



## Concomitants and outcomes of anxiety in Chinese kindergarteners: A one-year longitudinal study



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### ABSTRACT

The goal of the present study was to examine the concurrent correlates and longitudinal implications of anxiety among young Chinese children. Participants were  $N = 360$  children (200 boys, 160 girls,  $M_{\text{age}} = 4.72$  years,  $SD = 0.63$ ) attending kindergarten in Shanghai, People's Republic of China. At Time 1, mothers provided ratings of their children's anxiety, temperament (negative emotionality, shyness), attachment, as well as their own personality (neuroticism), parenting styles, and attachment beliefs. At Time 2 (one year later), mothers rated children's social and emotional difficulties, and teachers assessed children's social, emotional, and academic adjustment. Results from regression analyses indicated that: (1) child temperament, mother-child insecure attachment, and maternal insecure attachment beliefs were associated with child anxiety; and (2) child anxiety symptoms (particularly social anxiety) predicted peer, emotional, and academic problems one year later. Results are discussed in terms of the maladaptive implications of anxiety symptoms in young Chinese children.

Anxiety disorders are among the most common psychological impairments in childhood (Essau, Conradt, & Petermann, 1999). In Western cultures, it has been widely demonstrated that childhood anxiety (at clinical and subclinical levels) is concurrently and predictively associated with substantive impairment and adjustment difficulties across multiple domains, including social difficulties (e.g., poor social skills, exclusion, victimization), internalizing problems (e.g., low self-esteem, loneliness, depression), difficulties at school (school avoidance, academic underperformance), and other psychiatric difficulties (Broeren, Muris, Diamantopoulou, & Baker, 2013; Egger & Angold, 2006; Rapee, Schniering, & Hudson, 2009; Weeks, Coplan, & Kingsbury, 2009). As such, researchers have argued that anxiety should be viewed from a dimensional approach (Krueger, Watson, & Barlow, 2005), and there has been growing interest from developmental and clinical researchers towards understanding the implications of elevated anxiety symptoms in childhood (e.g., Broeren et al., 2013; Zhang, 2015).

However, anxiety in *early childhood* remains comparatively underexplored, despite evidence to suggest that anxiety disorders emerge at a very early age. Reported prevalence rates of anxiety in young children range from 9% to 22% (Egger & Angold, 2006; Kessler et al., 2005; Paulus, Backes, Sander, Weber, & von Gontard, 2014), with symptoms appearing to be relatively stable over a one-year period (Edwards, Rapee, & Kennedy, 2010). Previous examination of anxiety among

preschool-aged children has indicated that there are no sex differences in the prevalence of anxiety at this developmental period (Spence, Rapee, McDonald, & Ingram, 2001; M. Wang & Zhao, 2015). However, differentiation among types of anxiety can be detected early on (Egger & Angold, 2006). For instance, previous studies have identified separation anxiety, social phobia/social fears, obsessive-compulsive disorder, general anxiety disorder, and specific fears (e.g., physical injury) as distinct (and the most commonly reported) symptoms of anxiety among preschool-aged children (Broeren et al., 2013; Eley et al., 2003; Spence et al., 2001). Together, these findings demonstrate the need for further examination of early-appearing symptoms of anxiety.

There also continues to be growing interest in the study of anxiety in non-Western cultures (Hofmann, Asnaani, & Hinton, 2010; Rapee et al., 2011). In particular, researchers have recently focused on the development and implications of childhood and adolescent anxiety in China (Chen, Yu, Li, & Zhang, 2015; Liu, Coplan, Ooi, Chen, & Li, 2015; M. Wang, Meng, Liu, & Liu, 2016; M. Wang & Zhao, 2015; Zhang, 2015). There is evidence that anxiety levels are increasing in China (Xin, Zhang, & Liu, 2010), and that anxiety is rapidly becoming a major health concern (J. Chen et al., 2015). Moreover, recent studies have indicated that symptoms of anxiety may be particularly high among young Chinese children (Liu, Cheng, & Leung, 2011). For example, M. Wang and Zhao (2015) found that anxiety symptoms were higher

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among Chinese preschoolers than among young children in Western samples and older Chinese children.

Socialization practices may account for cultural differences in the prevalence of anxiety (H. Li, Ang, & Lee, 2008). In China, emotional restraint, obedience, compliance to social rules, and academic excellence are emphasized (X. Chen, Rubin, & Li, 1997). As such, children in China are often faced with extreme pressure to meet high social and academic expectations, leading to increased feelings of anxiety (H. Li et al., 2008; Zhao, Xing, & Wang, 2012). In turn, there is some evidence that elevated anxiety is associated with psychological and psychosomatic maladjustment in Chinese youth (Ang & Huan, 2006; Hesketh et al., 2010). Despite this, little is known about the development and implications of early appearing anxiety in Chinese children. Accordingly, the primary goal of the present study was to examine the correlates and adjustment outcomes of anxiety symptoms among kindergarten-aged children in mainland China.

## 1. Risk factors for anxiety in early childhood

Bronfenbrenner's (1979) ecological systems theory posits that an individual child's development is influenced by his/her environment, which is comprised of a number of interacting subsystems or levels. For instance, whereas the microsystem (i.e., the most proximal level to the child) includes influences that have direct contact with the child (e.g., family, peers), the macrosystem represents the most distal influences (e.g., culture, economy). This theory can be directly applied to our understanding of the development of anxiety in childhood. Indeed, multiple risk factors across subsystems have been posited to be involved in the development of anxiety in young children (Rapee, 2001). Drawing upon Bronfenbrenner's model and the extant literature, we focus on a combination of individual child characteristics (i.e., temperament), maternal characteristics, and parent-child relationships as potential contributors to child anxiety within the Chinese cultural context. Given the considerable overlap and similarities in the factors implicated in the development of different subtypes of anxiety (Rapee et al., 2009), we review these factors as contributors to the development of child anxiety symptoms in general.

### 1.1. Child temperament

At the center of Bronfenbrenner's (1979) model is the individual child, who encompasses a number of characteristics (e.g., age, sex, temperament). Certain temperamental traits have been identified as vulnerabilities to subsequent anxiety difficulties (Brumariu & Kerns, 2013). One cluster of *fearful temperamental* characteristics includes shyness and behavioral inhibition. For our purposes, we use the term *shyness* to denote this group of temperamental traits, defined as heightened sensitivity and fearfulness to novel (social) situations and stimuli (Kagan, 1997; Rubin, Coplan, & Bowker, 2009). It has been posited that shy children's tendencies to display fear, hypervigilance to threat, and withdrawal act as risk factors or precursors for anxiety (see Degnan, Almas, & Fox, 2010 for a review). Indeed, shyness has been widely associated with childhood anxiety in Western cultures (Clauss & Blackford, 2012; Edwards et al., 2010). *Negative emotionality* (or *negative affect*) is another temperamental trait robustly associated with anxiety in the Western literature, and reflects sensitivity towards negative stimuli, irritability, and high reactivity (Clark, Watson, & Mineka, 1994; Rothbart & Bates, 2006). Individuals who express high negative emotionality generally tend to view themselves and their surroundings in a negative light, fostering unpleasant feelings such as worry (Clark et al., 1994; Watson & Clark, 1984). Results from several studies indeed suggest that children who lack the ability to regulate negative affect are more prone to internalizing problems such as anxiety (Muris & Ollendick, 2005).

The links between shyness, negative emotionality, and anxiety among young Chinese children have yet to be empirically explored.

However, there appear to be considerable similarities in the associations between temperament and adjustment in Western and Chinese societies (Liu, Chen, et al., 2015; Zhou, Lengua, & Wang, 2009). Moreover, there is mounting evidence that fearful temperaments are associated with social and emotional adjustment difficulties in samples of Chinese youth (Ding et al., 2014; Liu, Chen, et al., 2015; Liu et al., 2014). Accordingly, we might expect negative temperamental characteristics to be similarly associated with symptoms of anxiety in Chinese children.

### 1.2. Maternal characteristics

Children with parents who have anxiety disorders are up to seven times more likely than children with non-anxious parents to develop anxiety disorders (Beidel & Turner, 1997; Biederman et al., 2006). Part of this association may reflect biological factors, with evidence that 50–60% of the variance in trait anxiety is accounted for by genetic influences in Chinese children (J. Chen et al., 2015). In the present section, we focus on additional maternal influences that may underlie this association.

The personality trait of *neuroticism* reflects a susceptibility to emotional instability, distress, and negative emotions (e.g., fear, anger, sadness) (P. Costa & McCrae, 1992). In Western societies, maternal neuroticism is robustly associated with maternal (Kotov, Gamez, Schmidt, & Watson, 2010) and child anxiety (Edwards et al., 2010). In addition to biological influences, parents high on neuroticism also tend to engage in maladaptive behaviors that might influence their children's adjustment, such as *overprotective parenting* practices (Prinz, Stams, Deković, Reijntjes, & Belsky, 2009). Restricting a child's exposure to a range of experiences conveys a message to the child that the world is a threatening or dangerous place, and limits their ability to develop effective coping strategies. In turn, children experience feelings of anxiety when faced with challenging situations (Edwards et al., 2010; Rapee, 1997). Indeed, there is considerable evidence linking overprotective and overcontrolling parenting to child anxiety (McLeod, Wood, & Weisz, 2007). Moreover, parents high on neuroticism may engage in overprotective parenting particularly in response to child shyness (Coplan, Reichel, & Rowan, 2009), which in turn can exacerbate child anxiety (Coplan, Arbeau, & Armer, 2008).

It is less clear how parenting practices might influence child anxiety in collectivistic societies such as China, where filial piety and hierarchical relationships are emphasized (X. Chen, 2010; X. Chen & French, 2008). In China, children are taught to respect and obey their parents, and high parental control and restrictiveness are encouraged in Chinese societies. In this regard, it has been suggested that high-control parenting practices may serve different functions across cultures (X. Chen et al., 1998). For instance, A. Yang, Wang, Li, Ten, and Ren (2008) reported that *paternal* overprotective parenting was *positively* predictive of well-being in a sample of Chinese adolescents. Thus, it remains to be seen if or how overprotective parenting and anxiety might be related in young Chinese children.

Maternal attachment beliefs, which refer to mothers' thoughts, feelings, and behaviors regarding close relationships (e.g., with romantic partners) (Hazan & Shaver, 1994) may also influence children's emotional adjustment. *Insecure adult attachment beliefs* consist of two dimensions: (1) anxious attachment (i.e., fear regarding rejection or abandonment); and (2) avoidant attachment beliefs (i.e., interpersonal distrust, discomfort with interpersonal closeness) (Bartholomew, 1990). Insecure attachment beliefs modeled by mothers may indicate to their children that there is something to fear about relationships, thereby increasing their anxiety (N. Costa & Weems, 2005). Indeed, maternal insecure attachment beliefs are associated with both maternal and child anxiety (Berant, Mikulincer, & Shaver, 2008; N. Costa & Weems, 2005). A recent study conducted among Chinese adults indicated that anxious attachment was associated with anxiety (X. Li, Zheng, & Wang, 2016). Thus, we might expect maternal insecure attachment beliefs to be

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