

**Parenting factors associated with children's school-related anxiety: A preliminary study  
of parental overprotection and family accommodation**

Kate Ashley Davis

Department of Psychology, Macquarie University

Faculty of the Human Sciences

Supervisor: Associate Professor Viviana Wuthrich

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This thesis is dedicated to my children, Mahli and Mila Davis,  
who have taught me so much of the joys and complexities of parenting.

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### Statement of Candidate

I certify that the work in this thesis entitled **“Parenting factors associated with children’s school-related anxiety: A preliminary study of parental overprotection and family accommodation”** has not been previously submitted for a degree nor has it been submitted as part of requirements for a degree to any other university or institution other than Macquarie University.

I also certify that this thesis is an original piece of research and it has been written by me. Any help or assistance that I have received in my research work and the preparation of the thesis itself has been appropriately acknowledged.

In addition, I certify that all information sources and literature used are indicated in the thesis.

The research presented in this thesis was approved by the Macquarie University Human Research Ethics Committee, reference number – 5201800096 on 13<sup>th</sup> March, 2018.

A handwritten signature in black ink, appearing to read 'Kate Davis', with a stylized, flowing script.

Kate Davis

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## **Abstract**

Childhood anxiety disorders are associated with significant distress and functional impairment that can lead to subsequent psychopathology persisting across the lifespan. Parental overprotection has been consistently implicated in the development and maintenance of childhood anxiety disorders. Similarly, family accommodation of anxious and avoidant child behaviours is linked with increased anxiety symptoms, lower functioning and poorer treatment outcomes in children with anxiety disorders. To date, the literature has largely focused on the relationship between parenting factors and associated child internalising distress and impairment within clinical populations, with minimal attention being given to pre-morbid or non-clinical samples experiencing heightened anxiety symptoms. This study examines the relationship between an overprotective parenting style and accommodating parental behaviours with children's anxiety to stressors typically occurring within Australian primary schools. A sample of 52 male primary-school students between 8 and 11 years of age, and their parents were recruited from an independent primary school in a major Australian city. Self-report measures of parental overprotection and accommodation of children's anxiety-related behaviours were analysed as predictors of children's anxiety symptoms in relation to typical school-related stressors. Consistent with previous research within clinical populations, these results provide support for a moderate association between family accommodation and child anxiety related distress, although this relationship was not found when controlling for children's trait anxiety. Parental overprotection was not found to be related to children's anxiety symptoms in this study. Results are discussed with respect to models of child anxiety and empirical evidence regarding the roles of both child and parent factors in the development and maintenance of child anxiety. The limitations of the current study are reviewed and directions for further research are suggested.

**Parenting Factors Associated with Childhood Anxiety: A Narrative Review of Parental  
Overprotection and Family Accommodation**

This narrative literature review aims to present and integrate child anxiety, parental overprotection, and family accommodation literature. For each of these constructs a brief overview is provided, followed by a review of the literature. This review focuses on the strengths and limitations of the current body of scientific literature, providing the rationale for the related empirical study *Parenting factors associated with children's school-related anxiety: A preliminary study of parental overprotection and family accommodation*.

### **1.1 Anxiety disorders in children**

The construct of anxiety is multifaceted, consisting of physiological, cognitive, and behavioural elements that cause a degree of distress related to a perceived threat (Dadds & Barrett, 2001; Jones, 2013). The physiological component may involve increases in heart rate and respiration, muscle tension, hyperarousal of somatic sensations, nausea, and shaking or trembling limbs (Barrios & O'Dell, 1998). Anxiety-related cognitive symptoms include excessive worry and rumination, and a heightened interpretation bias of threat related to non-threatening or ambiguous situations, which may be related to general or specific worries, social situations, or the separation from an attachment figure (Creswell, Schniering, & Rapee, 2005; Kendall, 2000; Lester, Field, & Muris, 2011). Anxious child temperament, or trait anxiety, is considered to be the most significant individual child vulnerability related to the aetiology of childhood anxiety, with behavioural inhibition in the early years being highly predictive of the development of an anxiety disorder in later childhood (Hudson & Rapee, 2004; Kagan, Reznick, & Snidman, 1988; Murray & Cooper, 2009). Behaviourally inhibited children are those that exhibit a shy temperament, and are consistently observed to experience greater distress and avoidance of unfamiliar people and situations during early childhood. Kagan and colleagues (1988) conducted a longitudinal study of behaviourally

inhibited children over a decade and found that infants high on behavioural inhibition exhibited increased anxiety symptomology, most notably separation and social anxiety, throughout their primary school years. Behaviourally inhibited young children tend to withdraw from novel people and environments which may be considered an early social anxiety presentation (Kagan et al., 1988). The central behavioural manifestation of anxiety is avoidance of perceived threat, and engagement in other dysfunctional safety behaviours (Dadds, Heard, & Rapee, 1991). Anxiety disorders refer to a group of diagnoses rather than a single disorder (Lawrence et al., 2015), which are the most common psychological issue affecting children, with some previous studies reporting prevalence rates of up to 20% (Costello, Mustillo, Erkanli, Keelner, & Angold, 2003); however in a recent large scale epidemiological study in Australia found anxiety disorder prevalence rates for children and early adolescents to be significantly lower, ranging from 6.8 to 7% (Lawrence et al., 2015).

Research has previously found gender differences in the development of childhood anxiety disorders with females having up to twice the risk of meeting diagnostic criteria for an anxiety disorder than males (Jones, 2013). More recently in Australia, for children aged 4-11 years, the prevalence of anxiety disorders in general was found to be slightly but not significantly higher in males than females (7.6% compared with 6.1%), and amongst adolescents prevalence rates were slightly but not significantly higher for females than males (7.7% compared with 6.3%) (Lawrence et al., 2015). Prevalence rates of anxiety disorders across childhood and adolescents have been found to remain stable, with 6.9% of children aged 4-11 years, and 7% of young people aged 12-17 years diagnosed with one or more anxiety disorders (Lawrence et al., 2015). However, differences have been found in the prevalence of specific types of anxiety disorders across childhood and adolescence, with separation anxiety being the most common diagnosis for younger children, and prevalence of social anxiety disorder and generalised anxiety disorder increasing into adolescence

(Lawrence et al., 2015), suggesting that whilst prevalence of anxiety in general remains stable across childhood, the specificity of anxiety changes along its developmental course. Other demographic features seem to play less of a role in the prevalence of anxiety disorders, although there is some evidence within the literature that anxiety disorders are more prevalent in children living in families with lower levels of income, education and employment, and with poorer family functioning (Lawrence et al., 2015; Rapee, 2012).

Comorbidity rates for children with anxiety disorders are high (Last, Hersen, Kazdin, Orvaschel, & Perrin, 1991), with between 50 and 70% of children diagnosed with an anxiety disorder also meeting diagnostic criteria for at least one additional diagnosis (Lawrence et al., 2015; Silverman et al., 1999), and in up to 75% of children presenting with comorbidity, the additional diagnosis was another anxiety disorder (Kendall et al., 2010; Last et al., 1991). The effects of anxiety on the well-being of children and young people is significant, with disadvantageous social, emotional, and academic functioning outcomes resulting (Donovan & Spence, 2000). Poor coping and social skills, restricted social learning opportunities, low self-esteem, and academic underachievement, are some of the greatest effects of anxiety for school-aged children (McLoone, Hudson, & Rapee, 2006; Rapee, et. al., 2005). Furthermore, within samples of adults diagnosed with anxiety or depression, retrospective studies have found that the majority report meeting the criteria for an anxiety disorder in childhood (Kessler, et al., 2005), suggesting that childhood anxiety is a common early feature in the trajectory of chronic psychopathology across the lifespan.

Clinical genetic research indicates considerable heritability of anxiety disorders, with multiple vulnerability genes (e.g. 5-HTT, MAO-A, and NPSR1) found to be associated with anxiety within molecular genetic studies (Domschke, 2013). These genes, and others, have been shown to interact with one another and also with environmental variables to shape the overall disease risk in a complex genetic model (Domschke, 2013). On a broader level,

vulnerability genes seem to confer some of the genetic risk of anxiety disorders via phenotypes such as behavioural inhibition, anxiety sensitivity or neurobiological traits such as increased startle reactivity or dysfunctional corticolimbic activity during emotional processing (Domschke, 2013).

Beyond the contribution of genetic and individual child factors, environmental factors, particularly those related to family variables have been consistently implicated in the onset and course of a range of psychopathology, with childrearing and parenting styles studied most extensively in relation to anxiety disorders (Rapee, 2012). There is now a vast body of empirical research using both direct observation and self-report methods, demonstrating differences in parent-child interactions between people with anxiety disorders and the general population (McLeod, Wood, & Weisz, 2007; Rapee, 1997; Rapee, 2012). Several observational studies have examined avoidant responding in children in relation to parent-child interactions during problem-solving tasks. Barrett et al. (1996) found that compared with children with high levels of aggression, children with high self-reported anxiety tend to initially select avoidant responses to tasks, and following discussion with their parents the degree of avoidance is increased. This modelling and reinforcement of avoidance behaviours subsequently limits the child's exposure to opportunities for naturalistic extinction-based learning. Since avoidance is a core process in the maintenance of anxiety, research and interventions should seek to understand factors associated with the reinforcement of avoidance behaviours.

## **1.2 Aetiological Model of Child Anxiety**

In a contemporary model of the aetiology of anxiety disorders (see Figure 1.) Hudson and Rapee (2004) highlight individual and environmental factors that are theorised to

interact, leading to the development of an anxiety disorder. The inclusion of genetic factors, anxious vulnerability, parental anxiety, environmental support of avoidance, transmission of threat and coping information, and external environmental effects support a systemic conceptualisation of the associations between parent and child biological and environmental factors (Hudson & Rapee, 2004). Whilst an individual who has inherited a genetic predisposition for anxiety, is likely to display anxious vulnerability, such as a behaviourally inhibited temperament and greater threat perception, these variables can subsequently be expected to lead to a coping style and associated behaviours resulting in avoidance of novel experiences and fearful stimuli (Hudson & Rapee, 2004).

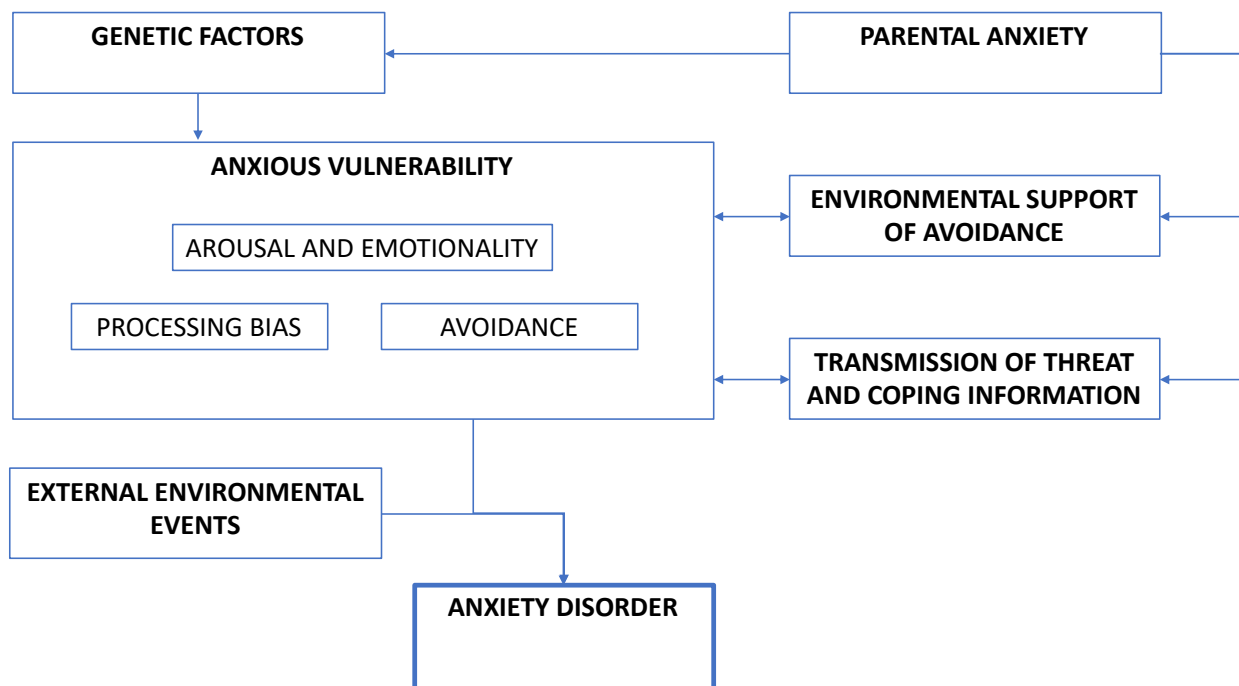


Figure 1. An aetiological model of child anxiety (Hudson & Rapee, 2004).

In addition to anxious vulnerability, parental anxiety is illustrated to contribute to the development of a child's anxiety beyond heritability factors, and via accommodation of the environmental avoidance of anxiety-provoking stimuli, and through the transmission of threat and coping information (Hudson & Rapee, 2004). Within the model, a child's anxious vulnerability can be viewed as having the potential to influence parental behaviours to support avoidance behaviour and processing bias. The illustrated bidirectional association between anxious vulnerability and environmental support of avoidance, represents the increased likelihood that a parent will engage in behaviours such as overprotection and accommodation in an attempt to reduce their child's anxious distress, which may then reinforce the child's perception and avoidance of threat (Hudson & Rapee, 2004). Thus, these overprotective and accommodating parental behaviours may result in the child perceiving that the world is a dangerous place, in which they lack sufficient ability to effectively cope with unfamiliar or challenging stimuli; and reduced opportunities to practice adaptive skills and engage in learning experiences that would otherwise facilitate habituation to feared situations (Hudson & Rapee, 2004). In contrast, caregivers who encourage independence and the child independently confronting challenging situations, may reduce the likelihood that their child will go on to develop an anxiety disorder.

Parenting factors described by Hudson and Rapee (2004), can be operationalised as being *overprotective* where they increase the transmission of unhealthy threat and coping information, and/or *accommodating* where they support the avoidance of stimuli that ultimately reduces the exposure to fearful stimuli. To date, there are no known studies that investigate the unique associations of both overprotective and accommodating parental behaviours on the development of anxiety in children. Currently, there is also a gap in the literature as to whether these parenting factors hold true for anxiety symptoms within non-clinical populations.

### 1.3 Parental Overprotection

Despite significant recent media attention, intrusive “helicopter” parenting is not a new phenomenon. For many decades researchers from various theoretical orientations have directed their attention to the construct of parental overprotection particularly with reference to the associated relationship with child anxiety. As a result, a significant issue in the literature is inconsistency in the operationalisation and measurement of parental overprotection. In this paper, parental overprotection refers to a parenting style characterised by regular and consistent intrusiveness and restriction of activities that children are capable of undertaking independently, preventing the child from being exposed to aversive experiences, irrespective of whether any risk to the child is present (Hemm, Dagnan, & Meyer, 2018; Parker, 1983; Spada et al., 2012).

The construct of parental overprotection was first featured in the literature by Levy in 1931 with the first published empirical research of overprotection examining maternal parenting behaviours within a child clinic setting from which an initial model of parental overprotection focusing exclusively on maternal behaviours was proposed. According to Levy (1931), overprotective behaviours were characterised as excessive physical or social contact, prolonged infantile care, restricting independent child behaviour, and either excessive or a deficit in maternal control resulting in “submissive and effeminate” children, and linked to aggressive-egocentric child behaviour. A significant limitation of Levy’s (1931) research was marked variability within the overprotective parent group, whereby an indulgent parent might become very controlling as circumstances changed, or a parent may exhibit overprotective behaviours for a limited period of time (Thomasgard & Metz, 1993). An important step in advancing the conceptual model of overprotection was delineating Levy’s extremes on the continuum of parental control. Becker (1964), distinguished indulgent parental behaviours (high on warmth, permissiveness, and anxious emotional involvement)

from parental overprotection (high on warmth, restrictiveness, and emotional involvement) (Thomasgard & Metz, 1993). Later, Parker (1983) succinctly operationalised overprotection as parental behaviours that restrict the child's personal development, independence, or autonomy. Within this model, the additional variable, *parental care*, is incorporated and theorised to interact with high levels of parental overprotection, with higher levels of parental care associated with more favourable child adjustment (Parker, 1983). More recently, Chorpita and Barlow (1998) emphasised the relationship between parental overprotection in the early environment and the development of childhood anxiety highlighting the impact that increased parental control could have on reducing children's opportunities to develop an internal locus of control. Within their framework, over-controlling parenting is defined as parental behaviours that are excessive in the protection of children from perceived negative consequences, that encourage children's inappropriate dependence upon their parents, or demonstrate parental attempts to avoid undesirable consequences for their children that would be expected during a typical learning experience (Chorpita & Barlow, 1998). Chorpita and Barlow's (1998) model of overprotection also included individual child factors, such as self-efficacy, exposure to stressors, physiological arousal, intellectual skill, and psycho-social abilities, that helped to explain the association between parental overprotection and child anxiety.

Given that there is nearly a century of research into parental overprotection it is understandable that the dominant paradigm of each era has significantly influenced the associated language and theoretical models. Despite varied terminology and decades of breadth in theoretical lenses and societal norms with regards to parenting practices, research findings have consistently demonstrated a positive association between parental overprotection and childhood anxiety, providing theoretical support for robust construct validity.

Apart from a possible relationship with low socioeconomic status, there are few clearly demonstrated associations between demographic factors, such as family composition and ethnicity variables with anxiety disorders in children (Ford, Goodman, & Meltzer, 2004; Rapee, 2012). However, there is evidence to suggest that ethnicity may be related to parental overprotection (McLeod, Wood, & Weisz, 2007; Van der Bruggen, Stams, & Bogels, 2008) with higher overprotection found amongst mothers of Mediterranean origin than Caucasian mothers (Parker & Lipscombe, 1981; Thomasgard & Metz, 1993). Parker and Lipscombe (1981) also found a negative relationship between educational attainment and maternal overprotection. More consistently, parental overprotection has been demonstrated to be correlated with parental anxiety. Many researchers have found an association between maternal anxiety and overprotection (Thomasgard & Metz, 1993) and few have focused on the association with paternal anxiety. From his psychodynamic orientation Levy (1931), suggested that maternal overprotection resulted from mothers' attempts to relieve their own anxiety symptoms by providing her child with an intensity of protection that she sought for herself. In contrast to the psychodynamic approach of Levy, but with a degree of consistency with his early findings, in an experimental study with mothers of pre-adolescent children, Clarke, Cooper, & Creswell (2013) found that maternal overprotection correlated significantly with maternal anxiety, but unexpectedly not with child anxiety status or symptoms.

In an observational study, Hudson & Rapee (1997) found that when compared with mothers of children without an anxiety disorder, mothers of anxiety-disordered children engaged in overprotective behaviours, by being more involved, more intrusive, and less encouraging of their children. Additionally, in this study, anxious children were observed to request help from their mothers infrequently, indicating that help from their mother was

either uninvited, or that it was such a rehearsed parent-child interaction that the children knew that help would be provided without the need to request it (Hudson & Rapee, 1997).

Despite the proliferation of published studies, there are a number of methodological limitations in parental overprotection research in general. Most significantly is that parental overprotection has typically been measured by self-reported parent and/or child questionnaires. Such substantial reliance on questionnaire based methods may underestimate the relationship with child anxiety (McLeod et al., 2007), potentially due to social desirability effects (Clarke et al., 2013). Less commonly, independent observer ratings are used to assess parental overprotection. The extent to which these different methods of measuring parental overprotection assess the same behavioural constructs has received little attention (Van der Bruggen et al., 2008) resulting in a lack of clarity regarding the extent of both the construct of overprotection and the association between parental overprotection and child anxiety, although there is some evidence of modest associations between parent responses to vignettes and observational assessments (McShane & Hastings, 2009) and the validity of conclusions based on parenting questionnaires is unclear (McLeod et al., 2007; Clarke, et al., 2013). In their validation study of a questionnaire-based measure of parental overprotection, Clarke, et al. (2013) found that self-reported maternal overprotection correlated significantly with independent observer ratings during a challenging puzzle task, which provides validation support whilst addressing some of the aforementioned methodological limitations.

#### **1.4 Family Accommodation**

Family accommodation refers to the degree in which an individual's anxiety symptoms and avoidance strategies are facilitated or reinforced by family members. Parents may provide excessive reassurance, modify family or child routines in order to avoid anxiety-provoking situations, or participate in ritualised or safety behaviours in an attempt to reduce

their child's distress (Calvocoressi et al., 1995; Lebowitz, Scharfstein, & Jones, 2014; Lebowitz, Woolston, Bar-Haim, 2013). Family accommodation has received extensive clinical and academic interest in children and adults with obsessive-compulsive disorder (OCD), and more recently amongst anxious youth (Storch et al., 2015; Thompson-Hollands, Kerns, Pincus, & Comer, 2014). Flessner et al., (2011) described family accommodation as ubiquitous amongst families of children with OCD, and accommodation behaviours have been consistently shown to be strongly associated with OCD and anxiety symptom severity throughout the literature (Flessner et al., 2011; Francazio et al., 2016; Wu et al., 2016).

The role of child anxiety in family accommodation is important in understanding the temporal relations between parental behaviours and childhood anxiety. Research indicates that parents of anxious children are more likely to intervene when their child displays negative affect or distress than parents of non-anxious children (Hudson, Comer, & Kendall, 2008; Settapani, 2015). Importantly, in the first study to compare patterns of family accommodation in relation to symptom severity in the general population, Lebowitz et al. (2014) found a high prevalence of family accommodation in mothers of children with OCD and those with children diagnosed with an anxiety disorder, compared with the non-anxious controls, with no significant differences between the OCD and anxiety-disordered groups. Interestingly, the authors found infrequent family accommodation for mothers of non-anxious children, and noted a non-significant correlation between child anxiety severity and overall accommodation, suggesting that parents of non-anxious children are less sensitive to the manifestation of their child's anxiety symptoms than the general population (Lebowitz et al., 2014). Consistent with research conducted by Lebowitz et al. (2014; 2013), in a laboratory setting, Settapani & Kendall (2017), examined the comparative effect of high and low levels of child distress on mother-reported accommodation in 7 to 17 year-old youths diagnosed with an anxiety disorder, finding a significant effect of child distress on maternal

accommodation behaviours. Given the potential implications for preventative efforts highlighted by the strong link between family accommodation and symptom severity throughout the literature, the condensed range of anxiety scores for non-clinical children found in Lebowitz (2014), lack of replication studies and longitudinal research, warrants further research to investigate the potential for preventative family accommodation reduction interventions in lowering the risk for the development of an anxiety disorder (Lebowitz et al., 2014).

Whilst there is extensive consensus in the literature regarding the linear relationship between family accommodation, and OCD and anxiety symptom severity, the effect size and statistical significance has shown variability across studies, indicating that moderators may be influencing this association (Wu et al., 2016). Wu et al. (2016) conducted a meta-analysis to examine potential sample-dependent and methodological moderators of the relationship between family accommodation and OCD symptom severity; they found a medium effect size ( $r = .42$ ) for the correlation between family accommodation and OCD, and no sample-dependent or methodological variables, other than the number of items on the family accommodation measure moderated the effect size (Wu et al., 2016). The 9-item Family Accommodation Scale (FAS) version measures accommodation over the “past month” detecting effects more sensitively than the extended version which is likely more vulnerable to situational factors due to the inclusion of temporal items (i.e. in the “past week”) that limited score variability and endorsement ratings. Whilst Wu et al. (2016) provided additional support for the empirical findings of family accommodation within OCD populations, the study highlighted the significant influence of measurement scale sensitivity in studies investigating family accommodation. Whilst the meta-analytic findings are not generalisable to the associations between family accommodation and anxiety disorders or the general population, they do highlight potential methodological considerations in interpreting

existing research utilising the FAS, and for future research especially that which uses the adapted version of the FAS for measuring anxiety symptoms in clinical and non-clinical samples.

At first glance combining the constructs of parental control and accommodation appears to be somewhat paradoxical. However, given that research into family accommodation outside of OCD populations is in its infancy, incorporating literature on the related construct of parental overprotection is likely to provide important information into the complex interplay of child and parent factors that are anticipated to play a role in furthering our understanding of both family accommodation and the relationship of intrusive parenting and childhood anxiety. Parental overprotection is considered distinct from family accommodation theoretically, as overprotective parenting is not required for accommodation, and the presence of parental overprotection does not indicate that family accommodation has occurred (Settipani & Kendall, 2017). Furthermore, research findings consistently indicate that parental overprotection is more closely associated with parental anxiety than child anxiety, in contrast to the, more tentative, evidence that family accommodation is significantly associated with child anxiety symptoms. To date, there are no known empirical studies investigating the divergent validity of family accommodation and parental overprotection. Consequently, in this paper parental overprotection and family accommodation are considered to be distinct yet related theoretical constructs, linked by their attempts to prevent or reduce child distress, interference with children's exposure to developmentally appropriate learning opportunities, and the similar associations each has been found to have in relation to childhood anxiety within the empirical literature. Parental overprotection is considered a parenting style, stemming largely from parental determinants and observed relatively consistently across situations, whereas family accommodation appears to have a greater degree of specificity to child distress rather than a generally

indulgent parent style, and is therefore more reactive to avoidance and safety child behaviours.

## **1.5 Conclusion**

There is strong consensus amongst researchers that anxiety runs in families. Whilst there is still a great need for specificity of parent and child variables within comprehensive aetiological model of childhood anxiety, there is clear evidence of the significant role that parent-child interactions play in the family transmission above and beyond genetic heritability and individual child factors (DiBartolo & Helt, 2007; Hudson & Rapee, 2004; Murray, Creswell, & Cooper, 2009; Rapee, 2012).

The relationship between parental overprotection and the onset and maintenance of child anxiety has been observed by researchers across a broad range of theoretical orientations, and populations, over a number of generations, providing a reasonable degree of confidence regarding both the construct validity of parental overprotection and the association with the development of childhood anxiety (Edwards, Rapee, & Kennedy, 2008). These studies have also contributed to the empirical literature by providing the theoretical framework for contemporary individual- and family-based anxiety interventions. However, empirical investigations into the relationship between parental overprotection and childhood anxiety have frequently encountered methodological limitations, including small sample sizes, reliance upon retrospective self-report measures, and inconsistent operational definitions. Recent studies have sought to address these issues by combining self-report measures with observational data.

In contrast, empirical research into family accommodation appears to have benefited from sound methodology with consistent findings across studies, but is a relatively new area of research which has only recently begun to extend beyond the very specific OCD

population to anxiety disorders more broadly, and currently little is known about the generalisability to anxiety symptoms in non-clinical populations. To date, there are no known studies into childhood anxiety that have empirically investigated the constructs of parental overprotection and family accommodation together.

Whilst there is still much research to be done before a comprehensive conceptual model of childhood anxiety can be established, it is clear that a significant contributor to the onset and course of childhood anxiety are parent-child interactions, specifically family accommodation and overprotective parental behaviours. With a greater focus on these intrusive parental factors in empirical research, there hold much promise to uncover the causal associations underpinning the mechanism of anxiety transmission from parent to child.

**Empirical Study: Parenting Factors Associated with Children's School-Related**

**Anxiety: A preliminary study of parental overprotection and family  
accommodation**

Childhood anxiety disorders are a significant mental health problem affecting approximately 7% of pre-adolescent children in Australia (Lawrence et al., 2015). Anxiety disorders are chronic with symptom onset often beginning in childhood or adolescence (Rapee, 2012). The associated functional impacts of childhood anxiety include: poor psychosocial functioning, the development of further psychopathology later in life (Bittner et al., 2007), school refusal, and related impairment to educational outcomes (Skryabina, Taylor, & Stallard, 2016). Expanding our understanding of the causes and determinants of childhood anxiety disorders is important for improving current approaches to treatment and prevention, thereby offsetting their high prevalence and debilitating outcomes (Waters, Zimmer-Gembeck, & Farrell, 2012). The relationship between parental factors and the development and maintenance of anxiety disorders in children has been well-established within the literature (McLeod, Wood, & Weisz, 2007), but little research has examined these associations in non-clinical populations or with relation to typical developmental stressors. This study provides a preliminary investigation of parental overprotection and family accommodation in children's school-related anxiety through the lens of a contemporary aetiological model of anxiety (Hudson & Rapee, 2004).

## **2.1 Development and maintenance of child anxiety disorders**

Contemporary theories of the development and maintenance of childhood anxiety disorders emphasise the integration of evidence regarding individual child vulnerabilities, such as genetics, temperament, cognitive style, gender, and age, with environmental influences, most notably the familial transmission of anxiety (Hudson & Rapee, 2004; Murray, Creswell, & Cooper, 2009; Rapee, Schniering, & Hudson, 2009; Waters et al., 2012). Anxiety disorders have significant familial aggregation, with children of an anxious parent exhibiting an increase of anxiety disorders beyond the base rate (Moller, Nikolic,

Majdandzic, & Bogels, 2016; Murray et al, 2009; Rapee, 2012), although paternal and maternal anxiety appear to confer risk equally for childhood anxiety (Goodman, Ford, & Meltzer, 2002), mothers are more likely to be anxious compared with fathers by virtue of anxiety being more common in females across the lifespan (Waters et al., 2012). Genetic studies have suggested that genetic heritability accounts for approximately 30% of the variance in the transmission of anxiety to children (Gregory & Eley, 2007).

Despite much research attention being given to the development and maintenance of childhood anxiety, there are few studies that have examined the relative contribution of each specific individual vulnerability and environmental factors to childhood anxiety, and even fewer studies that examine the possibility that parenting behaviours, which have been theoretically linked to children's development of anxiety symptoms (Hudson & Rapee, 2004; Rapee et al., 2009), mediate between individual child vulnerabilities and anxiety symptomatology (Waters et al., 2012). Parental psychopathology may exert its effect on children's anxiety via social learning processes, due to the modelling of parental maladaptive coping strategies (Barrett, et al., 1996; Manassis & Bradley, 1994; Murray, et al., 2009; Rapee, 1997; Waters, et al., 2012), through reinforcement of anxious and avoidant responses in children (Barrett, et al., 1996; Waters, et al., 2012), and via threat related meta-communications from parent to child (Gerull, 2002; Hudson & Rapee, 2001; Spada, et al., 2012). Since appraisals of perceived threat and avoidance of anxiety-related stimuli are at the core of anxiety, it is likely that if family factors have a role to play, it would be through their influence on these central processes (Rapee, 2012).

Parenting behaviour is also an important factor in the intergenerational transmission of anxiety (Hudson & Rapee, 2004; Murray et al., 2009; Rapee, 2012). The most extensive research has linked anxiety disorders with parent-child interactions and especially with intrusive parenting styles such as parental overprotection. A substantial amount of research

has demonstrated an association between parental overprotection and anxiety in children, although concluding a causal association is still far from clear. It is generally agreed that there is a bi-directional relationship at play between the anxious child and parent (see Figure 1.) such that anxiety-related distress in the child may increase parental distress, causing parents to adjust demands, expectations, and modify parenting practices to alleviate this resulting distress, subsequently maintaining the child's anxiety symptoms (Hudson & Rapee, 2004; Kendall & Ollendick, 2004). Nevertheless, a possible causal role of parental overprotection in later anxiety, in addition to a reciprocal elicitation of overprotection by child anxiety, is emerging in some longitudinal and experimental studies (Rapee, 2012). Therefore, further research is required to ascertain the unique association of parental distress to children's anxiety symptoms when assessed in conjunction with other parent and child correlates (Waters et al., 2012).

## **2.2 Parental overprotection in the development of childhood anxiety**

Parents play a pivotal role in shaping their child's psychological development and general psycho-social functioning. Research on parenting has made a distinction between parenting styles, and parenting practices, in terms of their impact on child wellbeing (Darling & Steinberg, 1993). Parenting practices are behaviours that aim to achieve specific goals related to the child's behaviour or emotional state, whereas parenting style refers to the general emotional climate that parents provide (Wang & Fletcher, 2016). Contemporary models of child anxiety disorders emphasise the importance of assessing parenting styles, in particular: parental control – including high parental over-control, over-protection and less granting of autonomy, and parental care – low parental warmth and high rejection. (Hudson, Dodd, & Bovopoulos, 2011; Murray et al., 2009; Rapee et al., 2009; Waters et al., 2012).

Parental overprotection is a style of parenting that is characterised by excessive interfering in a child's behaviour, thoughts and feelings, and encouragement of excessive dependence on the parent (Moller et al., 2016; Spada et al., 2012; Waters et al., 2012). There is some inconsistency in how this construct is operationalised within the literature and several terms (e.g. overcontrol, overprotection, intrusiveness, psychological control) have been used to describe it (Moller, et al., 2016). According to Van der Bruggen, et al. (2008), parental overprotection may initiate and maintain child anxiety in three ways: it may increase the child's threat perception; it may reduce the child's perceived control over threat; and it may reduce the child's opportunities to explore his/her surroundings and to learn how to cope with unexpected environmental events. To date, the majority of observational research into overprotective parenting has been conducted within laboratory settings, often using challenging performance tasks such as tangram puzzles (Clarke et al., 2013; Hudson & Rapee, 2001) to elicit overprotective parental behaviours, which whilst resulting in important findings, are limited in their ability to generalise to real-world contexts.

In contrast to an overprotective parenting style, parents who engage in challenging parenting behaviour playfully encourage their child to exhibit risky behaviour or to go outside their comfort zone (Majdandzic, Moller, De Vente, Bogels, & Van den Boom, 2014; Moller et al., 2016). Examples of challenging parenting behaviour include rough-and-tumble play, competing with the child, and encouraging competition and performances. Thus, parents may challenge their children both physically and socio-emotionally (Majdandzic, et al., 2014; Moller, et al., 2016). As challenging parenting behaviour pushes the child's limits, the child learns to be more courageous in unfamiliar situations, to explore the world, and to take chances, which may foster the child's confidence that they are able to cope with threats and novelty in their environment (Moller, et al., 2016). As a result, challenging parenting

behaviour may prevent or hinder the development of child anxiety (Majdandzic et al., 2014; Moller et al., 2016).

Research into parenting behaviours has found that compared to non-clinical controls, parents of anxious children, with mothers being the most frequently studied, are more likely than parents of non-anxious children to use an overprotective style characterised by controlling parental behaviours such as intrusive involvement and low autonomy-granting during children's age-appropriate activities (Hudson & Rapee, 2001; McLeod et al., 2007; Rapee, 2001; Thompson-Hollands et al., 2014). Further research into the role of parenting factors as a potential mediator of associations between individual child characteristics and child anxiety symptoms is important, since child-rearing style is often described as playing a socialising role in children's development of anxiety disorders (McClure & Pine, 2007), and is generally targeted in the treatment of childhood anxiety disorders (Lebowitz et al., 2013; Storch et al., 2017), as well as early intervention when the goal is modifying child vulnerability factors in young children (Thomas & Zimmer-Gembeck, 2007; Waters et al., 2012).

### **2.3 Family accommodation in the course of childhood anxiety**

In the context of childhood anxiety and associated behavioural presentations, family accommodation refers to parental behaviour modifications that attempt to prevent or reduce a child's distress associated with participation in developmentally appropriate activities and/or exposure to stimuli perceived to be threatening (Flessner et al., 2011; Lebowitz et al., 2013). Within clinical settings, family accommodation is observed frequently in anxious children, with parents often facilitating children's anxiety-related avoidance, adhering to the child's own rigid rules related to anxiety-provoking stimuli, modifying family routines, and

providing excessive reassurance (Flessner et al., 2011; Lebowitz et al., 2013; Thompson-Hollands et al., 2014). Parents may accommodate their child's anxiety-related behaviours in response to a child's direct request, or because they perceive it to effectively reduce or prevent their child's distress in the short term; however, in the longer term these behaviours maintain anxiety and facilitate further avoidance through negative reinforcement processes (Ginsburg, Siqueland, Masia-Warner, & Hedtke, 2004; Settapani, 2015; Settapani & Kendall, 2017). Just as parental accommodation of child anxiety tends to maintain anxious avoidance over time through negative reinforcement, a parental overprotection style is thought to reduce a child's distress in the short-term, but reinforce anxiety over the long term. Given this relationship, it follows that accommodation may be conceptualised as behaviour that is a component of an overprotective parenting style often associated with childhood anxiety (Thompson-Hollands et al., 2014).

Family accommodation has been most studied in relation to obsessive-compulsive disorder (OCD) (Calvocoressi, Lewis, Harris, Trufan, et al., 1995; Calvocoressi et al., 1999), where greater levels of accommodation are associated with increased symptomology and impairment, and poorer treatment response (Storch et al., 2015). Family accommodation of anxiety-related behaviours is contrary to the functional goals of exposure-based therapy, aimed at reducing avoidance of feared stimuli and tolerating physiological discomfort associated with anxiety; and successful OCD treatment is associated with decreased family accommodation behaviours (Thompson-Hollands et al., 2014). Thus, it is not surprising that family-based treatments for OCD that target family accommodation of symptoms yield greater improvements in patient functioning than family-based treatments that do not (Kagan, Peterman, Carper, & Kendall, 2016; Thompson-Hollands et al., 2014). The benefit of targeting family accommodation in clinical settings is highlighted in a case example, whereby Johnco (2016) found that child OCD symptom severity decreased through implementing a

parent-focused treatment to reduce accommodation in the absence of direct therapeutic involvement of the child.

## **2.4 The role of parenting in child anxiety during routine stressors**

Whilst there is an extensive body of literature examining the relationship parental rearing behaviours and child anxiety in laboratory settings and across a range of child and adolescent clinical populations (Chorpita & Barlow, 1998; Hudson & Rapee, 2004; Muris, Meesters, Schouten, & Hoge), little research attention has been directed towards the impact of such parenting practices in real world settings. In Hudson and Rapee's (2004) aetiological model of anxiety in children, the bi-directional relationship between parenting variables and the individual child factors that lead towards the development of anxiety disorders is highlighted, offering a theoretical framework to investigate these factors in the context of children's anxiety to school-related stressors. For children with heightened anxiety towards school events, such as sitting a school exam or attending a school camp, the interplay between child and parent anxiety factors may see parents engage in overprotective or accommodating behaviours, such as making special requests of the school for the child to have adjusted participation conditions or expectations to contrive a sense of safety, or to avoid the stressful event altogether. Such intrusive parental behaviours, particularly when further accommodated by the school, are expected to reinforce the child's avoidance and maladaptive coping strategies, preventing them from engaging in an age-appropriate learning experience demonstrating that the feared stimulus is in fact quite safe. Typical school attendance may provide natural variability as a stressor due to the dynamic social and learning demands, but there are significant events common to primary schools that are likely to increase students' anxiety symptoms. Reported test anxiety prevalence rates vary between 10% and 30%, demonstrating that academic testing is an established trigger for anxiety

symptoms, particularly perceived high stakes testing (King & Ollendick, 1989; Segool, et al., 2013) such as Australia's National Assessment Program. Separation anxiety is particularly prevalent in the childhood years (Rapee, 2012), and overnight school excursions mandate the separation of students from their parents, often within an unfamiliar environment, which commonly results in an increase of anxiety-related distress. Since school camp and national academic testing occur annually for Australian students in Year 3 and Year 5, children's anxiety-related distress elicited by these naturally-occurring stressors are the focus of investigation within the present study.

Research is needed to examine the impact of parenting in response to children's anxiety symptoms related to real world stressors, in broad samples and over time. Research such as this would provide information about how parental behaviours vary according to the type of stressors their children face, as well as how they change throughout their child's development.

## **2.5 The present study**

The purpose of the present study is to investigate the relationship between intrusive parenting and children's anxiety symptoms related to typically occurring school stressors. Significant school events that are often associated with anxiety in school children include major examinations (such as NAPLAN assessments), school camps and other major events. Although not clinically disordered, most children experience some anxiety in relation to major examinations, as well as attending school camps (Compas, 1987; Snoeren & Hoefnagels, 2014). These events often occur every one or two school years and so are good targets for examining differences between students and parents to understand the relationship

of parenting behaviours to child anxiety. Therefore, in this study, children are examined in a longitudinal design across three time points throughout the school year.

This study addresses the existing gap in the literature on parenting factors associated with child anxiety by a) including a community sample, and b) conducting one of the earliest empirical investigations into child anxiety integrating both constructs of parental overprotection and family accommodation. Studies such as this, extending upon the existing body of research into parenting factors on child anxiety within clinical populations, are of significant importance in furthering our understanding of environmental mechanisms involved in intergenerational anxiety transmission. Greater theoretical understanding of the mechanisms of prodromal anxiety has implications for school policies and universal intervention programs, for both children and parents, that may curtail the onset and trajectory of childhood anxiety early in the lifespan.

The central research question in this study is whether the parenting factors, *parental overprotection* and *family accommodation*, predict child anxiety related to real world school-related stressors typically faced by pre-adolescent children. Based on previous research it is hypothesised that both parental overprotection and family accommodation will have a significant positive relationship with child anxiety symptoms in each of the three school-based stress conditions. It is also hypothesised that primary school-aged children experience greater anxiety symptoms in response to academic assessments, and separation from their families during attendance at overnight school excursions, than they do during typical periods of school attendance. No difference in anxiety symptoms is expected between the camp and NAPLAN conditions.

The second question explored here, examines whether *family accommodation* and *parent stress levels*, mediate the relationship between children's trait anxiety and their anxiety symptoms related to school-related stressors within a non-clinical population. The relationship between the constructs of parental overprotection and family accommodation is also empirically examined for the first time.

## Method

### 3.1 Design

This quantitative study utilises a longitudinal design, using self-report data collected from male children and their parents within a primary school setting. Online surveys were used to collect data at three time points in the academic year, chosen to capture two naturally occurring school-based stressors (school camp, and NAPLAN academic assessments), and one typical school stress condition (typical school attendance) where no significant events occurred within the schools calendar.

### 3.2 Participants

A total sample of 38 male children aged 8-11 years (Mean Age = 9.97, SD=1.03) and 56 parents identifying as primary caregivers (42 female, and 14 male) took part in the study. For this study, a convenience sample was taken from a non-selective, independent primary school for boys located in Sydney, Australia. The school population in Year 3 and Year 5 consisted of males only, and as such no female child participants were available in this study. The sample was drawn from a potential participant pool of 165 (48 Year 3 students, 117 Year 5 students) children and their parents or caregivers. All children enrolled in Year 3 and Year 5 at the independent primary school and their parents were eligible for inclusion in the study; no exclusion criteria applied. All were invited to participate in the study by an email invitation sent directly from the School's Director of Research and Learning.

A significant reduction in participation rates was observed across testing conditions, with 37 parent/child dyads (38 children, 56 parents) participating in the first survey administration (camp stressor), 17 parent/child dyads (20 children, 23 parents) completing the second administration (academic assessment stressor), and 17 parent/child dyads (17

children, 34 parents) participating in the final survey administration (typical school stress). A total of 7 matched parent/child dyads participated in the study across all three of the test conditions. Table 1 outlines response rates across conditions.

All participants were incentivised for their ongoing participation in the study with an entry into a prize draw, for a chance to win their choice of a new iPad or Apple Watch (to the value of \$429.00 AUD), offered at the conclusion of each of the second and third online surveys.

### **3.3 Measures**

#### **3.3.1 Parental Overprotection Measure**

The Parental Overprotection Measure (OP; Edwards et al., 2008) (Appendix A.) was used to measure parent self-reported overprotective behaviour. The OP consists of 19 items designed to assess parenting behaviours that restrict a child's exposure to perceived threat or harm, with items mainly having a behavioural or situation specific focus rather than more general attitudes and beliefs (e.g. "When playing in the park I keep my child within a close distance of me" and "I protect my child from criticism"). Parents are asked to rate the extent to which the item represents their typical response on a 5-point scale ranging from 0 (not at all) to 4 (very much). The OP measure has previously been found to have high internal consistency (Cronbach's  $\alpha = 0.87$ ), strong test-re-test reliability, and good construct and predictive validity when used with a community sample of parents of 3 – 5-year old children (Edwards et al., 2008), and 7-12-year old children (Clarke et al., 2013). For the current sample, the Cronbach's  $\alpha$  of the OP scale was 0.90, indicating a high level of internal consistency.

### **3.3.2 Family Accommodation Scale – Anxiety**

The Family Accommodation Scale – Anxiety (FASA) (Lebowitz et al., 2012) (Appendix B.) is a self-report measure of Family Accommodation suited to the general population of children. The FASA yields an overall Accommodation score and subscale scores of Participation and Modification. The FASA overall Accommodation scale consists of 9 items (Participation subscale = 5 items, and Modification subscale = 4 items) designed to measure the degree to which family members change their behaviour in response to their child's anxiety-related distress. Items are rated on a 5-point Likert scale ranging from 0 (never) to 4 (daily). In this study the overall Accommodation score was used for data collection and analysis. The FASA has previously demonstrated good internal consistency (Cronbach's  $\alpha = 0.87$  in clinical samples, and Cronbach's  $\alpha = 0.725$  in non-clinical samples), and convergent and divergent validity, and is sensitive to detecting family accommodation among various childhood anxiety disorders. Internal consistency based on data from the current sample ranged from acceptable to excellent (Cronbach's  $\alpha$  was .720 for the academic stress test condition, .860 for the camp stress condition, and .921 for the typical school stress condition).

### **3.3.3 Spence Children's Anxiety Scale**

A very brief (8-item) version (Appendix C) of the Spence Children's Anxiety Scale (SCAS) (Spence, 1998) was administered to assess child trait anxiety, using participant's self-reported symptoms of anxiety. Previous research findings have shown that the SCAS is able to differentiate anxious and non-anxious children (Whiteside & Brown, 2008), and is subsequently included in this study as a measure of trait anxiety. This brief scale has previously been developed from the full 45-item version (Spence, in correspondence), and uses the same four-point Likert scale as the full version that ranges from 0 (Never) to 3

(Always). The items ask respondents to endorse general attitudes and beliefs (e.g. “I worry that something bad will happen to me” and “I wake up feeling scared”) rather than related to specific behaviours or events. The data from the current sample demonstrated good internal consistency Cronbach’s alpha was .915 for the academic stress test condition, .871 for the camp stress condition, and .830 for the typical school stress condition.

### **3.3.4 Positive and Negative Affect Schedule**

A 10-item short-form version of the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegan, 1988) (Appendix D) was used to assess both positive and negative affect, on a 5-point Likert scale at each of the testing conditions. The full PANAS inventory consists of two 10-item mood scales which measure positive and negative affect respectively and has been used extensively in research, demonstrating excellent psychometric properties (Thompson, 2007). In a validation study, Thompson (2007) provided qualitative and quantitative evidence supporting the psychometric properties of a 10-item version of the PANAS. In this study the negative affect subscale of the PANAS was comprised of five items selected from the full version based upon relevance to this study and language skills of primary-school aged respondents: *distressed*, *upset*, *scared*, *nervous*, and *afraid*. Also chosen, were five items associated with the positive affect subscale of the PANAS to counterbalance the negative subscale items. The negative affect subscale was examined as a measure of child participant state anxiety related to each of the testing conditions. The data from the current sample on the negative affect scale ranged from good to excellent internal consistency (Cronbach’s alpha was .938 for the Academic Stress test condition, .853 for the Camp Stress condition, and .877 for the Typical School Stress condition).

### 3.3.5 Depression Anxiety Stress Scale

The Depression Anxiety Stress Scale (DASS-21; Lovibond and Lovibond, 1995) (Appendix E) was used to measure parent anxiety and stress related to each of the test conditions. The DASS-21 is a self-report measure of negative emotional states in adults which consists of three seven-item scales measuring *depression*, *anxiety* and *stress*. The DASS-21 is known to have good psychometric properties, with good internal consistency for all subscales (Antony et al., 1998). Internal consistency based on data from the current sample was good (Cronbach's  $\alpha = 0.759$  for the anxiety subscale and 0.848 for the stress subscale) for the camp stressor condition, (Cronbach's  $\alpha = 0.732$  for the anxiety subscale and 0.784 for the stress subscale) for the academic assessment condition, and (Cronbach's  $\alpha = 0.870$  for the anxiety subscale and 0.756 for the stress subscale), for the typical school stress condition.

### 3.4 Procedure

After approval from Macquarie University's Human Research Ethics Committee (Appendix F), and the Head of School; the Director of Research and Learning emailed all parents of students in school Years 3 and 5 information about the study and asked them to follow website links to volunteer for the study. At the beginning of each online survey, was a participant information and consent form (Appendix G), which required participants to record their consent prior to accessing each battery of questionnaires. Child participants' information and consent form was modified from the parental version to incorporate language deemed developmentally appropriate for primary-school children. Parents facilitated the involvement of their children, who were not contacted by the school or the researchers directly. As the association between parenting variables and child anxiety symptoms was being investigated, matching each child's data with their primary caregiver

was necessary for valid data analysis. In order to preserve the participant anonymity required by the school, participants were asked to generate an individualised alphanumeric code at the beginning of each survey, so that data from parents and their child could be accurately matched for analysis across test conditions. Parents created an 8-character code based on the first two letters of the street name where their child lived at their birth, followed by the last two letters of the child's mother's maiden name, followed by the day of the child's birth (as 2 digits), followed by the last two digits of the child's father's mobile phone number. The anonymity restrictions for this sample limited the amount of demographical data that could be collected and prevented the separation of Year 3 and Year 5 students into distinct cohorts.

On each testing occasion, parent and child versions of the online survey were administered via a single reusable link to the relevant questionnaires. The parent survey consisted of the OP, FASA, and DASS-21. Each questionnaire was administered at every test condition with the exception of OP. The OP was administered to parent participants in the questionnaire battery for the first test condition (camp stressor). In an attempt to reduce participation demands, and retain maximum participants across all three testing periods the OP was omitted from the questionnaire battery for the remaining two test conditions (academic assessment stressor and typical school stress) since changes in participant OP responses were not anticipated over the study period. The child questionnaire battery comprised the SCAS-8, and a short-form of the PANAS. Instructional wording contained in the PANAS items was changed to relate to each specific test condition (e.g. "thinking about yourself and how you feel/felt ABOUT YOUR UPCOMING SCHOOL CAMP (camp stressor)/THE UPCOMING NAPLAN TESTS (academic stressor)/THIS WEEK (typical stressor)).

Following the first administration of surveys (camp stressor condition), it was observed that the participation rates for matched parent/child dyads were less than was

expected based on previous survey research conducted internally within the sample school. In order to maximise participant retention, voluntary entry into a prize draw was introduced following the completion of each subsequent parent and child survey.

### **3.4.1 Testing Conditions**

Three testing conditions were chosen to explore the research questions. In order to examine anxiety symptoms related to school-based stressors, data collection was timed to coincide with naturally occurring school activities expected to increase child anxiety. Test conditions included two significant school activities, school camp held in March 2018 and academic assessments held in May 2018, expected to provide unique stress for child participants, and a typical school attendance condition taken during August 2018 in a period where no significant school events were scheduled, designed to measure stress associated with typical school attendance.

#### *Camp Stressor*

The initial testing took place during the week before the children departed for their first school camp of the academic year. For Grade 3 child participants this was a two night and three day off-campus school excursion located in a bushland setting within 10 kilometres of their primary school. Outdoor education undertaken during the school camp included a variety of physical group activities, such as rock climbing, bushwalking, and mountain bike riding, with children allocated to small groups of 4-6 for overnight accommodation in powered cabins equipped with bathroom facilities. For the vast majority of these children this was their first experience of an overnight school activity in the absence of their parents. For the Grade 5 child participants, they attended a camp of a similar nature but 245 kilometres

away from their primary school. Apart from the increased distance from the school, the accommodation arrangements were comparable to those of the Grade 3 children, and was for many Grade 5 students, their first overnight school excursion. The outdoor activities undertaken by the Grade 5 children could be considered more challenging in nature than those undertaken by the younger children, including abseiling, canoeing, and a night time bush treasure hunt and campfire meeting.

### *Academic Assessment Stressor*

The second administration of the online questionnaires occurred in the week immediately prior to the first 2018 National Assessment Program – Literacy and Numeracy (NAPLAN) examination (see Appendix I for a sample report). NAPLAN is an Australian-wide annual assessment for all students in Years 3, 5, 7 and 9. It is comprised of several consecutive individual examinations which collectively assess students' skills in reading, writing, spelling, grammar and punctuation, and numeracy. The tests are designed to demonstrate how students have performed relative to the national minimum educational standards for foundational academic skills in literacy and numeracy. The data from NAPLAN test results is reported for individual students to their parents and school, and an overall school performance summary is available online for the public, and it also contributes towards online school ranking systems designed to compare schools based on their overall student NAPLAN achievements, meaning that they can currently be considered the academic assessments with the highest stakes within primary schools in Australia.

### *Typical Daily School Stressor*

The final test condition of the study was timed within the school calendar to avoid coinciding with any special school activities, examination or school report periods, or following the recommencement of classes after a school holiday break. This testing period was designed to capture the typical, regular school attendance and participation experiences of children and their parents. As with the previous two test conditions, the online survey remained open for ten consecutive days, with a reminder email containing the survey links being emailed to parents as the survey close date approached.

### **3.5 Statistical Analyses**

Preliminary analyses included descriptive statistics for each of the continuous variables, to produce medians, range, skew, and kurtosis statistics. Since a number of variables were strongly positively skewed, the median and range are reported instead of means and standard deviations for the most adequate description of the variables (Howell, 2013). Spearman's rank-order correlations were estimated to examine bivariate relationships of children's anxiety with parental overprotection, family accommodation, parental anxiety, parental stress, and child trait anxiety. One-way repeated measures ANOVA was used to examine differences in child anxiety across test conditions. Given that the available data in this study was severely impacted by a high rate of missing data, longitudinal statistical analyses were abandoned in favour of analysis of cross-sectional data within each test condition rather than across test conditions.

In order to address the primary research question to determine the relationship between intrusive parenting and anxiety symptoms in primary-school aged children, non-parametric regression analyses (1000 bootstrapped samples) were calculated, to predict

children's anxiety immediately prior to their upcoming school camp (negative PANAS subscale) based on their primary caregiver's degree of parental overprotection (OP) and family accommodation (FASA).

In order to test the hypothesis that intrusive parenting would be mediated by child trait anxiety and parental anxiety and stress a regression-based mediation model was tested using SPSS macro PROCESS (Hayes, 2013). Due to violations of normality 5000 bootstrapped samples were used bias corrected estimates reported (Hayes & Rockwood, 2017; Rucker, Preacher, Tormala, & Petty, 2011).

These analyses were performed using SPSS version 25 (IBM Corp., 2017). An alpha level of .05 was used for all statistical tests. For all analyses in this study statistical significance was defined as  $p < .05$ .

## **Results**

### **4.1 Preliminary Analyses**

#### **4.1.1 Missing Data**

A total of 108 individual respondents (52 children and 56 parents) participated in the study on at least one of the testing conditions. Of these, only 7 matched parent and child dyads completed all three testing conditions due to an unexpectedly high rate of missing data across test conditions during the study.

The pre-camp testing surveys had the greatest participation of each of the three test conditions, with 37 matched parent and child dyads completed. Of these, one child respondent withdrew from the study prior to completing the SCAS items. A further one child participant survey response contained missing data on one questionnaire item, and two parent participant responses were missing data on individual items on the DASS-21 stress scale and Parental Overprotection Measure. Data missing on an individual item basis was addressed by substituting the missing data with the mean score of the participant's responses on the corresponding scale items.

As the camp stress condition was the only condition where parental overprotection data was collected, and due to the greater statistical power the camp stress condition offered relative to the NAPLAN, and typical school stress conditions, it was selected as the study condition most suitable to analyse in order to address the main research question, whether there was an association between parental overprotection and family accommodation and children's anxiety (measured by the PANAS negative fear-based items) related to school-based stressors.

#### 4.1.2 Assumption Testing

Continuous data were screened for violations of the assumptions of parametric tests (Field, 2016). Homoscedasticity and linearity were visually checked through inspection of predicted values and residuals on partial regression plots, with no significant departures observed. Tests for multicollinearity indicated that a very low level of multicollinearity was present ( $VIF = 1.134$  for Parental Overprotection, and  $VIF = 1.134$  for Family Accommodation).

Due to the limited sample size, the Kolmogorov-Smirnov test was used to evaluate normality. For the Camp test condition the following variables were not normally distributed: Family Accommodation,  $D(54) = .171, p = .000$ , PANAS negative scale,  $D(38) = .220, p = .000$ , Parental Overprotection,  $D(55) = .173, p = .000$ , SCAS,  $D(37) = .165, p = .012$ , DASS-21 Anxiety,  $D(54) = .284, p = .000$ , and DASS-21 Stress,  $D(54) = .125, p = .035$ . Within the Academic stress condition, the DASS-21 Stress,  $D(23) = .156, p = .150$  and SCAS,  $D(20) = .160, p = .193$  scores did not deviate significantly from normal; however the following variables were not normally distributed: Family Accommodation,  $D(23) = .230, p = .003$ , PANAS negative scale,  $D(20) = .284, p = .000$ , and DASS-21 Anxiety,  $D(23) = .445, p = .000$ . For the Low stress condition, the following variables were not normally distributed: Family Accommodation,  $D(34) = .351, p = .000$ , PANAS negative scale,  $D(17) = .254, p = .005$ , SCAS,  $D(17) = .249, p = .006$ , and DASS-21 Anxiety,  $D(34) = .359, p = .000$ . The DASS-21 Stress scores,  $D(34) = .121, p = .200$  were not significantly different from normal. In order to address the significant violations of normality bootstrapping was used for each regression.

A one-way repeated measures analysis of variance (ANOVA) was conducted to compare the effect of the specific school-based stressors on child anxiety across the camp, NAPLAN assessment, and low school stress conditions. Mauchly's test indicated that the

assumption of sphericity had been violated,  $\chi^2(2) = 11.44, p = .003$ , therefore Greenhouse-Geisser corrected tests are reported ( $\epsilon = .527$ ). Contrary to our hypothesis that the camp and NAPLAN conditions would result in higher child anxiety than the typical school attendance condition, the results show that children's anxiety symptoms (PANAS negative subscale) did not differ significantly across any of the test conditions. This suggests that either the two school stressor conditions were less anxiety provoking than expected, or that typical school attendance was more stressful than anticipated.

*Table 1. Descriptive Statistics*

	Camp Stress						NAPLAN Stress						Low Stress					
	n	M	SD	skew	kurtosis	$\alpha$	n	M	SD	skew	kurtosis	$\alpha$	n	M	SD	skew	kurtosis	$\alpha$
OP	55	38.00	12.04	.74	-.68	.90	-	-	-	-	-	-	-	-	-	-	-	-
FASA	54	12.00	4.86	1.58	2.32	.86	54	12.00	4.86	1.58	2.32	.72	34	13.00	6.07	2.59	6.95	.92
Negative PANAS	38	7.00	3.79	1.60	2.30	.85	38	6.00	3.79	1.60	2.29	.94	17	7.00	3.36	2.23	5.97	.88
SCAS	37	14.00	4.39	1.38	1.97	.87	37	14.00	3.15	1.38	1.97	.92	17	13.00	3.96	0.69	-.45	.83
DASS- Anxiety	54	7.00	1.92	2.48	2.49	.76	54	7.00	4.37	1.28	7.89	.73	34	8.00	1.89	1.83	2.35	.87
DASS- Stress	54	12.00	3.39	.524	-.053	.85	54	12.00	1.92	0.52	-.05	.78	34	10.00	2.47	-.01	-1.12	.76

### 4.1.3 Associations between study measures

Due to the aforementioned violations of assumptions required for Pearson correlations, Spearman's rank-order correlations were estimated to examine bivariate relationships of children's anxiety with parental overprotection, family accommodation, parental anxiety, parental stress, and child trait anxiety. As can be seen in Table 2 family accommodation (FASA) ( $r_s = .507, p < .001$ ), parent stress (DASS stress subscale) ( $r_s = .359, p < .05$ ), and child trait anxiety (SCAS) ( $r_s = .626, p < .001$ ), but not parental overprotection (OP) or parental anxiety (DASS Anxiety subscale), were significantly associated with children's reports of their anxiety symptoms (negative PANAS subscale). As expected, greater frequency of parental behaviours accommodating child anxiety was associated with higher child anxiety symptoms. Surprisingly, child anxiety symptoms were not significantly associated either parental anxiety or parental overprotection in this study.

*Table 1. Spearman's rank order bivariate correlations*

		Child Anxiety	Family Accommodation	Child Trait Anxiety	Parent Stress	Parental Overprotection
Camp Stress (n = 54)	Child Anxiety					.267
	Family Accommodation	.507***				.331**
	Child Trait Anxiety	.626*****	.467**			.083
	Parent Stress	.359*	.487*****	.500**		.139
	Parent Anxiety	.082	.217	.167	.630*****	.131
NAPLAN Stress (n = 13 )	Family Accommodation	.511*				
	Child Trait Anxiety	.591**	.806*****			
	Parent Stress	.361	.166	-.057		
	Parent Anxiety	.412	.139	-.155	.491*	
Low Stress (n = 34)						
	Family Accommodation	.469				
	Child Trait Anxiety	.745***	.515*			
	Parent Stress	.064	.509**	.335		
	Parent Anxiety	.205	.409*	.055	.634***	

Note. \*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . \*\*\*\*\*  $p < .0005$

## 4.2 Association between parenting factors and child anxiety to school-related stress

In order to address the primary research question to determine the influence of intrusive parenting on primary-school aged children's anxiety symptoms to school-related stressors a series of regression analyses were calculated to predict children's anxiety for each test condition. Children's anxiety immediately prior to their upcoming school camp (negative PANAS subscale) was analysed based on their primary caregiver's degree of parental overprotection (OP) and family accommodation (FASA). Consistent with the first hypothesis, the overall multiple regression statistically significantly predicted child anxiety symptoms (negative PANAS subscale),  $F(2,34) = 4.277, p = 0.022$ , and the two variables, parental overprotection and family accommodation, accounted for 20.1% of children's anxiety immediately prior to their departure for school camp. However, within this model parental overprotection had a non-significant effect on child anxiety symptoms ( $t[34] = .021, p = .896$ ). Of greater interest was the  $b$  associated with family accommodation which was found to have a statistically significant effect on child anxiety as predicted by our first hypothesis. As parental overprotection was found to have a non-significant association with child anxiety a retrospective power analysis using G\*Power (version 3.1.9.3; Faul, Buchner, Erdfelder & Lang, 2014) was conducted to ensure sufficient statistical power was obtained for this analysis. The power analysis indicated that in this regression the sample size obtained in the camp stress condition ( $n=37$ ) provided adequate statistical power ( $> 0.80$ ) at the 0.05 level of statistical significance to detect moderate effects in the vicinity of  $d = .45$ .

Hierarchical multiple regression was performed to investigate the ability of family accommodation to predict child anxiety, after controlling for parent stress and child trait anxiety. Since preliminary analyses found significant deviation of normality bootstrapping was undertaken for the statistical analysis most appropriate for data from this sample; no violations of the assumptions of linearity or homoscedasticity were found. Additionally, the

bivariate correlations amongst predictor variables (family accommodation, child trait anxiety, and parent stress) included in this analysis were examined and are presented in Table 3.

Correlations between independent variables and collinearity statistics were checked with no evidence of multicollinearity found (Tabachnick & Fidell, 2007). All predictor variables were statistically correlated with child anxiety which indicates that the data was suitably correlated with the dependent variable for examination through multiple linear regression to be reliably undertaken. The correlations between predictor variables and the dependent variable (child anxiety) ranged from moderate  $r = .329, p < .05$  to strong  $r = .792, p < .001$ .

In the first step of the hierarchical multiple regression, two predictors were entered: parent stress, and child trait anxiety, this model was statistically significant  $F(2, 33) = 27.96, p < .001$  and explained 62.9% of the variance in child anxiety. In this model when controlling for child trait anxiety ( $\beta = .789, p < .001$ ), parental stress was found to be non-significant ( $\beta = .037, p = .745$ ). In the second step family accommodation was entered, and the total variance explained by the model as a whole was 65% ( $F(3,32) = 20.24, p < .001$ ). The addition of family accommodation explained an additional 1% of variance in child anxiety symptoms, after controlling for child trait anxiety and parent stress. In the final adjusted model, only child trait anxiety was statistically significant ( $\beta = .749, p < .001$ ).

As parental overprotection data was not collected for the remaining two test conditions simple linear regressions were used to analyse the association between child anxiety symptoms (PANAS negative subscale) and family accommodation (FASA) in the academic assessment and typical school stress conditions. In both test conditions the relationship between child anxiety and family accommodation was found to be non-significant,  $F(1,15) = .405, p = .534$  for the academic stress condition, and  $F(1,14) = .438, p = .519$  for the typical school stress condition.

To test whether the effect of family accommodation on child anxiety symptoms was mediated by the child's anxious trait anxiety a simple mediation model was tested using bootstrap confidence intervals (Rucker et al., 2011; Preacher & Kelley, 2011; Hayes, 2017). The results show a significant indirect effect of family accommodation (FASA) on child anxiety (PANAS) through child trait anxiety (SCAS),  $b = 0.298$ , BCa CI [0.08, 0.55] in the camp stress condition.

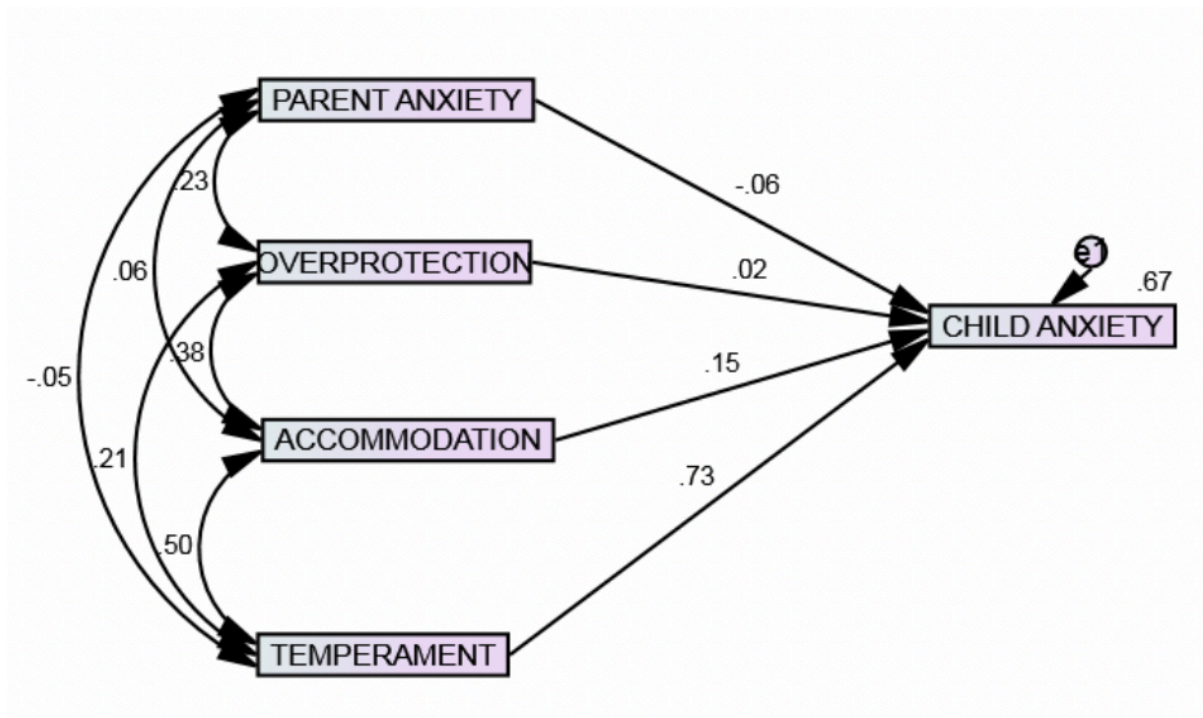


Figure 2. Path Analysis Coefficients

**Table 2. Hierarchical Regression Analysis**

	R	R <sup>2</sup>	R <sup>2</sup> Change	B	SE	β	t
<b>Model 1</b>	.803	.645****	.645				
Child Trait Anxiety				.688	.098	.789****	7.03
Parent Stress				.040	.120	.037	0.33
<b>Model 2</b>	.809	.655****	.009				
Child Trait Anxiety				.654	.105	.749****	6.24
Parent Stress				.015	.123	.014	0.12
Family Accommodation				.100	.107	.111	0.94

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ . \*\*\*\*  $p < .00$

## **Discussion**

The present study aimed to extend previous research into the family factors associated with the onset and maintenance of anxiety within clinical populations, to a community sample reflecting the impact of parental behaviours on children's anxiety to commonplace school-based stressors. Regarding parental factors, this is one of the first empirical studies to examine the constructs of parental overprotection and family accommodation together. Based on evidence found in clinical samples it was expected that parental overprotection (Chorpita & Barlow, 1998; Hudson & Rapee, 2004; Edwards et al., 2010) and family accommodation (Lebowitz, et al., 2013; Kagan et al., 2016; Storch et al., 2015) would both be positively associated with anxiety symptoms that children experience in relation to school-based stressors. (Edwards, Rapee, & Kennedy, 2008; 2010)

The central research question was whether the parenting factors, parental overprotection and family accommodation, predict children's anxiety towards school-based stress. Contrary to our hypothesis, the results showed a non-significant relationship between parental overprotection and children's school-related anxiety. Consistent with previous research in clinical populations (e.g. Lebowitz et al., 2013a; 2013b; 2014), these results provide evidence for the association of family accommodation with child anxiety symptoms within a non-clinical sample. However, this relationship does not stand when controlling for children's anxious trait anxiety, which suggests that the role of parental accommodation may not be as significant within non-clinical children than those diagnosed with anxiety disorders or OCD.

An interesting finding of this study is the role that child trait anxiety has in mediating the relationship between family accommodation and child anxiety. This finding, together with significant proportion of shared variance explained by child trait anxiety within the

aforementioned hierarchical regression analysis, potentially demonstrates the bi-directional association between parent and child factors discussed throughout the literature. It is well-established that children with anxious temperaments (trait anxiety) are not only at greater risk for anxiety across the lifespan, but also tend to elicit protective and accommodating parental behaviours, which serve to confer further risk for the development of anxiety disorders via social learning process, such as modelling, and through the meta-communication of threat. These results demonstrate this complex interplay between child and parent factors that interact in their contribution to childhood anxiety.

Given that the construct of family accommodation is related to overprotection (Rapee, 2012), it is of much interest that within this sample a significant relationship between family accommodation and child anxiety was found, but parental overprotection was found to have a non-significant association. Previous cross-sectional research within a preschool community sample, as measured by the Parental Overprotection Measure, has demonstrated a significant association between parental overprotection and child anxiety symptoms (Edwards et al., 2008). However, consistent with the findings of this study, Clarke et al (2013), in a validation study of the Parental Overprotection Measure in 7 -12-year-old children, also reported null findings with respect to the association between parental overprotection and child anxiety. One explanation for this discrepancy in findings could be that parental overprotection may be more related to the development of anxiety in preschool aged children (Clarke et al., 2013), however given the volume of evidence within the literature demonstrating the association between parental overprotection and control and anxiety disorders, these results are surprising, and further research is needed to account for these discrepant results across studies. However, the non-significant association between overprotection and child anxiety must be interpreted with much caution in this study due to questionable statistical power.

## 5.1 Strengths of the Present Study

The greatest strength of this study was the research design of capitalising upon naturally occurring stressors typically occurring within Australian primary schools through the timing of data collection. Another strength of this study was measuring parental overprotection with a validated self-report measure, of parental behaviours that restrict a child's exposure to perceived threat or harm, previously validated in children between preschool- age and 12 years of age (Edwards et al, 2008; Clarke et al., 2013). Previous survey research into parental overprotection has often used retrospective adult reports of their parent's perceived overprotection to measure the construct. However, these retrospective reports may have questionable validity due to possible recollection bias, or the significant delay between direct experience in childhood and data collection in adulthood (Rapee, 1997) and may be considered to measure the construct of perceived overprotection more validly.

## 5.2 Limitations of the Present Study

The most significant limitation of this study was an unexpectedly high rates of missing participant data, which resulted in significant sampling issues. Pre-investigation power analyses determined that 174 matched parent/child dyads were required in order to have sufficient power to detect small effects (in the vicinity of 0.2) using statistical analysis examining the changes in the associations between parenting factors and child anxiety symptoms across each of the testing conditions. Since this lack of power precluded the construction and testing of complex structural equation models, a simpler regression-based mediation analysis was chosen as a more appropriate statistical analysis to examine the research questions. Whilst adequate power was obtained for meaningful analysis within the camp stress condition, the retrospective power analysis revealed that this analysis was also slightly underpowered for the academic stress ( $1-\beta = 0.33$ ) and typical stress test ( $1-\beta = 0.29$ )

conditions, meaning that determining that the non-significant findings in this study is due to a lack of association between variables is questionable. Furthermore, the study was designed to capture data from two naturally occurring school stressors. The results from the ANOVA showed no difference in children's anxiety responses between the typical (low) stress condition, and the NAPLAN and camp stress conditions. This suggests that either the stress conditions were not particularly stressful for the participants, or that typical school attendance condition was more stressful than anticipated.

Due to the small quantity of matched parent and child data obtained during this study and non-significant differences across stress conditions, the empirical findings should be interpreted with considerable caution. It is likely that the increased demands placed upon families in the lead up to significant school events, took up much of their time and focus, resulting in inconsistent responding by participants across the study, highlighting the challenges of assessing families within the school context, particularly in the lead up to stressful events.

In addition to the small sample size, all participants were male, taken from an affluent independent school, and of non-minority status. Whilst there is little evidence in the literature that demographical factors are related to the development of anxiety disorders (Ford et al., 2004; Rapee, 2012) the restricted sample in this study prevents generalisation of these findings to female children, across socio-economic statuses and school settings.

Self-report measures of parental behaviour and affect, and child emotional states were used in this study rather than direct observations or experimental manipulations. As all data in this study was correlational, causation of significant effects is unable to be determined.

In conducting this research, a key challenge was conforming to the anonymity requirements of the school and managing the associated questionnaire administration and

associated ethical considerations. As participation status and data anonymity was maintained, researchers were restricted from targeted follow-up of participants as survey closing dates drew near and as new testing condition administration commenced. Additionally, analysis of demographic details is limited, in particular comparison between responders and non-responders. To address this restriction, study participation reminders were placed in the school newsletter, and a single group reminder email was sent towards the survey closing date for each of the test conditions. As the group reminder email was unavoidably received by non-participants of the study in addition to those wishing to participate, it was deemed unethical to send more than one reminder to the entire Year 3 and Year 5 school community.

Notwithstanding the above limitations, this study did produce some interpretable findings that have implications for mental health clinicians and educators working with primary school-aged children, as well as researchers. Firstly, this study has provided initial support for the relationship between family accommodation and childhood anxiety in a non-clinical sample; and also has implications for how primary schools respond to apparent family behaviours that accommodate children's avoidance of stressful situations or activities at school. In addition, whilst these results must be interpreted with caution, these findings add to a body of literature that yields mixed results in the empirical examination of parental overprotection. Whilst there is extensive literature demonstrating the association between controlling and overprotective parenting, further research is necessary to effectively define the construct of overprotection and uncover the underlying mechanisms of effect.

### **5.3 Clinical and Theoretical Implications**

Given that there is still much research needed to develop specific theoretical models of familial factors associated with the aetiology of childhood anxiety, this study provides an

important preliminary investigation into the role of intrusive parental behaviours within the general population. The results of this study suggest that intrusive parenting is indeed an important influence on children's anxiety to attending school camp. In order to effectively target a reduction in children's anxiety when faced with a school-related stressor (e.g. attending overnight excursions, undertaking academic assessments), interventions need to also address the frequency and intensity of family accommodation behaviours towards children's anxious distress. The mechanism of change most likely to exert meaningful effects would be an increase in exposure to situations that would provide opportunities for naturalistic extinction-based learning expected with a reduction in family accommodation and an increase in child autonomy. Consequently, as with similar research within clinical populations, we would expect this to lead to a decrease in the severity of anxiety symptoms in children, and may delay or divert the onset of childhood anxiety disorders. In addition to these mental health benefits, there are potential implications for school policies with regards to special provisions for academic assessments, educational access and participation adjustments, and in providing effective pastoral care for students and their families.

Unfortunately, an inadvertent contribution of this study is a demonstration of the challenges associated with conducting research within schools. Methodological considerations to help overcome some of these issues would be to broadly recruit participants, seek to create research designs with minimal testing points, and identify highly desirable incentives for study participation. Whilst the nature of the research is likely to impact the willingness of schools to accommodate research projects such as this, direct benefits to schools (e.g. provision of free parent or teacher seminars), may make participation more enticing.

## 5.4 Future Research

Given that the most significant strength of this study is a research design that capitalises upon naturally occurring school stressors future research with non-clinical samples should seek to augment this study design by seeking to mitigate the challenges associated with research in schools. In future studies, the addition of observational parent data to self-report measures would provide further insight into the specificity of overprotective parental behaviours and examine the validity of self-report on the construct of overprotection. As there is some indication in a small number of prior studies of the possible causation of parental overprotection on the development of anxiety, longitudinal and experimental research may begin to uncover directional effects between parents and their children in the aetiology of childhood anxiety symptoms and disorders. In summary these findings, if replicated on a larger scale, extend the literature beyond clinical populations and pave the way for the development of interventions for young children and their families to reduce anxiety symptoms, and potentially divert the trajectory of childhood anxiety.

## 5.5 Conclusion

There is great promise in extending and refining current theoretical models of childhood anxiety, and associated interventions beyond clinical populations, with earlier identification and universal interventions offering the possibility of reducing the lifelong health burden associated with the trajectory of anxiety beginning in childhood. This study has extended upon previous child anxiety research by testing parental correlates known to impact the maintenance, severity, and treatment outcomes of childhood anxiety within clinical populations, in a non-clinical sample utilising stressors commonplace for primary school-aged children. Within this study, when confronted with an upcoming school camp, higher levels of family accommodation were associated with increased child anxiety. However,

parental overprotection was not found to be statistically significantly related to children's anxiety, contrary to expectations. Furthermore, the positive relationship between family accommodation and child anxiety found in this study is consistent with the findings of previous research across childhood anxiety disorders (Lebowitz et al., 2014; Lebowitz et al., 2013) providing initial support for the potential generalisability of research within the anxiety disorders to non-clinical populations.

Future research should endeavour to clarify the mechanisms of familial transmission of anxiety, and experimental studies and longitudinal research should seek to uncover the causal role of intrusive parenting, over and above the effect that child anxiety symptoms elicit on parents. Whilst the limitations of this empirical investigation necessitate cautious interpretation of the findings, the strengths of this study design warrant replication studies incorporating extensive sampling in order to capitalise upon the opportunities that research within schools could offer. Furthering our understanding of the complex interplay between child and parental factors has the potential to not only to reduce anxiety symptoms in children, but may subsequently support educational outcomes associated with increased school attendance and participation.

Whilst anxiety prevention may be considered the Holy Grail for mental health researchers and clinicians, continued research into the mechanisms and symptom reduction of child anxiety is of great importance to improving life satisfaction and functioning across the lifespan.

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## Appendices

### Appendix A. Parental Overprotection Measure

I comfort my child immediately when he/she cries:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

When playing in a park, I keep my child within a close distance of me (i.e. about 30m):

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I protect my child from criticism:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I give my child extra attention when he/she clings to me:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I would not allow my child to go out with family friends if I were not present:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I almost always take my child to the doctor if he/she is unwell:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I keep a close watch on my child at all times:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I tend to be over-protective of my child:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I try to anticipate and avoid situations where my child might do something risky:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I try to protect my child from making mistakes:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I do not allow my child to climb trees:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I shelter my child from life's difficulties:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

When away from home I tend to panic if my child is out of sight, even for a moment:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I am reluctant for my child to play some sports for fear he/she might get hurt:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I will only leave my child with close friends or relatives if I have to go out:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I accompany my child on all outings:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I shield my child from conflict:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I do everything possible to protect my child from potential injury:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

I protect my child from his/her fears:

Not at all	A little	Somewhat	Quite often	Very much
------------	----------	----------	-------------	-----------

## **Appendix B. Family Accommodation Scale – Anxiety**

Over the past 3 months, how often did you reassure your child?

Never            1-3 times a month            1-2 times a week            3-6 times a week            Daily

Over the past 3 months, how often did you provide items needed because of anxiety?

Never            1-3 times a month            1-2 times a week            3-6 times a week            Daily

Over the past 3 months, how often did you participate in behaviours related to your child's anxiety?

Never            1-3 times a month            1-2 times a week            3-6 times a week            Daily

Over the past 3 months, how often did you assist your child in avoiding things that might make them more anxious?

Never            1-3 times a month            1-2 times a week            3-6 times a week            Daily

Over the past 3 months, have you avoided doing things, going places, or being with people because of your child's anxiety?

Never            1-3 times a month            1-2 times a week            3-6 times a week            Daily

Over the past 3 months, have you modified your family routine because of your child's symptoms?

Never      1-3 times a month      1-2 times a week      3-6 times a week      Daily

Over the past 3 months, have you had to do some things that would usually be your child's responsibility?

Never      1-3 times a month      1-2 times a week      3-6 times a week      Daily

Over the past 3 months, have you modified your work schedule because of your child's anxiety?

Never      1-3 times a month      1-2 times a week      3-6 times a week      Daily

### Appendix C. Spence Children's Anxiety Scale

Choose the word that shows how often each of these things happen to you. There are no right or wrong answers.

I worry about things	Never	Sometimes	Often	Always
----------------------	-------	-----------	-------	--------

I feel afraid that I will make	Never	Sometimes	Often	Always
--------------------------------	-------	-----------	-------	--------

a fool of myself in front of people

I worry that something bad	Never	Sometimes	Often	Always
----------------------------	-------	-----------	-------	--------

will happen to me

I feel nervous	Never	Sometimes	Often	Always
----------------	-------	-----------	-------	--------

I worry what other people	Never	Sometimes	Often	Always
---------------------------	-------	-----------	-------	--------

will think of me

All of a sudden, I feel really	Never	Sometimes	Often	Always
--------------------------------	-------	-----------	-------	--------

scared for no reason at all

I feel afraid	Never	Sometimes	Often	Always
---------------	-------	-----------	-------	--------

I wake up feeling scared	Never	Sometimes	Often	Always
--------------------------	-------	-----------	-------	--------

## Appendix D Positive and Negative Affect Schedule

Thinking about you and how you feel ABOUT (STRESSOR), to what extent do you feel:

	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Distressed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Excited	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Upset	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Strong	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scared	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enthusiastic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Inspired	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nervous	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Determined	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Afraid	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix E Depression Anxiety Stress Scales

DASS <sub>21</sub>				
		Name:	Date:	
<p>Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you <i>over the past week</i>. There are no right or wrong answers. Do not spend too much time on any statement.</p> <p><i>The rating scale is as follows:</i></p> <p>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 time            3 Applied to me very much, or most of the time</p>				
1	I found it hard to wind down	0	1	2 3
2	I was aware of dryness of my mouth	0	1	2 3
3	I couldn't seem to experience any positive feeling at all	0	1	2 3
4	I experienced breathing difficulty (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 I wasn't worth much as a person	0	1	2 3
18	I felt that 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

## Appendix F. Macquarie University Human Research Ethics Approval

Office of the Deputy Vice-Chancellor  
(Research)

Research Services  
Research Hub, Building C5C East  
Macquarie University  
NSW 2109 Australia  
T: +61 (2) 9850 4459  
<http://www.research.mq.edu.au/>  
ABN 90 952 801 237



**MACQUARIE**  
University  
SYDNEY • AUSTRALIA

13 March 2018

Dear Associate Professor Wuthrich

**Reference No:** 5201800096

**Title:** *Student Resilience to School Stress: The Role of Parental Overprotection*

Thank you for submitting the above application for ethical and scientific review. Macquarie University Human Research Ethics Committee (HREC) (Human Sciences & Humanities) considered your application.

I am pleased to advise that ethical and scientific approval has been granted for this project to be conducted by Mrs Kate Davis under the supervision of Associate Professor Viviana Wuthrich.

**Approval Date:** 13 March 2018

This research meets the requirements set out in the *National Statement on Ethical Conduct in Human Research* (2007 – Updated May 2015) (the *National Statement*).

### Standard Conditions of Approval:

1. Continuing compliance with the requirements of the *National Statement*, which is available at the following website:

<http://www.nhmrc.gov.au/book/national-statement-ethical-conduct-human-research>

2. This approval is valid for five (5) years, subject to the submission of annual reports. Please submit your reports on the anniversary of the approval for this protocol.

3. All adverse events, including events which might affect the continued ethical and scientific acceptability of the project, must be reported to the HREC within 72 hours.

4. Proposed changes to the protocol and associated documents must be submitted to the Committee for approval before implementation.

It is the responsibility of the Chief investigator to retain a copy of all documentation related to this project and to forward a copy of this approval letter to all personnel listed on the project.

Should you have any queries regarding your project, please contact the Ethics Secretariat on 9850 4194 or by email [ethics.secretariat@mq.edu.au](mailto:ethics.secretariat@mq.edu.au)

The HREC (Human Sciences and Humanities) Terms of Reference and Standard Operating Procedures are available from the Research Office website at:

[http://www.research.mq.edu.au/for/researchers/how\\_to\\_obtain\\_ethics\\_approval/human\\_research\\_ethics](http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics)

The HREC (Human Sciences and Humanities) wishes you every success in your research.

Yours sincerely



**Dr Karolyn White**

Director, Research Ethics & Integrity,

Chair, Human Research Ethics Committee (Human Sciences and Humanities)

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) *National Statement on Ethical Conduct in Human Research* (2007) and the *CPMP/ICH Note for Guidance on Good Clinical Practice*.

## Appendix G. Participant Information and Consent Forms

Department of Psychology  
Faculty of Human Science  
MACQUARIE UNIVERSITY NSW 2109



Phone: +61 2 9850 4866  
Email: viviana.wuthrich@mq.edu.au

Chief Investigator: Associate Professor Viviana Wuthrich

### Participant Information and Consent Form

Name of Project: Student Resilience to School Related Stress

Your child is invited to participate in a study of student resilience to stressful events. The purpose of the study is to investigate how individual child and family factors are related to children's resilience to typical school stressors such as exams and overnight excursions. We are interested in understanding how students think and feel when confronted with challenging school events, and how parents respond to their children during these times.

The study is being conducted by Kate Davis to meet the requirements of a Master of Research – Psychology under the supervision of Associate Professor Viviana Wuthrich +61 2 9850 4866 viviana.wuthrich@mq.edu.au of the Department of Psychology. **PLEASE NOTE:** As well as being a researcher on this project Kate Davis is also employed as a School Counsellor at [REDACTED]. All information gathered in the course of this research will be electronically gathered and linked to an alphanumeric code which you will generate. Therefore the information will be completely deidentified from all researchers and school staff. You and your child's participation in this study will have no negative impact on any clinical or therapeutic relationship between Kate in her role as School Counsellor and any member of the [REDACTED] community. The researchers will have access to de-identified data for the purpose of analysis. A summary of the results of the data will be made available to you at the end of the study and sent out to all parents who were invited to participate. After the trial, other researchers may use the data for reliability checks or further research purposes but this will be completely anonymous.

If you and your child decide to participate, you will both be asked to answer a series of online questions on three occasions throughout the year, timed to capture your child's experience of specific events which some students may find stressful. Parent questionnaires will include items indicating the frequency of different types of parenting behaviours emotions; student questionnaires will include items that measure children's thoughts and emotions. The questionnaires given in this study have been used in many research studies and mental health services across the world and there is no evidence to suggest that people find them distressing or upsetting to complete. In the very unlikely event that you or your child find completing the questionnaires difficult or distressing in any way, assistance can be accessed through school counselling staff, the researchers, or your local General Practitioner.

Participation in this study is entirely voluntary; you and your child are not obliged to participate and if you/they decide to participate, you are free to withdraw at any time without having to give a reason and without consequence.

---

The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics & Integrity (telephone (02) 9850 7854; email [ethics@mq.edu.au](mailto:ethics@mq.edu.au)). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

---

I have read and understand the information above and any questions I have asked have been answered to my satisfaction. By clicking I CONSENT I agree to participate in this research, knowing that I can withdraw from further participation in the research at any time without consequence.

I CONSENT

I DO NOT CONSENT

Department of Psychology  
Faculty of Human Science  
MACQUARIE UNIVERSITY NSW 2109



**Phone: +61 2 9850 4866**  
Email: [viviana.wuthrich@mq.edu.au](mailto:viviana.wuthrich@mq.edu.au)

Chief Investigator: Associate Professor Viviana Wuthrich

**Participant Information and Consent Form  
(student version)**

Name of Project: Student Resilience to School Related Stress

We are interested in learning about how children respond to different events at school. You are invited to help us understand how children feel about things in their life by answering 18 questions in a survey about how you think and feel at different times throughout the year. Your responses will be anonymous, which means that your teacher, friends and the researchers won't know which responses you choose. You have the choice to participate in this research, if you would like to stop at any time you can do so. Just let your mum or dad know that you don't want to do it.

If you have any questions or would like to talk about how you are feeling, you can talk with your parents or teacher. If you find the questions hard or they make you feel unhappy, please tell your mum or dad. You can also tell your teacher at school and they can help.

If you would like to participate in this research please click I WANT TO DO THIS to begin answering the questions.

I WANT TO DO THIS

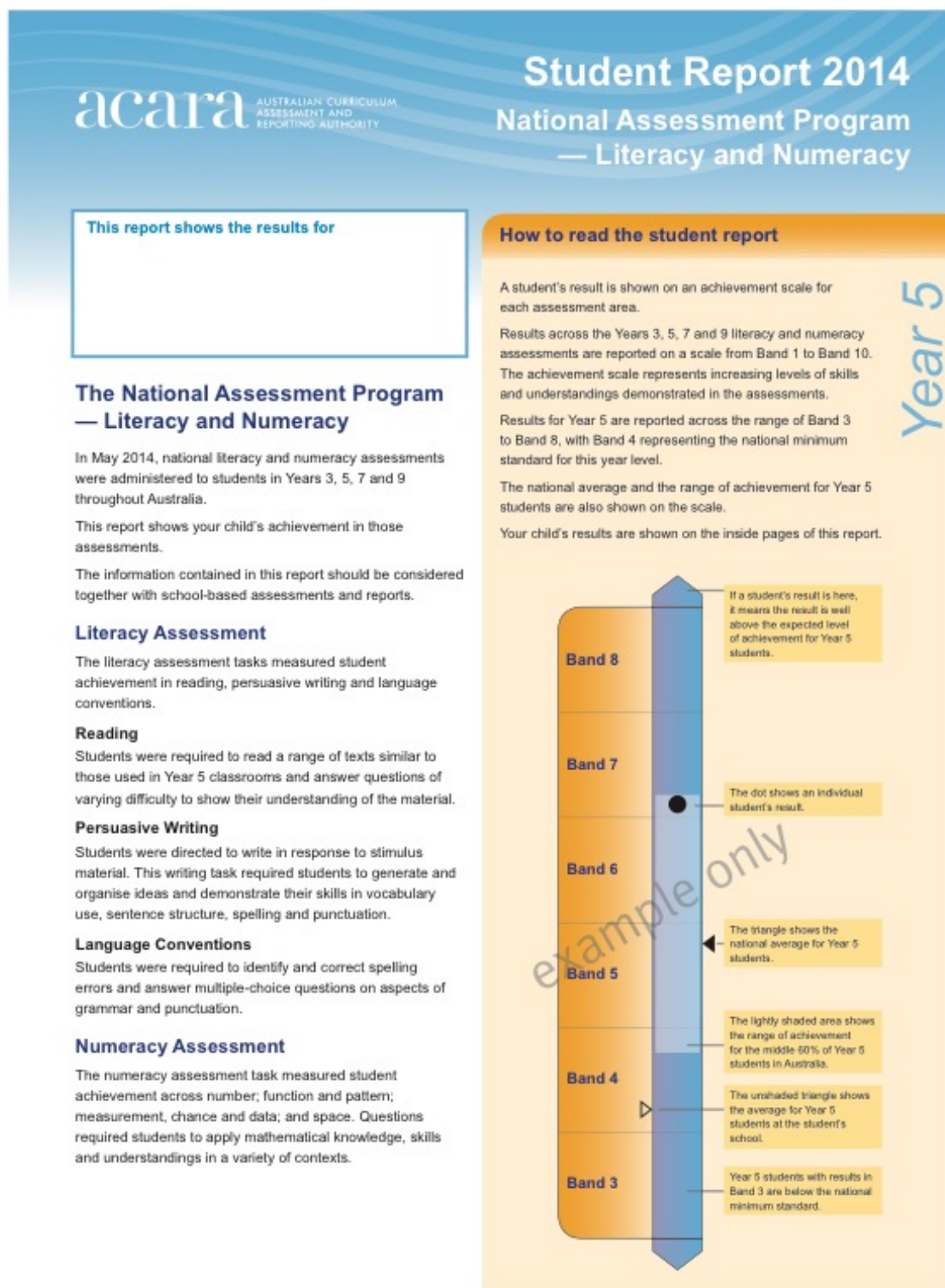
I DON'T WANT TO

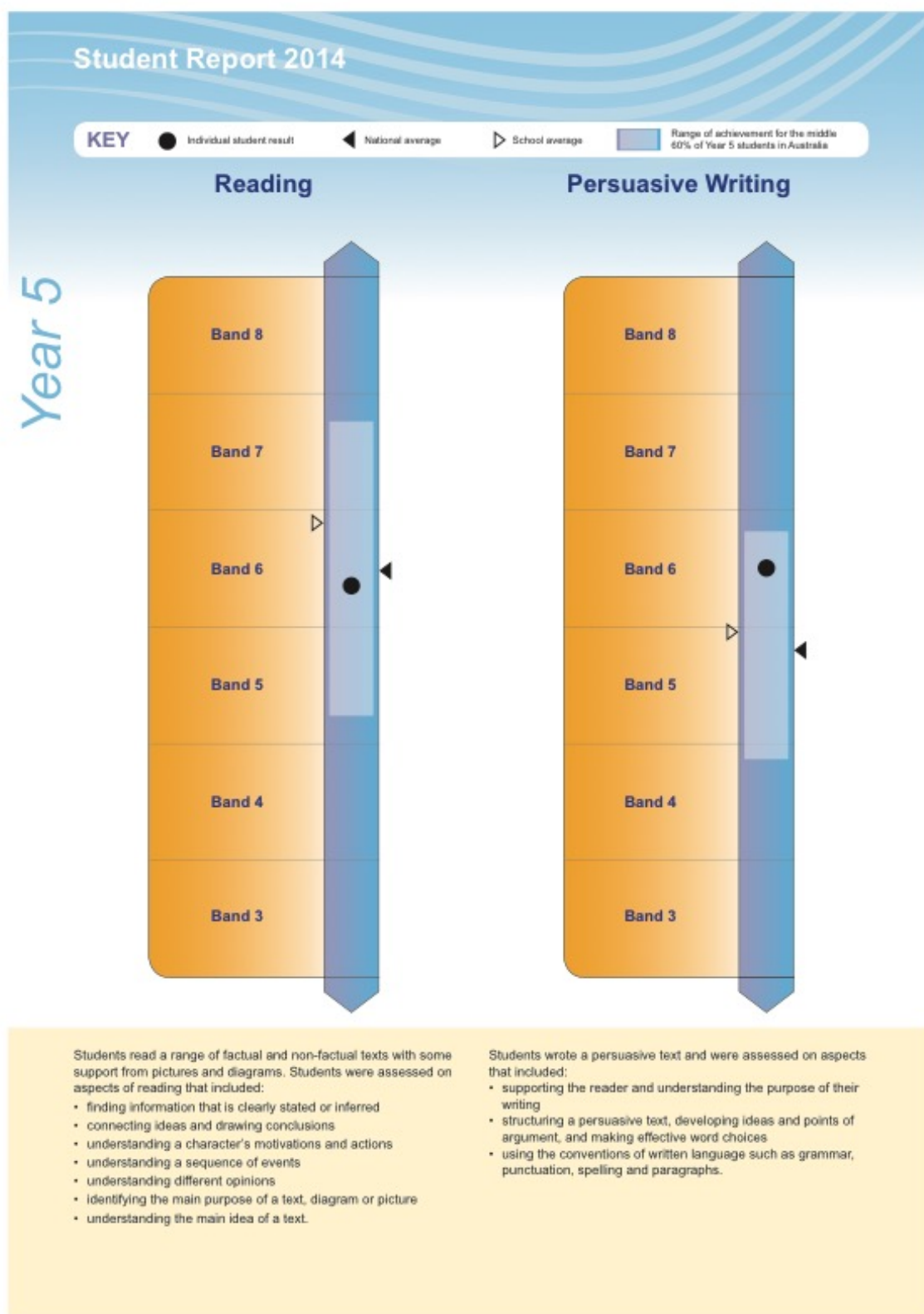
---

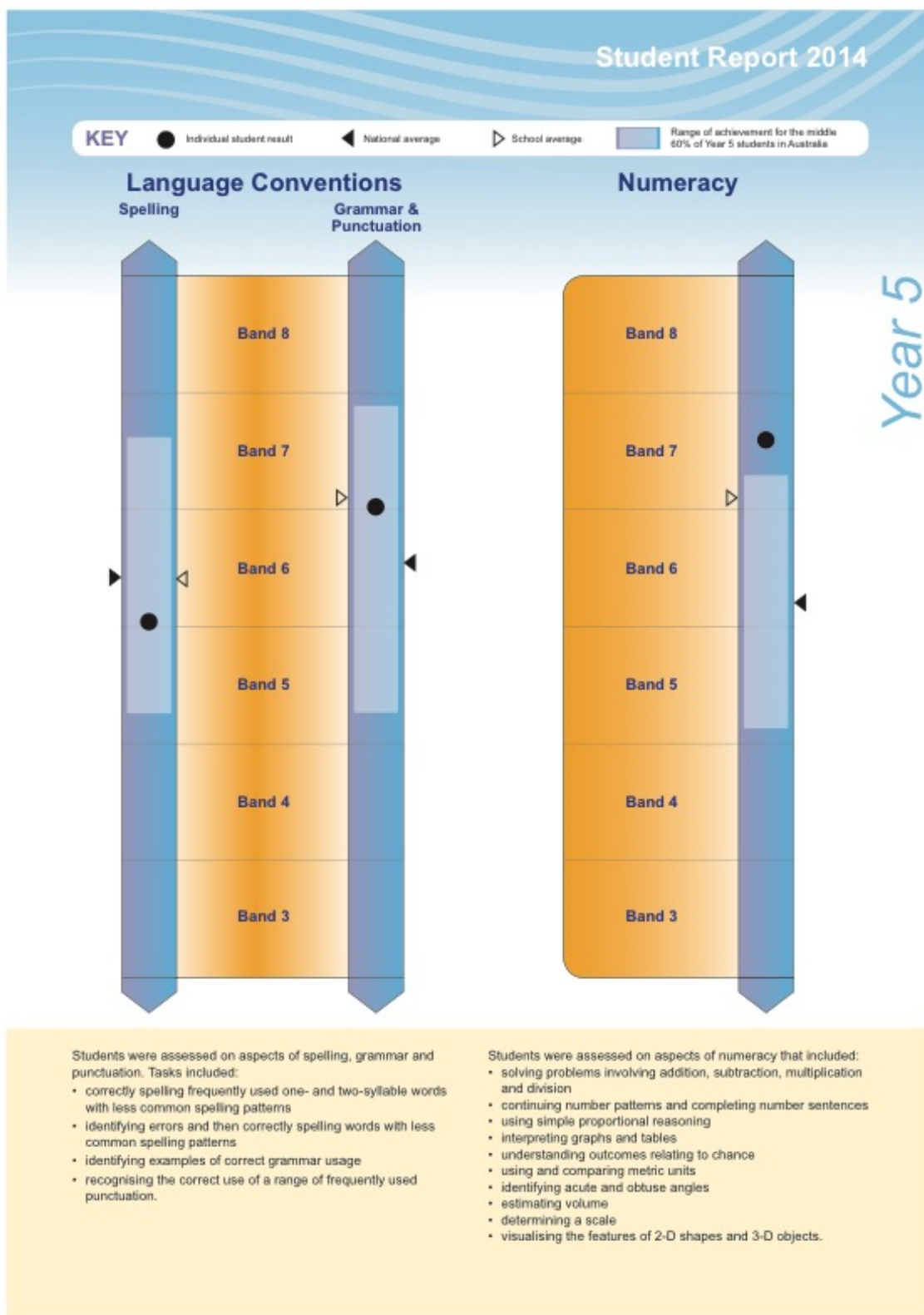
The ethical aspects of this study have been approved by the Macquarie University Human Research Ethics Committee. If you have any complaints or reservations about any ethical aspect of your participation in this research, you may contact the Committee through the Director, Research Ethics & Integrity (telephone (02) 9850 7854; email [ethics@mq.edu.au](mailto:ethics@mq.edu.au)). Any complaint you make will be treated in confidence and investigated, and you will be informed of the outcome.

---

## Appendix I. 2018 NAPLAN Sample Report







## Student Report 2014

## Summary of skills assessed

The skills described in the following table represent those typically assessed in NAPLAN tests for Year 5 students. These skills increase in difficulty from the lowest to the highest band. A student achieving a result in a particular band is likely to have correctly answered questions involving skills in that band and in each band below it.

Year 5	Band	Reading	Persuasive Writing	Language Conventions	Numeracy
	8	Interprets ideas and processes information in a range of texts. Understands the use of dialogue to develop a character. Connects information across a persuasive text to analyse and interpret the content and infer the main message. Uses the context to interpret vocabulary specific to a text or topic.	Writes a cohesive text that begins to engage and persuade the reader. Makes deliberate and appropriate word choices to create a rational or emotional response. Attempts to reveal attitudes and values and to develop a relationship with the reader. Constructs most complex sentences correctly. Spells most words, including many difficult words, correctly.	Identifies errors and correctly spells most words with difficult spelling patterns (sincerely, breathes). Demonstrates knowledge of grammar and punctuation conventions in more complex texts, such as the correct use of pairs of conjunctions (neither, nor), forms of adverbs (more deeply), introducing pronouns (whose) and complex verb forms.	Solves non-routine problems including those involving multiples of whole numbers, decimals and fractions. Uses rules to continue number or spatial patterns. Solves perimeter and area problems. Determines probabilities of outcomes of experiments. Classifies triangles and uses their properties. Identifies transformations of shapes and visualises changes to 3-D objects. Determines direction using compass points and angles of turn.
	7	Applies knowledge and understanding of different text types and uses this to infer meaning and purpose. Identifies details that connect implied ideas across and within texts, including character motivation in narrative texts, the values of a writer in persuasive texts and the main ideas in information texts.	Writes a persuasive text with a developed introduction, an elaborated body and a clear conclusion. Develops plausible arguments through use of logic, language choices and effective persuasive devices. Joins and orders ideas using connecting words and maintains clear meaning throughout the text. Correctly spells most common words and some difficult words, including words with less common spelling patterns and silent letters.	Identifies errors and correctly spells words with common spelling patterns and some words with difficult spelling patterns (identifies, nursery, unusual, valleys). Demonstrates knowledge of grammar and punctuation conventions in longer sentences and speech, such as the correct use of conjunctions (while), compound verbs (could have) and apostrophes for possession (nobody's).	Solves multi-step problems involving relational reasoning. Compares and orders decimals. Calculates missing values in number sentences and sequences, and completes simple inequalities. Finds perimeters of simple and composite shapes. Calculates elapsed times across midday and midnight. Expresses probability as a fraction. Compares and classifies angles and solves problems involving nets. Uses scale to determine distance on maps.
	6	Makes meaning from a range of text types of increasing difficulty and understands different text structures. Recognises the purpose of general text features such as titles and subheadings. Makes inferences by connecting ideas across different parts of texts. Draws conclusions about the feelings and motivations of characters and sequences events and information.	Organises a persuasive text using focused paragraphs. Uses some effective persuasive devices and accurate words or groups of words when developing points of argument and ideas. Punctuates nearly all sentences correctly with capitals, full stops, exclamation marks and question marks. Correctly uses more complex punctuation markers some of the time.	Identifies errors and correctly spells most words with common spelling patterns (choice, hopeful, address, meant). Demonstrates knowledge of grammar and punctuation conventions in longer sentences and speech, such as the correct use of full stops to separate sentences and commas to separate phrases.	Applies appropriate strategies to solve multi-step problems using skills including doubling and halving, simple multiplication and division and patterning. Converts between familiar units of measure. Calculates durations of events. Interprets and uses data from a variety of displays. Recognises nets of familiar 3-D objects and symmetry in irregular shapes. Uses simple scales, legends and coordinate systems to interpret maps and grids.
	5	Applies knowledge, makes inferences and processes information to infer the main idea in texts. Draws conclusions about a character in narrative texts. Connects and sequences ideas in information texts and identifies opinions in persuasive texts.	Structures a persuasive text to include an introduction and a body containing some related points of argument. Includes enough supporting detail for the writer's point of view to be easily understood by the reader, although the conclusion may be weak or simple. Correctly structures most simple and compound sentences and some complex sentences.	Identifies errors and correctly spells one- and two-syllable words with common spelling patterns (pleasing, ignored, hedge). Recognises grammar and punctuation conventions in standard sentences and speech, such as the correct use of verb forms, capital letters for compound proper nouns, quotation marks for speech, apostrophes for contractions (he's) and brackets.	Solves routine problems using a range of strategies. Demonstrates knowledge of simple fractions and decimals. Continues number and spatial patterns. Uses familiar measures to estimate, calculate and compare area or volume. Reads graduated scales. Compares likelihood of outcomes in chance events. Recognises the effect of transformations on 2-D shapes. Uses major compass points and follows directions to locate positions.
	4	Makes inferences from clearly stated information in short factual texts and stories. Identifies the meaning of some unfamiliar words from their context. Finds specific information in longer stories and factual texts including those with tables and diagrams.	Writes a persuasive text in which paragraphs are used to group like ideas and persuasive devices are used to attempt to convince a reader. Correctly punctuates some sentences with both capital letters and full stops. May demonstrate correct use of capitals for names and some other punctuation. Correctly spells most common words.	Identifies errors and correctly spells some one- and two-syllable words with common spelling patterns (cent, building). Recognises grammar and punctuation conventions in short sentences and speech, such as the correct use of appropriate structure, descriptive phrases, abbreviations, brackets and commas in lists.	Solves problems involving unit fractions, combinations of addition and subtraction of two-digit numbers and number facts to $10 \times 10$ . Identifies division as the inverse of multiplication. Interprets timetables and calendars and reads time on clocks to the quarter hour. Locates information in tables and graphs. Recognises familiar 2-D shapes after a transformation and identifies a line of symmetry. Visualises 3-D objects from different viewpoints.
	3	Makes meaning from simple texts with familiar content and themes and finds directly stated information. Makes some connections between ideas that are not clearly stated and identifies simple cause and effect. Makes some inferences and draws conclusions, such as identifying the main idea of a text.	Attempts to write a persuasive text containing a few related ideas or points of argument, although these are usually not elaborated. Correctly orders the words in most simple sentences. May experiment with using compound and complex sentences but with limited success. Orders and joins ideas using a few connecting words but the links are not always clear or correct.	Identifies errors and correctly spells one-syllable words with simple spelling patterns (while, wouky). Recognises grammar and punctuation conventions in short sentences, such as the correct use of pronouns (hasn't) and modifying or describing words.	Solves single-step problems involving addition, subtraction or simple multiplication. Recognises representations of unit fractions and completes simple number sentences. Compares length and mass using familiar units of measure. Describes outcomes of simple chance events. Uses common features and properties to classify families of shapes and objects, and recognises symmetrical 2-D shapes. Locates positions using grid references.