19.	Is very friendly with children he or she has just met……	1	2	3	4	5	6	7
20.	Tends to watch other children, rather than join in their games…..	1	2	3	4	5	6	7
21.	Dislikes being the centre of attention…….	1	2	3	4	5	6	7
22.	Is clingy when we visit the homes of people we don't know well..	1	2	3	4	5	6	7
23.	Happily approaches new situations or activities……..	1	2	3	4	5	6	7
24.	Is outgoing……..	1	2	3	4	5	6	7
25.	Seems nervous or uncomfortable in new situations……	1	2	3	4	5	6	7
26.	Happily chats to new (adult) visitors to our home……	1	2	3	4	5	6	7
27.	Takes many days to adjust to new situations (eg., kindergarten, preschool, childcare)……	1	2	3	4	5	6	7
28.	Is reluctant to perform in front of others (eg., singing, dancing)…	1	2	3	4	5	6	7
29.	Happily explores new play equipment……...	1	2	3	4	5	6	7
30.	Is very quiet with adult strangers……	1	2	3	4	5	6	7

THANK YOU!

USED IN STUDY 2

Behavioural and Emotional Rating Scale, Parent and Teacher Report

This scale contains a series of statements that are used to rate your child's behaviours and emotions in a positive way. Read each statement and mark the number that corresponds to the rating that best describes your child's status over the past 3 months. Rate each statement to the best of your knowledge of your child

Rate all 52 items by the following criteria:

3 = If statement is very much like your child

2 = If statement is like your child

1 = If statement is not much like your child

0 = If statement is not at all like your child

Sample Items:

1.	Shows close emotional attachment to family members……....	**3**	**2**	**1**	**0**
11.	Can talk to parents when frustrated or having problems at home……	**3**	**2**	**1**	**0**
17.	Considers consequences of own behaviour……....	**3**	**2**	**1**	**0**

USED IN STUDY 1 AND 2

Parenting Stress Index

Completed by Parent 1 and Parent 2

Sample Items:

Completed by: Mother / Father / Step Mother / Step Father / Other_____ (please specify)

SA = Strongly Agree	A = Agree	NS = Not Sure	D = Disagree	SD = Strongly Disagree

1.*	I often have the feeling that I cannot handle things very well……	**SA**	**A**	**NS**	**D**	**SD**
16.	When I do things for my child, I get the feeling that my efforts are not appreciated very much……	**SA**	**A**	**NS**	**D**	**SD**
35.	My child turned out to be more of a problem than I had expected…...	**SA**	**A**	**NS**	**D**	**SD**

USED IN STUDY 1

Depression, Anxiety, and Stress Scale (DASS)

Completed by Parent 1 and Parent 2

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all

1 Applied to me to some degree, or some of the time

2 Applied to me to a considerable degree, or a good part of the time

3 Applied to me very much, or most of the time

4

Completed by: Mother / Father / Step Mother / Step Father / Other_____ (please specify)

1.	I found it hard to wind down……..	**0**	**1**	**2**	**3**
2.	I was aware of dryness of mouth…….	**0**	**1**	**2**	**3**
3.	I couldn't seem to experience any positive feelings at all……	**0**	**1**	**2**	**3**
4.	I experienced difficulty breathing (eg., excessively rapid breathing, breathlessness in the absence of physical exertion)……	**0**	**1**	**2**	**3**
5.	I found it difficult to work up the initiative to do things……..	**0**	**1**	**2**	**3**
6.	I tended to over-react to situations……..	**0**	**1**	**2**	**3**
7.	I experienced trembling (eg., in the hands)……	**0**	**1**	**2**	**3**
8.	I felt that I was using a lot of nervous energy…….	**0**	**1**	**2**	**3**
9.	I was worried about situations in which I might panic and make a fool of myself…….	**0**	**1**	**2**	**3**
10.	I felt that I had nothing to look forward to……	**0**	**1**	**2**	**3**

11.	I found myself getting agitated……	**0**	**1**	**2**	**3**
12.	I found it difficult to relax……	**0**	**1**	**2**	**3**
13.	I felt down-hearted and blue……	**0**	**1**	**2**	**3**
14.	I was intolerant of anything that kept me from getting on with what I was doing…….	**0**	**1**	**2**	**3**
15.	I felt I was close to panic……	**0**	**1**	**2**	**3**
16.	I was unable to become enthusiastic about anything……..	**0**	**1**	**2**	**3**
17.	I felt that I wasn't worth much as a person…….	**0**	**1**	**2**	**3**
18.	I felt I was rather touchy……	**0**	**1**	**2**	**3**
19.	I was aware of the action of my heart in the absence of physical exertion (eg., sense of heart rate increase, heart missing a beat)……	**0**	**1**	**2**	**3**
20.	I felt scared without any good reason…….	**0**	**1**	**2**	**3**
21.	I felt that life was meaningless……	**0**	**1**	**2**	**3**

THANK YOU!

USED IN STUDY 2

Behaviour Intervention Rating Scale, Parent Report

The following questions are based on your thoughts regarding the FRIENDS preschool program. Please read each statement carefully and circle the number that applies to you. Please be as honest as possible, there are no right or wrong answers.

Everything is confidential. Please answer ALL of the questions.

1 = Strongly Disagree 2 = Disagree 3 = Slightly Disagree

4 = Slightly Agree 5 = Agree

	Strongly Disagree	**Disagree**	**Slightly Disagree**	**Slightly Agree**	**Agree**
1. The program *appears* to be acceptable for increasing resilience in children.	1	2	3	4	5
2. I *think* most parents would find the program appropriate for preschool children.	1	2	3	4	5
3. The program *should* prove effective in increasing my child's resilience.	1	2	3	4	5
4. I would suggest that other people try this program as well.	1	2	3	4	5
5. I *believe* my child did benefit from the FRIENDS program.	1	2	3	4	5
6. The program *sounds* suitable for increasing social-emotional competence in children.	1	2	3	4	5
7. I am looking forward to this FRIENDS program.	1	2	3	4	5
8. I *expect* the program would *not* result in any negative side-effects for my child.	1	2	3	4	5
9. I *believe* the program would be consistent with my child's classroom curriculum.	1	2	3	4	5

10. I *think* the program would be appropriate for a variety of children.	1	2	3	4	5
11. I *think* the program will handle my child's behaviour in a fair manner.	1	2	3	4	5
12. I *think* the program will be reasonable in nature.	1	2	3	4	5
13. I *expect* to agree with the procedures used in the program.	1	2	3	4	5
14. I *believe* the program *should* provide some good strategies for improving my child's coping and resilience.	1	2	3	4	5
15. Overall, the program *should be* beneficial for my young child.	1	2	3	4	5
16. I *think* the program *should* improve my child's overall behaviour.	1	2	3	4	5
17. The program *should* produce lasting improvement in my child's behaviour.	1	2	3	4	5
18. The program *should* improve my child's happiness similar to most other children.	1	2	3	4	5
19. After finishing the program, I *expect* to notice positive changes in my child.	1	2	3	4	5
20. My child's behaviour *should* remain at an improved level after the program is finished.	1	2	3	4	5
21. I *think* the program will improve my child's behaviour in multiple settings (eg. home,	1	2	3	4	5

classroom).					
22. When the program is finished, my child *should* be more resilient, similar to other resilient children	1	2	3	4	5
23. The program *should* help reduce problem behaviour in my child.	1	2	3	4	5
24. I *believe* that several behaviours are likely to be improved by the program.	1	2	3	4	5

USED IN STUDY 2

Behaviour Intervention Rating Scale, Teacher Report

The following questions are based on your *expectation* of the FRIENDS preschool program that will be running in your classroom. Please read each statement carefully and circle the number that applies to you. Please be as honest as possible, there are no right or wrong answers. Everything is confidential. Please answer ALL of the questions.

1 = Strongly Disagree 2 = Disagree 3 = Slightly Disagree
4 = Slightly Agree 5 = Agree

	Strongly Disagree	**Disagree**	**Slightly Disagree**	**Slightly Agree**	**Agree**
1. The program *appears* to be acceptable for increasing resilience in children.	1	2	3	4	5
2. I *think* most teachers would find the program appropriate for preschool children.	1	2	3	4	5
3. The program *should* prove effective in increasing resilience in children.	1	2	3	4	5
4. I would suggest that other people try this program as well.	1	2	3	4	5
5. I *believe* the children will benefit from the program.	1	2	3	4	5
6. The program *sounds* suitable for increasing social-emotional competence in children.	1	2	3	4	5
7. I am looking forward to this program being implemented in my classroom.	1	2	3	4	5
8. I *expect* the program	1	2	3	4	5

would *not* result in negative side-effects for the children.					
9. I *believe* the program would be consistent with the classroom curriculum.	1	2	3	4	5
10. I *think* the program *would* be appropriate for a variety of children.	1	2	3	4	5
11. I *think* the program will handle the children's behaviour in a fair manner.	1	2	3	4	5
12. I *think* the program *will* be reasonable in nature.	1	2	3	4	5
13. I *expect* to agree with the procedures being used in the program.	1	2	3	4	5
14. I *believe* the program *should* provide some good strategies for improving children's coping and resilience.	1	2	3	4	5
15. Overall, the program *should* be beneficial for preschool children.	1	2	3	4	5
16. I *think* the program *should* quickly improve the children's overall behaviour.	1	2	3	4	5
17. The program *should* produce lasting improvement in the children's behaviour.	1	2	3	4	5
18. The program *should* improve a child's happiness similar to most other children.	1	2	3	4	5
19. After finishing the	1	2	3	4	5

program, I *expect* to notice positive changes in the children.					
20. The children's behaviour *should* remain at an improved level after the program is finished.	1	2	3	4	5
21. I *think* the program will not only improve the children's behaviour in the classroom, but also in other settings (eg. home, other classrooms).	1	2	3	4	5
22. When the program is finished, the children *should* be more resilient, similar to other resilient children.	1	2	3	4	5
23. The program *should* help reduce problem behaviour in the classroom.	1	2	3	4	5
24. I *think* that several behaviours are likely to be improved by the program.	1	2	3	4	5

USED IN STUDY 2

Treatment Integrity Checklists

Session 1: Introduction and Being Brave

Please check if the following activities were achieved in Session 1.

____ 1. Introduction Activity:

Aim: children and group leader introduce themselves

____ 2. Feeling Confident and Brave

Aim: help the children understand they can be brave when they are feeling scared and worried.

Help illustrate this by reading the book 'Pog' by Lyn Lee.

____ 3. Questions for Making Friendships:

Aim: Get to know the children by having them draw their favourite food, computer game, sport and animal. Have a brief discussion about it.

____ 4. Working Together:

Aim: Discuss ways we can work together. Set guidelines (e.g. raise hand before speaking, listen to others when they are speaking)

____ 5. People are Different:

Aim: to help the children understand that people are different and that is okay.

____ 6. Jessica and Tom:

Aim: explain that when children are worried, they can be confident and brave.

Help illustrate this be reading the poem 'Jessica and Tom'.

____ 7. Practise Smiling!

Session 2: Feelings

Please check if the following activities were achieved in Session 2.

____ 1. Warm up Activity:

Aim: to build rapport with class.

____ 2. Review Session 1 and Home Activity:

Aim: briefly review the content of session one and review the home activity.

____ 3. Face 2 Face:

Aim: to help the class identify the different emotions people have by focusing on facial expressions.

____ 4. Who is the Boss?

Aim: to help the children understand that they can be the boss of their feelings.

____ 5. Happiness Flower:

Aim: have the children draw a happiness flower to take home.

____ 6. Practise Smiling!

Session 3: Feelings

Please check if the following activities were achieved in Session 3.

___ 1. Let's Learn to be a Friend to our Bodies

Aim: to introduce children to our body clues when we are scared or nervous

___ 2. Let's Draw Ourselves

Aim: to illustrate and normalise our body clues.

___ 3. How Can We Help?

Aim: to demonstrate how we can help others when they are feeling scared or nervous.

___ 4. Final Activity

Aim: encourage friendship by smiling at one another.

___ 5. Sing Song!

Session 4: Relaxation

Please check if the following activities were achieved in Session 4.

___ 1. Relaxation Games

Aim: to provide participants with relaxation techniques hey can apply when feeling worried or nervous

___ 2. Group discussion of the Relaxation Games

Aim: to help children understand the difference between how their muscles feel when they are scared or nervous compared to when they are relaxed

___ 3. Milkshake Breathing

Aim: explain that deep, slow breaths help us calm down

___ 4. How to Feel Good

Aim: discuss situations that make people feel happy and relaxed

___ 5. Final Activity

Aim: Encourage friendship by smiling at one another

___ 6. Sing Song!

Session Five: Red and Green Thoughts

Please check if the following activities were achieved in Session 5.

___ 1. Activity 1: Red and Green Traffic Lights

Aim: to introduce the children to the difference between red and green thoughts

___ 2. Activity 2: Making Examples

Aim: to provide the children with examples of red and green thoughts, have them identify the difference

___ 3. Activity 3: Helping each other have more green thoughts

Aim: to help each other have more green thoughts.

___ 4. Activity 4: Draw a happy, green day

Aim: to reinforce happy, green thoughts

___ 5. Final Activity: Smile

Aim: to reinforce friendship

___ 6. Sing Song!

Aim: to have some fun!

Session Six: Changing Red Thoughts into Green Thoughts

Please check if the following activities were achieved in Session 6.

__ 1. Activity 1: Red to Green

Aim: to practise identifying red and green thoughts

___ 2. Activity 2: Read a Book

Aim: to have the children identify red and green thoughts in a story book

___ 3. Activity 3: Changing red thoughts into green ones

Aim: working together in groups to change red thoughts into green thoughts

___ 4. Activity 4: Final Activity: Smile!

Aim: to reinforce friendship

___ 5. Sing Song!

Aim: to have some fun!

Session 7: Making Step Plans

Please check if the following activities were achieved in session 7

__1 Activity 1: A coping step-plan

Aim: read the story about Tom and Anna to demonstrate a coping step plan

__2 Activity 2: Making Step-plans

Aim: Introduce step plans

__3 Activity: Play friendship games: sharing, listening, smiling, helping
Aim: reinforce friendship behaviours

__4 Activity 3: Final Activity: Smile!
Aim: to have some fun

Session 8 & 9: Support Teams and Role Models

Please check if the following activities were achieved in session 8&9

__1 Activity 1: Support teams
Aim: to identify our support teams – in our family, community, school, etc.

__2 Activity 2: Role Models in my life
Aim: to identify role-models and brave people

__3 Activity 3: Final Activity: Smile!
Aim: to have some fun

Session 10: Party!

Please check if the following activities were achieved in session 10

__1 Activity 1: A summary
Aim: to review all skills learnt

__2 Activity 2: FRIENDS
Aim: to review letters of FRIENDS and what we've learnt

__3 Activity 3: Final Activity: Smile & Party!