

ANXIOUS CHILDREN AND THEIR SOCIAL GROUPS: THE MODERATING EFFECTS OF
SMALL GROUP CHARACTERISTICS ON INTERNALIZING DISTRESS

By

JOHN MCKIRAHAN

(Under the Direction of A. Michele Lease)

ABSTRACT

The current study examined the degree to which interaction group characteristics moderated internalizing distress for children at varying levels of anxious/withdrawal. Interaction groups displaying higher levels of prosocial behavior, especially fun and outgoing behavior, were predicted to result in lower levels of internalizing problems. Anxious/withdrawal group characteristics were also investigated. Participants were 642 fourth and fifth grade students who nominated other students within their grade based on who best fit certain behavioral characteristics and who, “hung out together.” Participants completed a self-report loneliness scale, and classroom teachers completed a scale rating participants’ internalizing distress. Contrary to prediction, results indicated children exhibiting higher levels of peer-reported anxious/withdrawal displayed (a) lower internalizing problems when embedded in an interaction group with higher levels of anxious/withdrawal and (b) higher levels of self-reported distress when embedded in interaction groups with higher levels of fun and outgoing characteristics.

INDEX WORDS: Peer Group; Anxious/Withdrawal; Peer Nomination

ANXIOUS CHILDREN AND THEIR SOCIAL GROUPS: THE MODERATING EFFECTS OF
SMALL GROUP CHARACTERISTICS ON INTERNALIZING DISTRESS

By

JOHN MCKIRAHAN

B.S., University of Houston, 2015

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment
of the Requirements for the Degree

MASTER OF ARTS

ATHENS, GEORGIA

2019

© 2019

John McKirahan

All Rights Reserved

ANXIOUS CHILDREN AND THEIR SOCIAL GROUPS: THE MODERATING EFFECTS OF
SMALL GROUP CHARACTERISTICS ON INTERNALIZING DISTRESS

By

JOHN MCKIRAHAN

Major Professor:	A. Michele Lease
Committee:	Stacy Neuharth-Pritchett
	Scott Ardoin

Electronic Version Approved:

Ron Walcott
Interim Dean of the Graduate School
The University of Georgia
December 2019

TABLE OF CONTENTS

	Page
CHAPTER	
1 LITERATURE REVIEW	1
2 INTRODUCTION.....	15
3 METHOD	24
4 RESULTS	32
5 DISCUSSION	43
REFERENCES	49

CHAPTER 1

LITERATURE REVIEW

Anxiety is characterized as the fear or worry about events that might occur in the future (American Psychiatric Association [APA], 2013). According to the Diagnostic Statistical Manual, 5th edition (DSM-5) (APA, 2013), many anxiety disorders develop during childhood and, if not treated or identified early, can persist. Studies have revealed children who display high levels of anxiousness also experience aversive psychological and social experiences, such as depression and inattention (Strauss, Frame, & Forehand, 1987), peer disliking (Verduin & Kendall, 2007), and loneliness (Suveg, Jacob, Whitehead, Jones, & Kingery, 2014). Children who are anxious are more likely to have maladaptive cognitions, such as negative interpretations of ambiguous situations (Creswell, Schiniering, & Rapee, 2005) and poorer social skills (Kingery, Erdley, Marshall, Whitaker, & Reuter, 2010) compared to their nonanxious peers. These maladaptive cognitions serve to further increase their difficulties with peers and anxiousness in social situations.

Knowing when and how different developmental paths emerge for children with varying levels of anxious symptoms is important because it can help early identification of risk and protective factors for children at risk of developing anxiety disorders in the future. Longitudinal studies investigating the developmental trajectory of risk factors and symptoms on levels of anxiousness of children, both at the sub-clinical and clinical level, have found anxiety becomes more severe and persists longer if developed earlier (Feng, Shaw, & Silk, 2008; Ramsawh,

Weisberg, Dyck, Stout, & Keller, 2010). Therefore, studies have been aimed at identifying risk factors for the development or exacerbation of anxious symptoms. Two longitudinal studies designed to study the developmental trajectory of anxiety over time (Broeren, Muris, Diamantopoulou, and Baker, 2013; Feng et al., 2008) revealed four distinct trajectory groups of anxiety, whereas Miers, Blote, Rooij, Bokhorst, and Westernberg (2013) found three trajectory groups for social anxiety. All three studies contained a “high” trajectory, but only Feng et al. (2008) and Miers et al. (2013) yielded “high” trajectories that increased in anxiety over time.

Specifically, the study conducted by Broeren et al. (2013) was a longitudinal study investigating the developmental trajectories of multiple types of anxiety symptoms, including social anxiety and general anxiety, in children ages 4-11. Data on anxiety symptoms, behavioral inhibition, conduct problems, hyperactivity, peer problems, and prosocial behavior were gathered via multiple rating scales from 224 parents at the first time point, whereas data on ‘theory of mind’ was gathered via an interview-like questionnaire from 224 children at the first time point. Data on anxiety symptoms were then gathered at one-year intervals via parent-report at the second time point ($N=211$) and the third time point ($N=196$). The authors reported four distinct trajectories of social anxiety: stable-low, stable-medium, stable-high, and stable-very-high. The researchers found the trajectories were significantly different for initial levels of social anxiety and remained consistent and stable across time. At the first time point, children in the higher trajectories were reported by their parents to demonstrate significantly higher levels of behavioral inhibition than children in the lower trajectories.

A similar study was conducted by Miers et al. (2013), although, in contrast to the study by Broeren et al. (2013), the study focused on pre-adolescent and adolescent trajectories of social anxiety and specific symptoms of social anxiety with ages ranging from 9 to 21. This study

consisted of four waves of data collection, each occurring a year apart, with wave one consisting of 331 participants, wave two consisting of 298 participants, wave three consisting of 248 participants, and the final wave consisting of 236 participants. Observers assessed participant nervousness and social skills during a public speaking task at wave one, which required the participant to provide a speech on their favorite film in front of a “life-size” audience that was previously recorded and projected onto a screen. Participants also completed self-report measures of social anxiety, negative interpretations of social and nonsocial situations, self-evaluation, and self-focused attention during the public speaking task. Parents reported on behavioral inhibition and neuroticism at wave one, whereas teachers reported on social problems with peers and social withdrawal. Data collected during waves two, three, and four were gathered using the same social anxiety measure completed by participants during wave one. Three trajectories were identified in this study: (a) *High and Changing* comprised of children who had initially high levels of social anxiety which then first increased, then decreased, and, by age 18, stabilized at a lower level compared to the starting point, (b) *Moderate and Decreasing* comprised of children who started with moderate levels of social anxiety that slightly decreased over time, and (c) *Low and Decreasing* comprised of children who showed initially low levels of social anxiety that decreased throughout the study. The authors found negative interpretation of ambiguous social situations, a common cognitive distortion for those with anxiety disorders, was associated with the *High and Changing* trajectory of social anxiety.

In a third longitudinal study, Feng et al. (2008) examined risk factors associated with developmental trajectories of children with anxiety symptoms, such as shyness and fearfulness, although their sample was limited to males with the initial age of two and a final age of ten years. This study also differs from Broeren et al. (2013) and Miers et al. (2013) in that the presence of

any type of anxiety disorders was assessed at the final time point. Data were gathered at seven time points, ranging one to two years apart, with the initial sample size being 310 families and retention rate ranging from 78% to 91% for each subsequent time point. Mothers rated their child on anxiety symptoms at all time points and shyness at time point two, while they rated themselves on depression and negative control at time points two and three. Child participants completed emotional regulation and attachment tasks during time points two and three as well. Children and mothers were assessed for any type of anxiety and depressive disorders during the last time point via semi-structured interviews. Four distinct trajectories of anxiety were found: a *Low* group (51% of sample) who exhibited low and stable levels of anxiety, a *High-Declining* group (33%) who demonstrated initial high levels of anxiety decreasing over the course of the study, a *Low-Increasing* group (8%) with initial low levels of anxiety then, between ages 3.5 to 8 years, a sharp increase in anxiety symptoms, and a *High-Increasing* group (8%) who exhibited high initial levels of anxiety increasing over time.

Results from these three longitudinal studies suggest the developmental trajectories of anxious symptoms tend to follow similar patterns despite the difference in age, gender, or method of data collection. Each study found trajectories of participants where initially low levels of anxious symptoms remained stable or decreased over time, initially high levels of anxious symptoms decreased over time, and initially high levels of anxious symptoms remained stable or increased over time. A notable difference between these studies, however, is the demographics of the samples. The study conducted by Feng et al. (2008) used males exclusively, although there is a notable age difference between the samples included in the study by Broeren et al. (i.e., 4 to 11 years of age; 2013) and in the study by Miers et al. (i.e., 9 to 17 years; 2013). Each study highlighted unique risk factors contributing to or predicting the development of the high

trajectories, such as negative cognitions and self-focused attention (Miers et al., 2013), childhood shyness and depressed mothers (Feng et al., 2008), and high behavioral inhibition (Broeren et al., 2013). Overall, results from the longitudinal studies illustrate there are identifiable risk factors for anxiousness that are associated with a generally high and increasing trajectory of anxiousness.

Risk Factors for Anxiety

One major risk factor associated with the development of anxiety in children is social withdrawal. Rubin, Coplan, and Bowker (2009) have defined social withdrawal to indicate a child who willingly isolates him/herself from his or her group of peers. Rubin and colleagues have noted that, because past research has attributed different meanings to social withdrawal (e.g., behavioral inhibition, social reticence, social solitude), “social withdrawal” acts as an umbrella term encompassing similar withdrawn-type behaviors (Chronis-Tuscano, Danko, Rubin, Coplan, & Novick, 2018; Coplan & Armer, 2007). Rubin et al. (2009) developed a transactional model for the development of social withdrawal, which describes the pattern of social withdrawal behaviors from infancy to early adolescence, as well as moderators, such as parenting and peer relationships, that can ultimately increase risk for clinical levels of anxiety symptoms. Within this model, the authors posit high behavioral inhibition and overprotective parenting can inhibit the child from experiencing necessary social exploration and peer experiences early in life that are part of healthy development. Inhibition and overprotective parenting, in turn, lead to more withdrawn behavior when among peers and, eventually, negative outcomes, such as peer rejection, victimization, loneliness, and increased feelings of anxiety toward peers.

Social withdrawal, in its many studied forms, has been identified as a significant factor in the development of social anxiety. As with the developmental model laid out by Rubin and colleagues (2009), theoretical models and research studies have focused on the pivotal role of social withdrawal for the development of social anxiety symptoms. Social withdrawal is observed to be a stable behavior from toddlerhood to middle childhood, as indicated by peer-reported withdrawal and as well as observed behavior (Hymel, Rubin, Rowden, & LeMare, 1990; Rubin, Chen, McDougall, Bowker & McKinnon, 1995). Social withdrawal has also been found to be stable from middle childhood into adolescence (Schneider, Younger, Smith, & Freeman, 1998). However, in an important study on social withdrawal among a sample of preadolescents and adolescents, Oh et al. (2008) examined the trajectories and moderators of trajectories of social withdrawal from elementary school to middle school in a large community sample of children using peer report. The study also investigated how individual characteristics of mutual best friends affected the trajectory of social withdrawal. The researchers found three distinct trajectories of social withdrawal: “low-stable”, which consisted of 85% of the sample, “decreasing”, which consisted of 8% of the sample, and “increasing”, which consisted of 7% of the sample. Children with high levels of peer victimization and prosocial behavior at the beginning of the study were more likely to be included in the “decreasing” trajectory, the group with the highest rated level of social withdrawal in elementary school but whose level gradually decreased throughout the study. Children were more likely to have unstable friendships and no mutual friendship within the “increasing” trajectory. Mutual friendships were also found to have an impact on a socially withdrawn behavior throughout middle school, with mutual friends’ level of social withdrawal in elementary school positively and significantly related to an increase in social withdrawal in middle school. This finding is consistent with Rubin, Wojslawowicz, Rose-

Krasnor, Booth-LaForce, and Burgess (2006), who found characteristics of mutual friends are similar and maintain social withdrawal and anxiety in younger children. Oh and colleague's (2008) findings indicate the characteristics of mutual friends is an important factor in the maintenance of social withdrawal, and a child with a less socially withdrawn mutual friend might lead to that child decreasing in social withdrawal over time.

Although social withdrawal is a major risk factor for the development of later social anxiety and other negative outcomes (Rubin et al., 2009), some research has highlighted certain qualities of the child, their peers, and their parents can act as protective factors against the development of anxious symptoms. For example, the study conducted by Oh et al. (2008) noted children who were rejected by peers, but who also exhibited high levels of prosocial behavior, decreased in social withdrawal over time compared to children rated highly on peer rejection measures and low on prosocial behavior. Some studies have found sex, specifically being female, to be a protective factor against the negative outcomes associated with social withdrawal, with boys experiencing more negative outcomes than girls (Bowker, Rubin, Rose-Krasnor, & Booth-Laforce, 2009; Doey, Coplan, & Kingsbury, 2014). The reduction of parental overprotection via early parental intervention (*Cool Little Kids*, Rapee, Kennedy, Ingram, Edwards, & Sweeney, 2005) decreases social withdrawal and subsequent internalizing symptoms over periods spanning 12 months (Rapee et al., 2005) to 11 years (Rapee, 2013), albeit with a small sample. Overall, research indicates social withdrawal to be a risk factor for the exacerbation of socially anxious symptoms and the development of social anxiousness, although other factors, such as prosocial behaviors and emotional regulation, might serve as protective factors and lessen social withdrawal over time.

Behavioral inhibition has been identified as another prominent risk factor for the development of social anxiety symptoms (Henderson, Pine, & Fox, 2015). Following the transactional model proposed by Rubin et al. (2009), there have been many studies investigating behavioral inhibition and its effects on young children in terms of solitary behaviors, social reticence, shyness, and anxiety (see Coplan & Armer, 2007 for a review). Behavioral inhibition is the experience of negative affect, withdrawal, and wariness in the face of novel situations, people, or objects (Chronis-Tuscano, et al., 2018; Degnan et al., 2014). In a further investigation into different types of behavioral inhibition, Coplan, Ruban, Fox, Calkins, and Stewart (1994) investigated three types of solitary behaviors observed in pre-school aged children. These included solitary-passive (exploring objects and surroundings alone), solitary-active (engaging in repetitive sensorimotor activities within the social group with or without pretend play), and reticence (onlooking behavior while unoccupied). Whereas the researchers found all three behaviors were distinct and stable across play sessions with unknown peers, the primary finding was that reticence was more associated with indicators of behavioral inhibition (i.e., wariness and hovering) and occurred more commonly in anxious children in comparison with the other two solitary behaviors. In a similar study conducted in 2014, Degnan et al. investigated the relationship between behavioral inhibition and social reticence, as well as the trajectories of social reticence, with a sample of pre-school aged children. Degnan and colleagues' definition of social reticence was also 'onlooking behavior while unoccupied'. Out of the three trajectories of social reticence the researchers found (high-stable, high-decreasing, low-increasing), levels of behavioral inhibition were highest in both of the "high" reticence groups.

In a seminal longitudinal study, Hirshfeld-Becker et al. (2007) investigated behavioral inhibition as a potential risk factor for DSM-III-R anxiety disorders (i.e., Generalized Anxiety

Disorder, Social Phobia), as measured by the Kiddie Schedule for Affective Disorders and Schizophrenia, Epidemiologic Version (K-SADS-E), in middle childhood. Having gathered baseline anxiety levels and assessments of behavioral inhibition of over 200 children between the ages of 21 months and 6 years in wave one of the study (see Rosenbaum et al., 2000), children with behavioral inhibition had higher rates of any social anxiety disorder than children without behavioral inhibition. After 5 years, the participants were screened again for clinical disorders. Children who were originally found to have higher levels of behavioral inhibition were diagnosed more often with Social Anxiety Disorder than any other DSM-IV disorder. The authors note that, based on the results, behavioral inhibition was a specific risk factor for Social Anxiety Disorder, because the incidence of no other anxiety or mood disorder was significantly elevated.

In addition to social and behavioral risk factors for elevated anxiety symptoms, researchers have identified cognitive risk factors. For example, two similar studies (Cartwright-Hatton, Tschernitz, & Gomersall, 2005; Van Nierkerk et al., 2016) investigated whether negative cognitive distortions (i.e., negative perception of social skills) interfere with socially anxious children's social ability, as opposed to an actual lack of behavioral social skills. The study conducted by Cartwright-Hatton et al. (2005) contained a somewhat small sample of 40 children between the ages of 10 and 12 who were divided into "high social anxiety" or "low social anxiety" groups based on initial self-reports of social anxiety symptoms. Children were tasked with carrying out a 3-minute conversation about a topic of their choosing with one adult researcher while a video camera recorded the conversation. The child and an observer of the recorded conversation, blind to the child's group placement, completed a measure rating the child's social skills performance, including micro-social skills (e.g., voice being clear), global-

social skills (e.g., looking friendly), and nervousness (e.g., looking nervous). Cartwright-Hatton and colleagues found socially anxious children self-reported poorer social skills than did the control group, whereas observers did not report any differences between groups. Specifically, children in the socially anxious group self-reported significantly more “nervous behaviors” than did those in the control group, despite observers reporting no significant difference.

Van Nierkerk et al. (2016) conducted a study also investigating social skills perception, as well as thoughts of social threat. Thoughts of social threat were described by the authors as an individual expecting to be rejected, bullied, or anticipating social mishaps. Their study contained a larger sample of 141 children between the ages of 8 and 13 years, who were selected from a larger study based on their level of social anxiety as measured by the Social Anxiety Scale for Children-Revised (SASC-R). The task required in this study differed from the task in the study by Cartwright-Hatton et al. (2005) in that the child was tasked with talking for two minutes facing two cameras with a research assistant out of view of the child. The child was informed the footage would be shown to adults. The same performance questionnaire used by Cartwright-Hatton et al. (2005) was completed by the child and observer of the footage to rate the child’s social skills during the speech task. The researchers found similar results to Cartwright-Hatton et al. (2005), with children higher on social anxiety rating their social skills significantly lower than observer ratings. They also observed a lower rating of perceived social skills was related to more thoughts of social threat.

An individual’s thoughts regarding peers and their own behavior around peers can significantly impact their ability to form meaningful peer relationships, especially if those cognitions and behaviors increase the level of social anxiety within that individual. Rudy, Davis, and Matthews (2012) investigated self-efficacy, which is one’s belief in their ability to perform

successfully in general, and social self-efficacy, or one's ability to navigate social situations, as they relate to negative self-statements and social anxiety in early adolescents. The researchers noted higher negative self-statements were associated with increased social anxiety and higher self-reported self-efficacy was associated with lower social anxiety. There was also a significant negative relationship between negative-self statements and both self- and social self-efficacy, indicating that more negative self-reflective cognitions are associated with decreased self-efficacy and, thus, increased social anxiety. Interpretation bias in the form of meta-perception, or an individual's perception of how others perceive that individual, was investigated by Ranta, Laakkonen, and Niemi (2016) with a large sample ($N=655$) of adolescents completing self-report measures of social anxiety and self- and peer-report measures of covert (thoughts and feelings) and overt (observable acts) meta-perception. Results revealed participants with high levels of social anxiety predicted more negative peer responses from a speech scenario than did participants with lower levels of social anxiety. Specifically, the prediction of more covert meta-perception was significantly higher for those with higher social anxiety, meaning those who are socially anxious might tend to negatively evaluate reactions not visible and unknown to them.

Overall, studies indicate risk factors such as social withdrawal, behavioral inhibition, and negative self-evaluation are associated with higher levels of anxious symptoms, in general, and higher levels of social anxiety, in particular, whereas research on protective factors suggests prosocial behaviors are associated with lower levels of anxious symptoms.

Peer Relations

Those who display anxious symptoms, whether in general or socially, typically experience problems in peer relations, which can lead to missed opportunities to practice and develop important social and emotional skills. Numerous studies have provided evidence peer

relations are invaluable for children's development, adjustment, and psychological well-being. Peer relations in childhood provide the opportunity for children to develop appropriate social skills, experience loyalty, intimacy, happiness, and develop self-worth (Bagwell & Bukowski, 2018; Demir, Ozen, Dogan, Bilyk, & Tyrell, 2011; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006). According to Rubin, Bukowski, and Bowker (2015), peer relations are voluntary, involve both the indirect and direct experiences children have with other children of the same age, and include relationships with peers as well as individual factors associated with those relationships, including motivation and behavioral tendencies. Although there are many positive aspects to peer relations, negative peer experiences, such as victimization, rejection, and exclusion, can lead to negative social and psychological outcomes (Reavis, Donohue, & Upchurch, 2015). Children who experience social withdrawal and other negative social experiences tend to demonstrate problems at multiple levels of the peer system, including friendships, in smaller peer groups, and at the broader level of the peer network.

Children who are withdrawn are at a higher risk of missing out on key developmental experiences occurring within the dyadic experience of friendships. Friendships are a form of peer relations that are voluntary and are typically viewed as having reciprocated affective regard, meaning if child A says child B is her friend, then child B will also say child A is her friend as well (Bagwell & Bukowski, 2018). Friendships provide children with the opportunity to develop appropriate social and cognitive skills (Rubin et al, 2015). However, children who are withdrawn might not develop close friendships with their peers and, consequently, miss out on the development of those skills. That is not to say children who are withdrawn are unable to make friends; studies suggest children who are anxious and withdrawn have similar number of friends as children who are not anxious or withdrawn (Rubin et al., 2006; Oh et al., 2008). However,

anxious and withdrawn children tend to differ from their nonanxious peers with regard to the quality of their friendships. Rubin et al. (2006) noted withdrawn children and their friends reported lower overall friendship quality than did nonwithdrawn children, suggesting that although withdrawn children do have friends the quality of the friendships may impact further social and emotional development. Further, high friendship quality, in turn, is positively associated with active coping strategies and less unresolved conflict between friends (Spencer, Bowker, Rubin, Boothe-LaForce, & Laursen, 2013), a decrease in internalizing symptoms over time (Gaertner, Fite, & Colder, 2009), and a decrease in physically aggressive behaviors toward others (Salvas, Vitaro, Brendgen, & Cantin, 2016).

Researchers also note members of friendship dyads tend to have similar characteristics, or exhibit homophily (Lazarsfeld & Merton, 1954), such as gender (Trinh, Lee, Halpern, & Moody, 2019), ethnicity (McDonald et al., 2013), and a range of externalizing and internalizing behaviors (Hanish, Martin, Rabes, Leonard, & Herzog, 2005; Stone et al., 2012). This finding might be the result of a selection effect, in that a child chooses a friend because they are already similar to them in one or more characteristics, or might occur because of socialization, where friends become more like each other over time (McCormick, Cappella, Hughes, & Gallagher, 2015). A seminal study by Rubin et al. (2006), within a sample of 332 fifth grade children, revealed withdrawn children tended to have similarly withdrawn friends. The level of victimization also was similar between each member of the withdrawn dyad, which was higher than non-withdrawn peers. This pattern could lead to increased victimization in the future, if both friends continue to remain similarly withdrawn.

Although research is more limited, some evidence indicates the peer group to which withdrawn children belong can also impact their development and adjustment. The term “peer

group” is often defined as the group in which individuals are embedded and interact in that allows children to form identities, develop close and personal relationships, and develop appropriate levels of social, behavioral, and emotional adjustment (Rubin et al., 2015). In a study investigating the effects of peer group membership for withdrawn children, Zhao, Chen, Ellis, and Zabatany (2016) noted children who were reported by their peers to have higher levels of withdrawn behavior and who were members of peer groups with higher levels of group withdrawal decreased in social competence over time and reported higher levels of depressive symptoms.

Overall, research identifies that individual risk factors, such as social withdrawal, behavioral inhibition, and cognitive distortion contribute to the maintenance or development of anxiousness in children. There is also emerging evidence suggesting relationships at both the dyadic and interaction-based group level contribute to the development of anxiousness in children, especially when children who are already anxious have similarly anxious friends or group members. However, little is known about the roles those relationships could potentially play as protective factors against the effects of anxiousness.

CHAPTER 2

INTRODUCTION

Children who have a difficult time initiating and engaging in peer relations, such as children who are anxious or withdrawn, are at risk for missing out on important developmental opportunities (Rubin, Bukowski, & Bowker, 2015). Children who are anxious have a more difficult time socializing with peers compared to children who are not anxious, which can negatively impact their self-esteem, ability to form meaningful friendships, and opportunity to practice social skills (Kingery et al., 2010). Furthermore, children who display anxious symptoms tend to be characterized by attributes that could also impair peer interactions and relationships, such as behavioral inhibition, social withdrawal, and attentional bias (Chronis-Tuscano et al., 2018; Morales, Taber-Thomas, & Perez-Edgar, 2017).

The terms “social withdrawal” and “anxious withdrawal” have been used by researchers interchangeably and often merge observable withdrawal behavior with underlying attributes presumed to contribute to withdrawn behavior, such as shyness and inhibition. Some researchers have used the term “withdrawn” to describe children who are temperamentally inhibited and socially anxious (Kingery et al., 2010; Rubin et al., 2006), whereas others have used the term “withdrawn” as an umbrella term to describe different subtypes of withdrawn behaviors (Coplan & Armer, 2007; Rubin & Coplan, 2004; Rubin, Coplan, & Bowker, 2009). For example, Coplan and Armer (2007) use the term “socially withdrawn” and describe three types of socially withdrawn behaviors, including shy, socially disinterested, or socially avoidant. They have used “shyness” as a term referring to being wary or anxious in the face of novel social situations, in

contrast with “social disinterest,” or having a lack of desire to play with other children or preferring more solitary activities. Children who display socially disinterested behavior are different from children who are shy in that although they prefer to be alone, they do not display wariness of social interactions. Lastly, Coplan and Armer describe “socially avoidant” behavior as actively seeking social solitude and avoiding social situations. Children who display socially avoidant behavior might be more sensitive to possible negative outcomes of social interactions, such as rejection, and thus actively seek to avoid those negative consequences.

The current study focuses on children who exhibit withdrawn behavior as a result of perceived “shyness,” because, unlike children who prefer more solitary play or avoid social contact, children who are shy tend to observe their peers from afar with a conflicted approach/avoidance attitude (Coplan, Prakash, O’Neil, & Armer, 2004). For the purposes of this study, these children will be referred to as children who are “anxious/withdrawn,” because although the children display observable anxious behavior they also exhibit other characteristics mirroring anxiety. Children who desire social interaction (i.e., approach) but are too fearful or anxious to approach peers (i.e., avoidance) might benefit from being in a peer group with others who are fun and outgoing; such peers might provide support to engage in social situations that might otherwise be overwhelming or intimidating.

Anxious Children and the Peer Group

Peer relations are an important aspect of human functioning and well-being and serve as a predictor of behavioral and affective maladjustment (Rubin et al., 2015). Peer relations occur at multiple levels within the peer network, including at the dyadic level and the group level (Rubin et al., 2015). An important type of peer relation at the dyadic level occurs in the form of friendships, which are reciprocal, mutually affirmed relationships between two individuals that

are lasting and provide social and emotional support (Bagwell & Bukowski, 2018; Rubin et al., 2015). Anxious/withdrawn children have been found to have stable, mutual friendships and the same number of friends as non-anxious children (Rubin et al., 2006; Van Zalk, Van Zalk, Kerr, & Stattin, 2011). However, the experiences and quality of their friendships are more negative than compared to those of their non-anxious peers. In a seminal study by Rubin et al. (2006), for example, anxious/withdrawn children rated their friendships as having lower quality and their friends as being less helpful than did non-anxious/withdrawn children. The study also reported anxious/withdrawn youths' best friends similar to the anxious/withdrawn member of the dyad in the level of anxiousness/withdrawal, victimization, and exclusion.

At the group-level, peer relationships and interactions occur within peer networks and can range from small groups, such as individuals who “hang around” together, to larger groups, such as classrooms or the whole grade (Rubin et al., 2015). Peer relations at the group-level provide a context for social influence and networked affiliations (Kinderman & Gest, 2018) and shape experiences of individuals and dyads within the group (Rubin et al., 2015). Children embedded in a peer group are surrounded by other individuals who they interact with and develop relationships with (Rubin et al., 2015). Researchers have typically used the term “peer group” as a term that can encompass small interaction-based groups/friendships to large groups, with differing levels and types of interactions (Kindermann & Gest, 2018). A few studies conducted at the group level have found that anxious/withdrawn tend to be more victimized (Erath, Flanagan, Bierman, & Tu, 2010; Schwartz, Chang, & Farver, 2001) and are more rejected and less well-liked by their peers than are children who are not anxious/withdrawn (Kingery et al., 2010). Children who are anxious/withdrawn and not embedded within the peer network have been found to increase in anxious/withdrawn behavior over time, whereas those who experience

less exclusion decrease in anxious/withdrawn behavior (Oh et al., 2008). La Greca and Harrison (2005) found that regardless of the quality of friendships, high relational victimization predicted social anxiety in adolescents. This indicates that negative group-level interactions might lead to increased internalizing problems despite positive dyadic relationships. However, the researchers also found that any type of self-reported belongingness to an interaction-based group of peers was associated with and served as a protective factor against the development of social anxiety. This finding suggests simply belonging to a group can provide a buffering effect against anxiousness.

There is a particular type of small group found to be particularly important for anxious/withdrawn children. Specifically, an “interaction group” is comprised of children who peers observe to hang around together a great deal (Neal & Neal, 2013). According to Neal and Neal (2013), a small, interaction-based group is a specific type of peer group in which children spend time in, interact together, and can be identified via peer nomination. Research has highlighted the importance of interaction groups on an individual’s social and emotional functioning (Kornienko & Santos, 2014; Fortuin, Van Geel, & Vedder, 2015; Parker & Asher, 1993), behavioral functioning (Ellis, Zarbatany, Chen, Kinal, & Boyko, 2018; Schwartz, et al., 2003), and academic engagement (Kindermann, 2007; Vollet, Kindermann, & Skinner, 2017). Interaction groups expose individuals to certain beliefs and attitudes the members of the group value (Bagwell, Coie, Terry, & Lochman, 2000), which, in turn, can have an influential effect on individuals within the group.

Just as dyadic relationships (e.g., friendships) vary in quality, so do interaction groups. Therefore, it is important to consider the qualities and characteristics of the interaction group in which children are embedded. Studies revealed the different characteristics of interaction groups,

such as social withdrawal, aggression, and impulsivity, and their effects on children's social-emotional, behavioral, and psychological outcomes. For example, children who are affiliated with a group characterized as socially withdrawn have tend to be more victimized, report more depression, and have a more negative attitude toward school than children in non-socially withdrawn groups (Zhao et al., 2015). Children in interaction groups characterized as aggressive are reported by their peers to be more aggressive (Low, Polanin, & Espelage, 2013) and experience increased rejection in the larger peer system (Chung-Hall & Chen, 2010). Interaction groups characterized by high levels of impulsivity have been found to positively contribute to increased depression and non-suicidal self-injury (You, Zheng, Lin, & Leung, 2016). Children in interaction groups tend to share similar attributes and characteristics, a phenomenon known as homophily (McCormick et al., 2015), which is an important consideration for children already exhibiting social difficulties, such as those who are anxious/withdrawn. For example, homophily can have a negative impact or put those with internalizing problems at further risk to hang around with peers who also have internalizing problems (Rubin et al., 2006; Stone et al., 2013). Thus, the positive impact of merely belonging to an interaction-based peer group might be offset by negative impacts, depending on the group's characteristics and the outcomes measured.

Based on these studies, it can be said the interaction group in which a child is involved in can impact the child in both positive and negative ways depending on the group's characteristics. However, in contrast to research investigating the impact of interactions groups characterized by deviant or undesirable behavior, little research has investigated the impact of affiliations with interaction groups characterized by prosocial behavior. In general, prosocial behaviors are behaviors that are voluntary and seen as being positive, helpful, and nice (Fabes, Hanish, Martin, Moss, & Reesing, 2012). Prosocial behavior contributes positively to children's behavioral and

psychological adjustment and is related to less peer and teacher reported aggression and victimization (Bettencourt, Musci, Clemans, Carinci, & Ialongo, 2017; Markovic & Bowker, 2015), more social preferability (Shin, 2017), and overall positive social outcomes (Schwartz, Farver, Chang, & Lee-Shin, 2002). A few studies have examined if membership in prosocial interaction groups also yields fewer negative or more positive social-emotional adjustment. In a study examining the effects of aggressive and prosocial peer groups on social-emotional outcomes and school adjustment on typically developing children in late childhood, Chung-Hall and Chen (2010) noted children in prosocial groups, compared with children in aggressive groups, reported more positive perceptions of behavior and social skills and were more likely to be accepted by peers. Similarly, Berger and Rodkin (2011) also investigated individual child involvement in aggressive and prosocial groups. They reported children who displayed prosocial levels similar to their peer group were more likely to increase in prosocial behaviors over time, resulting in a socialization effect.

Overall, studies indicate although involvement in peer groups with negative characteristics can act as a risk factor and lead to negative behavioral and social-emotional outcomes for individual children in general, involvement in prosocial peer groups can lead to the opposite effect and serve as a protective factor against negative outcomes. Given this information, it is possible that interaction groups could serve as a protective advantage for anxious/withdrawn children. To our knowledge, there are no studies investigating the potential positive effects of prosocial group involvement on anxious/withdrawn children.

Current Study

Little is known about how the characteristics of an interaction group can serve as a protective or risk factor for anxious/withdrawn children. The current study addresses the

potential protective effect of belonging to a prosocial interaction group, an understudied research question in the peer relations literature. One way of gathering information about interaction groups and children's behaviors is through the use of peer report. The use of peer report is considered a reliable and valid method to gather information about the peer network (Cairns et al., 1985; Kinderman & Gest, 2018; Neal & Neal, 2013). Peer report is important because peers are expert reporters on peer behaviors (Cairns et al., 1985) and provide a unique and more accurate perspective on information regarding peer behaviors, characteristics, and social status than can teachers and parents (Bukowski, Cillessen, & Velasquez, 2012). The way in which peers perceive other children can affect how those children are treated, which can result in some children engaging in negative behaviors, such as aggression or social withdrawal, based on peer treatment (Bush, Ladd, & Herald, 2006). Similarly, peers perceive other children as having variable degrees of likability, which can lead to experiences of peer acceptance or rejection (Bush et al., 2006). Essentially, peers are "insiders" and can directly report on their affective regard for other children, whereas "outsiders" report based on their observations (Bukowski et al., 2012).

The current study utilizes a peer nomination methodology to investigate the effects of peer group characteristics on anxious/withdrawn children's self-reported loneliness and teacher-rated internalizing distress. In the current study, it was expected children perceived by peers to exhibit higher levels of anxious/withdrawal behavior would report higher levels of loneliness and social dissatisfaction and be rated by teachers as having higher internalizing distress than those perceived to exhibit lower levels of anxious/withdrawal (*Hypothesis 1*). Past studies have indicated individuals' levels of loneliness and internalizing distress, including anxiousness, to be associated with each other (Fontaine et al., 2009; Suveg et al., 2014), with increased loneliness

leading to an increase in anxious symptoms (Barchia & Bussey, 2010; Strauss, Lease, Kazdin, Dulcan, & Last, 1989). Self-reported loneliness and social dissatisfaction can also be viewed as how a child perceives their quality of relationships with peers (Suveg et al., 2014). Given that research indicated females are more likely to have higher levels of internalizing problems, such as anxiety, than males (High-McMillan, Francis, & Chorpita, 2014; Weems & Silverman, 2013), we also examined gender differences in internalizing distress.

Children who are anxious/withdrawn tend to have friends who are similarly anxious/withdrawn, which can lead to increased negative outcomes (i.e., loneliness) for both children within the friendship (Rubin et al., 2006; Oh et al., 2008). Similarly, a child's level of internalizing distress might be affected by the characteristics of the interaction group in which they are involved. If a child who displays anxious/withdrawn behavior belongs to an interaction group that is similarly anxious/withdrawn (i.e., homophilous), then it is possible for that child's level of loneliness to increase or become elevated. Therefore, it was expected that children who display higher levels of anxious/withdrawn behavior who belong to interaction groups whose members have elevated levels of anxious/withdrawal would report higher levels of loneliness compared to children who display lower levels of anxious/withdrawn behavior (*Hypothesis 2*). Gender as a moderating effect on internalizing distress was also investigated.

In contrast to Chung-Hall and Chen (2009), who investigated the effects of belonging to a prosocial interaction group for children not specifically identified as anxious, the current study is unique in that we specifically examine the degree to which the prosocial characteristics of a child's interaction-based group buffered or moderated internalizing distress for children reported by peers as having varying levels of anxious/withdrawal (*Hypotheses 3a-3b*). Given the positive relation between prosocial behavior and social-emotional well-being (Dirks, Dunfield, &

Recchia, 2018), it was expected that children who exhibited increased levels of anxious/withdrawal would exhibit less distress the more prosocial the group was. Specifically, this study examined two types of “prosocial” characteristics: Participants nominated peers who exhibit a prosocial, kind demeanor (i.e., “agreeable”), and they also nominated peers who are “fun and outgoing.” Whereas prosocial behaviors in general lead to positive outcomes, it could be that hanging around with children who are known by peers as fun and outgoing is particularly advantageous, as these types of children might engage anxious/withdrawn children in socially reinforcing activities. It could be that membership in groups characterized by agreeable peers is protective (*Hypothesis 3a*) as is hanging around with fun and outgoing peers (*Hypothesis 3b*). However, we were particularly interested in the impact of belonging to a group whose members are perceived by peers as fun and outgoing, as these children would be more likely to engage those higher in anxious/withdrawal in more fun activities, which could lead to increased social satisfaction and, in turn, less loneliness and internalizing distress. For *Hypotheses 3a and 3b*, the potential moderating role of gender was also investigated.

CHAPTER 3

METHOD

Participants

Data for the current study were collected in late spring of the school year. Participants included teachers and students in fourth and fifth grades from five different rural elementary schools located in the southern portion of the United States. Teachers were asked to send consent forms home with their students for parent signature. Once parental consent was obtained, assent was obtained from the student before his or her participation in the study. All measures, data collection procedures, and consent procedures were approved by the university's Institutional Review Board (IRB). Out of the total sample of 716 fourth and fifth graders, approximately 50% were female. In terms of ethnicity/race, 78% were Caucasian, 11% African American, 7% Hispanic, 1% Asian, and 3% Multiracial. After removing children who were in more than one interaction group, in an interaction group with only one other child, or were not in an interaction group (see below), the resulting total sample was 642. Two-sided t-tests revealed a significant difference between those not assigned to an interaction group of at least three members ($n = 74$) and those that were ($n = 642$) in self-reported loneliness ($t(40.57) = 2.69, p = .01$) and teacher-rated internalizing problems ($t(44.51) = 2.30, p = .03$).

Consent and Data Collection Procedures

The participation rate, by grade unit, ranged from 63% to 79% across eight grade units, with the size of the grade units ranging from 63 to 115. The current study utilized two levels of participation, *primary* and *secondary*, consistent with the procedure reported by Neal, Cappella,

Wagner, and Atkins (2011). Of the 642 assigned to an interaction group, participants considered *primary* ($n = 447$; 70%) were those who received parental consent: These children completed self-report measures and teachers rated them on internalizing distress. *Secondary* participants consisted of the 184 students (29%) who did not receive parental consent to take part in self- and teacher-reported portions of the data collection. However, given the use of a free recall, peer-nomination procedure (see below), a child could write down the names of *secondary* as well as *primary* participants for interaction-group (i.e., Social Cognitive Mapping, or SCM group, see below) and behavioral measures. That is, the name of any peer from the *primary* participant's grade level unit could be written on the survey. The Director of the University's Human Subjects Committee made the determination that information obtained via free recall about secondary participants could be used to construct SCM groups and to calculate behavioral means for SCM groups. It is important to include secondary participants for assessing the social network structure adequately when consent rate does not approach 100% (Neal et al., 2011) as it increases validity (Babcock, Marks, van der Berg, & Cillessen, 2018). Chi-square tests were run to determine whether there were any significant demographic differences between the primary participant group ($n = 447$) and the aggregate of primary and secondary groups ($n = 642$). The chi square for gender was significant at the .05 level ($p = .01$), revealing that females (53%) were more likely to be within the primary participant group than were males (47%).

The current study made use of peer-reported, self-reported, and teacher-reported measures. Given that peers across the grade-level rather than within the classroom were used as the reference group for peer nomination measures (see below), data collection was scheduled such that all participants within a grade level unit at a school completed surveys at the same time in the school cafeteria. Surveys for participating students were read aloud to each classroom by

one member of the research team, while two other members of the team monitored and provided individual assistance to students. This occurred during a one-hour session as part of a larger study on children's peer relations, during which teachers also completed rating forms for each *primary* participant. Primary and secondary participants alike were given a small gift as a token of appreciation for use of class time.

Measures

Peer Report Measures

Peer nominations were unlimited, made via a free recall procedure, and not restricted to the primary participant's homeroom or classroom; primary participants could nominate anyone from their same grade level (the *reference group*), as school staff indicated many of their interactions took place with others in their grade level throughout the school day. In a free recall procedure, participants were not provided with a roster of peers' names. Because nominations were free recall, primary participants were able to nominate individuals who did not otherwise participate in the study (i.e., secondary participants). Free recall was chosen because it offers the advantages of nominating nonparticipants as well as not limiting participants' cognitive conceptualization of peer groups (Farmer, Hall, Petrin, Hamm, & Dadisman, 2010). The free recall procedure is consistent with the original SCM methodology, which elicits children's free recall and description of interaction-based groups via an interview procedure (Cairns et al., 1985). As noted by Farmer et al. (2009), as few as 50% of the reference group could provide data (on all members of the reference group) to construct a valid representation of the peer-reported interaction groups within a peer network. Finally, free recall, in contrast to the nomination procedures involving rosters in which children's names are listed, often with a number beside

their name, remains free from a sequencing effect, in which participants are more likely to nominate students higher/earlier in order on the roster (Poulin & Dishion, 2008).

In addition to using a free recall procedure, peer nominations were unlimited as participants were not instructed to provide a specific number of nominations per question or item (e.g., three or five nominations only). For peer nomination items, primary participants were asked to write in the names of classmates who fit particular descriptors. The use of an unlimited nomination procedure, as opposed to a limited nomination procedure, allows for a more accurate representation across the reference group of frequencies of behaviors and characteristics (Cillessen & Marks, 2017). Unlimited nominations demonstrate have better psychometric and distributional properties (Gommans & Cillessen, 2015) than limited-nomination procedures.

Social Cognitive Mapping (SCM). To identify as many interaction-based groups, or cliques, in their grade as possible, primary participants were asked: “*We want you to think about the kids in your grade. Some kids hang out together all the time. They may be working together, playing together, or they just do a lot together. Please list the groups of kids who do things or hang out together in your grade.*” Primary participants were provided a table with eight columns to nominate groups of (primary and secondary) peers. Participants were instructed they did not have to provide a group for each space, and if they needed they could add more groups on the back of the paper. Primary participants were also asked to list groups in which they were not involved. SCM data was used to create discrete, interaction-based groups because, methodologically, such groups provide a reliable and valid picture of discrete groupings within peer networks (Cairns et al., 1985). Co-occurrence matrices, which were constructed for each grade-level unit based on the entirety of the “hanging out” nominations generated, indicated how many times each child was nominated to be part of the same group as each of his or her peers.

Each grade level matrix was analyzed by the SCM 4.0 computer program (1998, Center for Developmental Science of the University of North Carolina at Chapel Hill) to identify specific interaction groups.

After accounting for participants who were not nominated to be in any group, participants who were in a dyad but not in a group of at least three members, or participants who were nominated to be in more than one group, the number of participants included in an SCM group was 90% ($n = 642$) of the total possible 716 (primary and secondary) participants. Children not part of an SCM group were coded as “1,” while children part of a clique were coded as “0.” Of the 642 assigned to an SCM group, 79% of the final participants were Caucasian, 11% African American, 6% Hispanic, 1% Asian, and 3% Multiracial. With regard to gender, 50% assigned to an SCM group were female. The average SCM group size was 7.07 children, ranging from 3 to 16 children within an SCM group.

Peer-reported behavior. A method similar to the Revised Class Play (Masten, Morison, & Pellegrini, 1985) procedure was used to gather peer nominations of behavior, including nominations for *anxious*, *agreeable*, and *fun and outgoing* behaviors. Primary participants were instructed, “*Think about the students in your grade. Pretend that you are assigning roles in the upcoming class play. We would like for you to nominate kids who fit each role as listed below. You can nominate a person for more than one role.*” Primary participants were instructed that they could nominate a peer for more than one item if desired. Primary participants provided nominations for peers considered *fun* (i.e., “fun, interesting, and creative kid”), *anxious* (i.e., “looks like he or she wants to play with others or join in on a game, but seems afraid or shy”), and *agreeable* (i.e., “really good to have as part of your group, because this person is agreeable and cooperates- he or she pitches in, helps others, shares, or gives everyone a turn”). The number

of nominations received by each participant (primary and secondary) for each behavior was summed and standardized (mean of 0, standard deviation of 1) within their grade level unit (all children in their grade at their school) to account for the differing number of nominators, and thus possible nominations, across grade-level units.

Construction of SCM behavioral group means. For each of the primary participants, three SCM behavioral group means (*i.e.*, *anxious*, *fun*, and *agreeable*) were constructed using the peer nomination behavioral data. The procedure used created a unique SCM behavioral group score for each of the primary participants, even for those in the same SCM group. First, the standardized behavioral scores for each (primary and secondary participant) member of an SCM group were summed, separately for each of the three behaviors. Next, for each of the primary participants, the participant's standardized behavioral score was subtracted from their SCM group's summed score, such that the behavioral score for a participant's SCM group did not include their own information. Finally, a mean of this final summed score was calculated. Descriptive data for these SCM behavioral group means are displayed in Table 1.

Because secondary participants did not complete self-report measures nor did teachers complete ratings of secondary participants, they were not included in further analyses after the construction of SCM groups and creation of SCM behavioral group means for primary participants.

Table 1

Means and Standard Deviations of SCM Group Characteristics

<i>SCM Groups (n = 107)</i>				
Variable	Mean	Minimum	Maximum	SD
SCM group members	7.07	3.00	16.00	2.84
SCM group characteristics				
Agreeable	.00	-1.09	1.91	.58
Fun and outgoing	.01	-1.03	1.87	.56
Anxious	.00	-0.46	2.43	.50

Self-Reported Measures

Self-report of loneliness. As an indicator of socially-based distress or loneliness, primary participants completed the Peer Network and Dyadic Loneliness Scale (PNLDS) (Hoza, Bukowski, & Beery, 2000). The PNLDS is a 16-item scale assessing loneliness or dissatisfaction with dyadic relationships as well as relationships at the network level of the peer group. The eight items related to network loneliness include items relating to peer group inclusion, involvement in peer group activities, and with whom the child hangs out. The eight items related to dyadic loneliness involve being close to someone, feeling supported, and feeling cared about. The current study only used the network loneliness subscale. Coefficient alphas calculated at the time the scale was constructed revealed high internal consistency (i.e., .88 for the Peer Network Loneliness subscale; Hoza et al., 2000). Coefficient alpha indicated the subscale was also found to be internally consistent within this sample (i.e., .82 for the Peer Network Loneliness subscale).

The network loneliness subscale scores were standardized (mean = 0, std = 1) for comparison to peer-report variables; the descriptive information about the means and standard deviations of self-reported network loneliness of the primary participants is contained in Table 2.

Teacher-rated internalizing symptoms. Teachers rated participating students in their homeroom classes on the Interpersonal-Competence Scale (ICS-T; Cairns, Leung, Gest, & Cairns, 1995). The ICS-T is a brief rating scale for parents and teachers consisting of 18 items that provide three primary factors: Academic Achievement (ACA: spelling and math), Aggression (AGG: argues, trouble at school, fights), and Popularity (POP: popular with girls/boys, lots of friends). It also yields three subsidiary factors: Social Affiliation (AFF: smile, friendly), Olympian Quantities (OLY: appearance, sports, wins), and Internalizing Problems (INT: shyness, sad, worry). Each item was presented on a 7-point Likert-type scale, ranging from “Never” to “Always,” with “Sometimes” being the midpoint. Research conducted by Cairns et al. (1995) yielded internal consistencies for each factor, with median coefficient alphas ranging from .67 to .82. Within this study coefficient alpha for INT was .61. For subsequent analyses, this study used INT scale to investigate teacher’s ratings of children’s level of internalizing problems. These scores were standardized (mean=0, std=1) for comparison to the other study variables.

CHAPTER 4

RESULTS

Overview of Analysis

Analyses were performed using SAS software version 9.04 (SAS Institute Inc., Cary, NC). After presenting descriptive statistics about the sample and simple correlations among study variables, focal analyses are presented in three parts. First, two regressions were conducted to examine if being nominated by peers as anxious/withdrawn is predictive of higher levels of self-reported loneliness and teacher-reported internalizing problems, in turn; further, the degree to which those results are moderated by gender was examined (*Hypothesis 1*). Following those initial analyses, a series of multiple regressions were conducted to examine whether the relation between the child's level of anxious/withdrawal and the two outcome variables (i.e., self-reported loneliness and teacher-reported internalizing distress) was moderated by the interaction-group's characteristics, namely the degree to which the child's group's members, as a whole, are reported by peers as (a) anxious/withdrawn (*Hypothesis 2*), (b) fun and outgoing (*Hypothesis 3a*), and (c) agreeable (*Hypothesis 3b*). Gender was included in multiple regression models.

Of the 642 children consisting of both primary and secondary participants, and who were assigned to an SCM group, 458 were given parental consent to complete self-report and teacher-report measures. Eleven participants were dropped because of missing data, resulting in a final sample size of 447. Descriptive statistics and correlational analyses for the 447 primary participants, reported separately by gender, can be found in Table 2 and Table 3, respectively.

Interestingly, means in Table 2 girls are significantly higher than boys in peer rated anxious/withdrawn behavior ($t(432.46) = -2.32, p = .02$).

Peer-reported anxious/withdrawal was positively and significantly related to both self- and teacher-report of internalizing distress for the total sample and for females, but not males (Table 3). With regard to the interaction groups' characteristics, a significant and positive correlation was found between the group's degree of anxious/withdrawn behavior and self-reported loneliness (males only) and teacher-rated distress (females only). However, the degree to which group members were rated by peers as "fun" was *positively* associated with self-reported loneliness (females only), although these correlations were small in magnitude. No significant correlations were observed for the degree to which group members were rated as agreeable.

Table 2

Descriptive Statistics for the Primary Participants (n = 447)

Variable	Mean	SD	Minimum	Maximum	n
Females					
Anxious/Withdrawal	0.09	0.99	-0.44	6.86	238
Agreeable - Group	0.20	0.63	-0.85	1.91	238
Fun - Group	0.11	0.59	-1.03	1.87	238
Anx/With - Group	0.08	0.55	-0.46	2.43	238
Internalizing distress	-0.08	1.14	-2.05	3.95	238
Loneliness	0.06	0.71	-0.82	2.18	238
Males					
Anxious/Withdrawal	-0.10	0.73	-0.44	6.33	209
Agreeable - Group	-0.23	0.41	-1.10	1.38	209
Fun - Group	-0.11	0.51	-0.98	1.47	209
Anx/With - Group	-0.10	0.41	-0.46	1.82	209
Internalizing distress	0.08	1.15	-2.05	3.28	209
Loneliness	-0.06	0.65	-0.82	1.80	209

*All variables were standardized

Table 3

Pearson Correlations Between Outcome Variables and Peer Nominated Anxious/Withdrawal and Interaction Group Means

Outcome Variables	Anxious/Withdrawal	Interaction Group Characteristics		
		Agreeable	Fun	Anx/W
All Students				
ICST-INT	.23**	-.06	-.07	.15**
Loneliness	.15**	.02	.12*	.13**
Males				
ICST-INT	.08	.03	.01	.05
Loneliness	.09	-.05	.05	.26**
Females				
ICST-INT	.36**	-.07	-.10	.25**
Loneliness	.16*	.01	.14*	.03

* $p < .05$, ** $p < .01$

Anxiousness/Withdrawal as a Predictor of Loneliness and Internalizing Problems

To examine the degree to which peer-rated anxious/withdrawal predicts self-reported loneliness and teacher-rated internalizing problems (Hypothesis 1), with gender in the model, a multiple regression was conducted. Gender, dummy-coded as a 0/1 variable, with female=0 and male =1, was entered in each regression equation, along with the interaction of gender and peer-reported anxious/withdrawal. Gender was not a significant predictor of either self-reported loneliness, $F(1,443) = 3.31$, $p = .07$, or teacher-rated internalizing distress, $F(1,443) = 2.28$, $p = .13$. With self-reported loneliness as the dependent variable, results indicated a significant effect of peer-rated anxious/withdrawal, $F(1, 443) = 8.73$, $p < .01$, which was not qualified by a significant interaction between anxious/withdrawal and gender. In the second regression, anxious/withdrawal was a significant predictor of teacher-rated internalizing problems, $F(1, 443) = 28.32$, $p < .001$, but this was qualified by a significant interaction between gender and peer-rated anxious/withdrawal, $F(1, 443) = 4.96$, $p < .05$. The significant interaction in this second regression, displayed in Figure 1, indicates at lower levels of peer-reported

anxious/withdrawal, teachers also reported boys as having lower levels of distress; however, at higher levels of peer-reported anxious/withdrawal, teachers did not report concomitant increases in distress for boys. In contrast, teachers rated females as having significantly more internalizing problems as their level of peer-rated anxious/withdrawal increased.

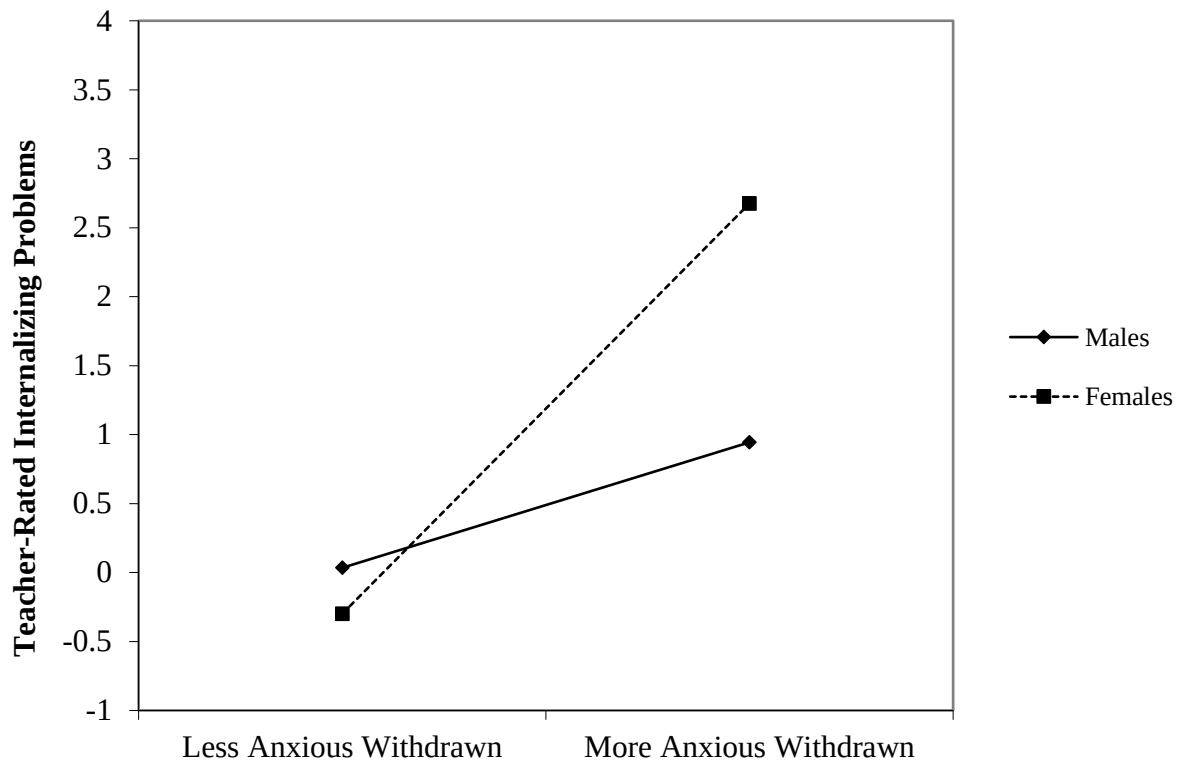


Figure 1

Interaction Effect Between Level of Peer-Rated Anxiousness/Withdrawal and Gender Predicting Teacher-Rated Internalizing Problems

Interaction Group Characteristics Predicting Loneliness and Internalizing Problems

To examine Hypotheses 2, 3a & 3b, six multiple regressions were conducted with gender, peer-reported anxious/withdrawal, and interaction group characteristics as predictor variables and self-reported loneliness and teacher-rated internalizing problems as outcome variables. Specifically, each regression equation contained only one of the interaction group characteristics (i.e., agreeable, fun and outgoing, anxious/withdrawal), in turn, and predicted only one of the dependent variables (i.e., self-reported loneliness or teacher-rated internalizing problems), in turn. The results of the six multiple regressions are contained in Table 4.

Table 4

Summary of Regression Analysis for Variables Predicting Self-Reported Loneliness and Teacher-Reported Internalizing Problems

Variable	Loneliness			Internalizing Problems		
	<i>F</i>	<i>df</i>	β	<i>F</i>	<i>df</i>	β
<i>Hypothesis 1</i>						
Gender	3.31	1, 443	0.10	2.28	1, 443	-0.21*
Anxious/Withdrawn	8.73**	1, 443	0.08	28.32**	1, 443	0.12
Anxious/Withdrawn*Gender	0.31	1, 443	0.04	4.96*	1, 443	0.28*
<i>Hypothesis 2</i>						
Group Anxious/Withdrawn	3.66	1, 441	0.16*	6.13*	1, 441	0.34**
Anx/With*Group Anx/With	7.60**	1, 441	-0.16**	11.76**	1, 441	-0.33**
<i>Hypothesis 3a</i>						
Group Agreeable	0.00	1, 441	0.00	0.21	1, 441	-0.40
Anx/With*Group Agreeable	0.37	1, 441	0.05	1.76	1, 441	0.17
<i>Hypothesis 3b</i>						
Group Fun & Outgoing	5.66*	1, 441	0.14*	0.63	1, 441	-0.07
Anx/With*Group	7.41**	1, 441	0.23*	2.85	1, 441	0.24

* $p < .05$, ** $p < .01$

Note: Two extreme outliers (i.e., > 6 SD on peer-rated anxious/withdrawal) were removed and then multiple regressions conducted again to examine their impact on the results; the removal of the two outliers did not change the significance of the outcomes.

The two multiple regressions addressing Hypothesis 2 focused on the level of anxious/withdrawal of interaction group members. There was a significant interaction effect between the child's level of peer-reported anxious/withdrawal and the level of the interaction group's anxious/withdrawal behavior when predicting both self-reported loneliness, $F(1, 441) = 7.60, p < .01$, and teacher-rated internalizing problems, $F(1, 441) = 11.76, p < .01$. As displayed in Figure 2, the level of teacher-reported internalizing problems *decreased* significantly as both the level of children's anxious/withdrawal behavior and interaction group anxious/withdrawal *increased*, opposite of the predicted results. Similarly, the level of self-reported loneliness *decreased* significantly as both the level of children's anxious/withdrawal behavior and interaction group anxious/withdrawal *increased* (Figure 3). These results are meaningful in that both self- and teacher-ratings of internalizing problems significantly decreased as a result of the interaction effect, suggesting that, for children at the higher end of the distribution for anxious/withdrawal, belonging to an interaction group with higher levels of anxious/withdrawal results in lower levels of internalizing distress.

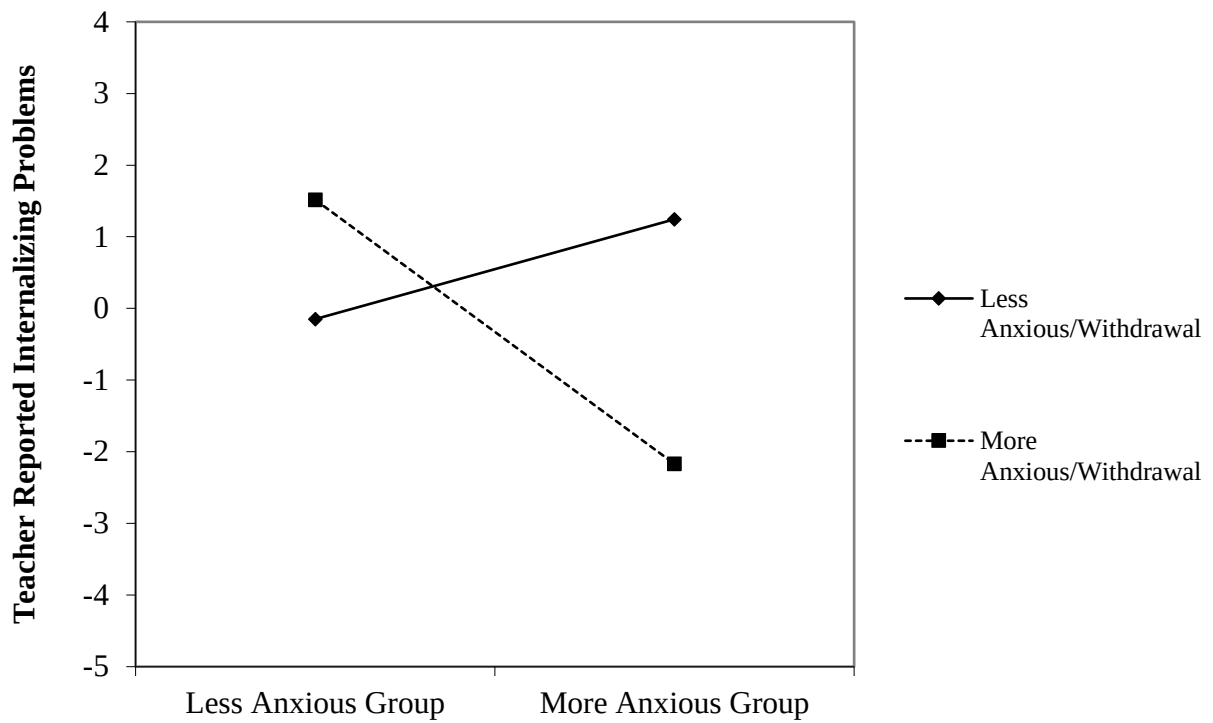


Figure 2

Interaction Effect Between Peer-Rated Anxious/Withdrawal and the Interaction Group's Anxious/Withdrawal in Predicting Teacher-Rated Internalizing Problems

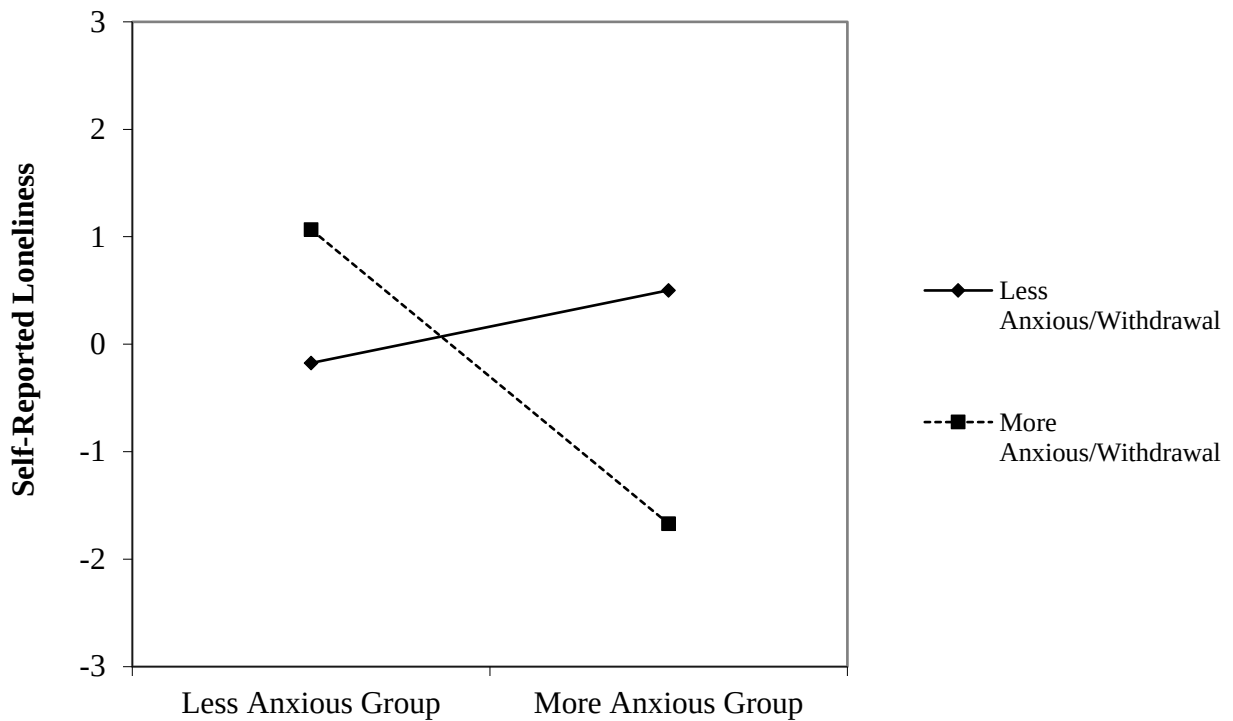


Figure 3

Interaction Effect Between Peer-Rated Anxious Withdrawal and Interaction Group

Anxious/Withdrawal in Predicting Self-Reported Loneliness

The focus of the next four regressions was on the impact of the interaction group's level of prosocial behaviors (i.e., agreeableness and fun) on internalizing distress (Hypotheses 3a-3b). Results of the first multiple regression indicated the degree of agreeableness of the child's interaction group members, as a whole, did not significantly predict teacher-reported internalizing problems, $F(1, 441) = .21, p = .65$, beyond the individual's degree of anxious/withdrawal, nor was there a significant interaction between the level of anxious/withdrawal and the level of the interaction group's agreeableness, $F(1, 441) = 1.76, p = .19$. Similar results were found when predicting self-reported loneliness, in that there was

neither a main effect of interaction group agreeableness, $F(1, 441) = .00, p = .99$, nor an interaction effect between the child's anxiousness/withdrawal and interaction group agreeableness, $F(1, 441) = .37, p = .54$. Overall, the results suggested being embedded in a group of children who had higher levels of agreeableness did not reduce children's felt loneliness or teacher-rated internalizing distress, regardless of the child's level of peer-reported anxious/withdrawal.

In the two multiple regressions focused on the degree to which members of the child's interaction group were reported by peers as fun and outgoing, the interaction group's level of fun neither significantly predicted teacher-rated internalizing problems, $F(1, 441) = .63, p = .43$, nor was there an interaction effect between levels of anxious/withdrawal and how fun and outgoing the interaction group is, $F(1, 441) = 2.85, p = .09$. However, when predicting self-reported loneliness, there was a significant interaction between how fun and outgoing the interaction group is and the child's level of peer-rated anxious withdrawal, $F(1, 441) = 7.41, p < .01$ (Figure 4). An examination of the diagnostic plots indicated that, for children who were reported by peers as below the mean for peer-reported anxious/withdrawal, the degree to which the interaction group was fun and outgoing did not impact their self-reported loneliness. However, for children reported by peers as more anxious/withdrawn than peers (i.e., $SD \geq 1$), self-reported loneliness *increased* as the level of how fun and outgoing an interaction group increased. This result, which was surprising and the opposite of what was predicted (Hypothesis 3b), suggests that as the discrepancy between the child's level of anxious/withdrawal and the group's outgoing and fun nature increases, the more distressed the child feels. However, while the result was contrary to expectation, it is consistent with the result reported above for anxious/withdrawn interaction group characteristics, which was also opposite from what was predicted.

Overall, results indicated for children who scored at the higher end of the peer-reported anxious/withdrawal distribution, self- and teacher-reported internalizing distress decreased as their group's anxious/withdrawal increased, whereas their self-reported distress increased the more their group's members were viewed as fun and outgoing.

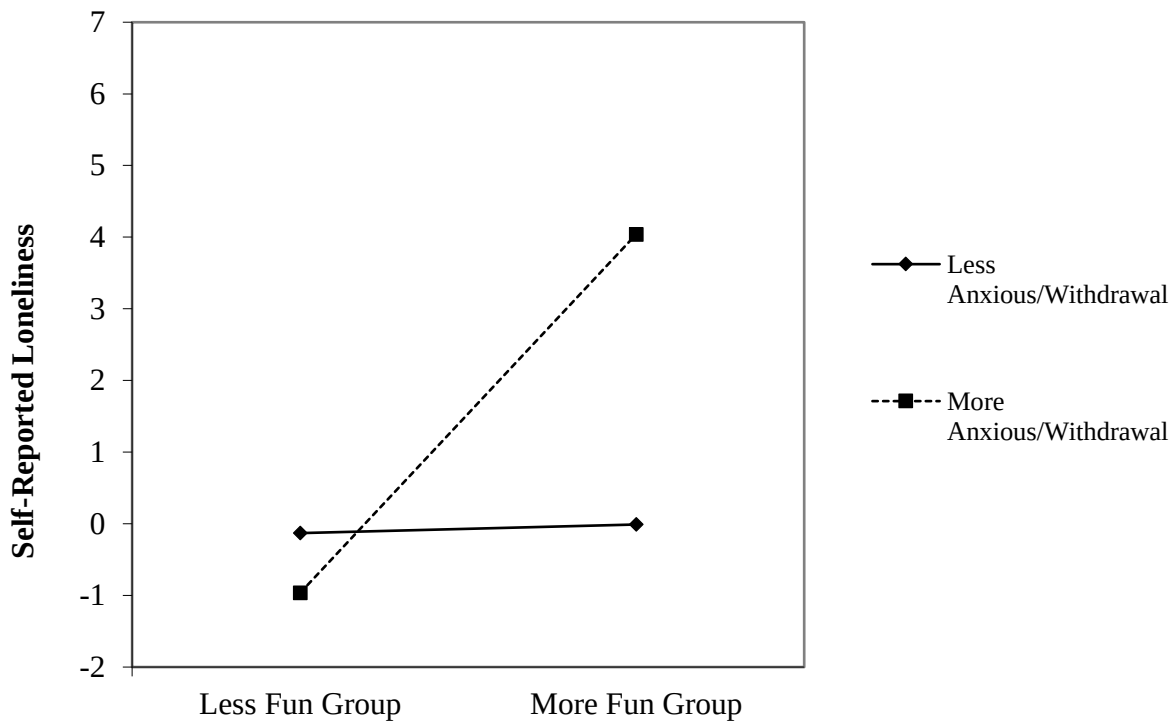


Figure 4
Interaction Effect of Peer-Rated Anxiousness/Withdrawal and Fun Interaction Group Predicting Self-Reported Loneliness

CHAPTER FIVE

DISCUSSION

The goal of the current study was to investigate the effects of interaction group characteristics on the level of internalizing problems in children who reported by peers as displaying higher levels of anxious/withdrawn behavior relative to others in their grade. More specifically, it was predicted that children who displayed higher levels of anxious/withdrawn behavior would experience higher levels of internalizing problems if they were in interaction groups that displayed higher levels of anxious/withdrawal and would experience lower levels of internalizing problems if they were in interaction groups that displayed higher levels of prosocial behavior, especially fun and outgoing behavior.

Researchers who have investigated the effects of the embeddedness of children within interaction groups that display certain negative characteristics (e.g., anxiousness, aggression) have found group members to increase in such negative behaviors as depression, aggression, anxiousness, and non-suicidal self-injury (Low et al., 2013; You et al., 2016; Zhao et al., 2015). Few studies have investigated the effects of prosocial interaction group characteristics on group members, although those studies have reported positive effects (Berger & Rodkin, 2011; Chung-Hall & Chen, 2010). The current study's goal extends prior research by examining the protective effects of prosocial interaction group involvement on children who are perceived by peers as more anxious/withdrawn relative to other children.

The first study hypothesis was that higher anxious/withdrawn behavior in children would be positively associated with more distress. Consistent with previous research (Fontaine et al.,

2009; Rubin et al., 2006), levels of self- and teacher-reported internalizing distress were positively associated with peer-perceptions of anxious/withdrawn behavior. However, this relation was significant for females only and not for males. Gender differences in internalizing problems, such as depression (Danneel et al., 2019; Wade, Cairney, & Pevalin, 2002) and social anxiety (Ranta et al., 2007), provide evidence females have more internalizing problems than males. Sterba, Prinsetin, Mitchell, and Cox (2007) hypothesized, based on past research, gender differences in internalizing problems remain relatively small throughout early childhood but increase during preadolescence. In their study investigating internalizing problems over time from preschool to preadolescence, Sterba et al. (2007) found females demonstrated a more elevated and stable trajectory of internalizing problem than males, indicating a significant difference between sexes in internalizing problems as children enter preadolescence. Our study supports this finding, as preadolescent females who were rated by their peers as being more anxious/withdrawn were rated by their teachers and their self as having higher internalizing problems.

The second study hypothesis indicated belonging to an interaction group high in anxious/withdrawal would increase distress for children, especially if those children were rated as having higher levels of anxious/withdrawn behavior than peers. While internalizing distress was predicted by the interaction between levels of anxious/withdrawal in the interaction group and the child's individual level of anxious/withdrawal, it was in the opposite direction as predicted. Specifically, Figures 2 and 3 indicated this significant interaction was driven primarily by those rated at higher levels of anxious/withdrawal. For children exhibiting higher individual levels of anxious/withdrawal, belonging to a group whose members also had higher levels of anxious/withdrawal behavior resulted in *less* self-reported loneliness and *less* teacher-rated

internalizing distress. A similar result was observed for Hypothesis 3b. That is, we hypothesized for children with higher levels of anxious/withdrawn behavior, belonging to groups with higher levels of fun and outgoing behavior would result in decreased self- and teacher-reported internalizing problems. Instead, we found higher levels of fun and outgoing group characteristics for those individuals with higher levels of anxious/withdrawal resulted in *more* self-reported loneliness.

Taken together, these patterns of findings are meaningful and indicate the relationship between one's individual characteristics and the characteristics of their interaction group is complex. Although our study design was cross-sectional in nature, the results are contradictory to previous findings that indicate anxious/withdrawn children who hang out together tend to increase in internalizing problems over time (Oh et al., 2008; Rubin et al., 2006). These surprising results might be explained by a homophily effect, meaning children who are similar in externalizing or internalizing behaviors tend to hang around each other (Lazarsfeld & Merton, 1954; Stone et al., 2012). Children who display anxious withdrawn behavior and who hang around other children like them might feel more comfortable with others like themselves and, therefore, experience less internalizing distress (Laursen, 2017). This explanation might also be supported by similarity theory. Similarity theory proposes those who share similar behaviors and characteristics and who hang around one another increase in shared feelings and a sense of belonging (Jiao et al., 2017). Children who display higher levels of anxious/withdrawal behavior and who are surrounded by peers similar in anxious/withdrawn behavior can be influenced by their peers social behavior and identify more easily with children similar to themselves. Children hanging out with children with mismatched characteristics and shared values can result in a lack of shared feelings and a lack of feeling of belongingness, as seen by the results of Hypothesis 3b.

The results from Hypothesis 2 may also be explained by maladaptive safety-seeking behavior as a means of coping with the fear of engaging with peers who might elicit unwanted internalizing distress within an anxious/withdrawn child. That is, if a child who is anxious/withdrawn hangs around other children who are similarly anxious/withdrawn, they might, as a group, avoid social situations that could lead to increased internalizing distress. On the playground, for example, playing games that involve many from the wider peer network or that require them to actively interact with all types of peers might feel distressing, leading these children and their anxious/withdrawn friends to play by themselves. These avoidance behaviors can be negatively reinforced, as withdrawing would decrease distress and negative arousal (Meulders, Van Daele, Volders, & Vlaeyen, 2016). Similarly, being surrounded by fun and outgoing children who are more engaged in the broader peer network might compel a child who is anxious/withdrawn to remain in interactive peer situations (e.g., playground games) that are uncomfortable, furthering their distress. It ultimately might be good to move out of one's comfort zone and engage in a wider array of peer interactions; while initially stressful, such engagement can potentially lead to more positive outcomes. In other words, the habituation to social situations that provoke negative arousal, yet are (eventually) positively rewarding, could reduce the amount of anxiousness for similar social situations in the future (Mineka & Zinbarg, 2006).

Limitations and Future Directions

Although the current study offers compelling findings in terms of anxious/withdrawn children and the effects of interaction group characteristics, it is not without its limitations. Further examination of the degree to which homophily, social comparison, and maladaptive safety-seeking might explain the current results is warranted. For example, this study examined

anxious/withdrawn behavior, rather than anxiousness specifically. In future studies, measuring anxiousness specifically and separately from the behavior that results and might serve to decrease immediate distress (i.e., withdrawing) might help determine the degree to which the current findings fit better with social comparison theories or maladaptive safety-seeking. Further, we examined one particular type of outcome – internalizing distress – but examining such outcomes as engagement might further contribute to understanding how interacting in a peer group with fun and outgoing peers might eventually lead to increased competency and well-being. Follow-up studies will focus on broader definitions and nominations of anxiousness within children and will investigate positive, rather than negative, outcome variables. Understanding what group and individual characteristics lead to more positive outcomes rather than preventing negative outcomes will inform and create more effective interventions in the future.

One strength of this study was examining specific prosocial characteristics of interaction groups (e.g., agreeableness and fun and outgoing), which only a limited number of studies investigating prosocial characteristics or behaviors and peer interactions have done (Greener & Crick, 1999). Given the surprising results of this study, more research should be done in the future investigating specific prosocial interaction group characteristics. Another strength of this study was specifically examining the impact of interaction group characteristics on children with anxious/withdrawn behaviors.

This study was also limited by only examining one behavioral aspect (e.g., withdrawal behavior) of overall anxiousness. Children who are anxious display many behaviors which can affect their social interactions in different ways, such as fear of negative interpretation, intolerance of uncertain outcomes, and behavioral inhibition, so focusing on only one behavioral

aspect of anxious children could have limited our findings. Further, by merging the construct of anxiousness with withdrawn behavior in the peer nomination item, we might not have adequately “captured” children who feel significant levels of anxiety but perhaps do not display outward signs easily rated by peers or withdrawn behaviors. Although combining anxiety with a more observable behavior (e.g., withdrawal) might enable more reliable peer nominations, doing so also constrains the findings.

REFERENCES

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington DC: Author.
- Babcock, B., Marks, P. E. L., van den Berg, Y. H. M., & Cillessen, A. H. N. (2018). Implications of systematic nominator missingness for peer nomination data. *Methods and Measures*, 42(1), 148-154. doi: 10.1177/0165025416664431
- Bagwell, C. L., & Bukowski, W. M. (2018). Friendship in childhood and adolescence: Features, effects, and processes. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 371-390). New York, NY, US: the Guilford Press.
- Bagwell, C. L., Coie, J. D., Terry, R. A., & Lochman, J. E. (2000). Peer clique participation and social status in preadolescence. *Merrill-Palmer Quarterly*, 46(2), 280-305.
- Barchia, K., & Bussey, K. (2010). The psychological impact of peer victimization: Exploring social-cognitive mediators of depression. *Journal of Adolescence*, 33(5), 615-623. doi: 10.1016/j.adolescence.2009.12.002.
- Berger, C., & Rodkin, P. C. (2011). Group influences on individual aggression and prosociality: Early adolescents who change peer affiliations. *Social Development*, 21(2), 396-413.
- Bettencourt, A. F., Musci, R., Clemans, K. H., Carinci, J., & Ialongo, N. S. (2017). Patterns of peer- and teacher-rated aggression, victimization, and prosocial behavior in an urban, predominately African American preadolescent sample: Associations with peer-perceived

- characteristics. *Journal of School Psychology*, 65, 83-101.
- Bowker, J. C., Rubin, K. H., Rose-Krasnor, L., & Booth-Laforce, C. (2009). Social withdrawal, negative emotion, and peer difficulties during late childhood.
- Broeren, S., Muris, P., Diamantopoulou, S., & Baker, J. R. (2013). The course of childhood anxiety symptoms: Developmental trajectories and child-related factors in normal children. *Journal of Abnormal Child Psychology*, 41(1), 81-95. doi: 10.1007/s10802-012-9669-9.
- Bukowski, W. M., Cillessen, A. H. N., & Valasquez, A. M. (2012). Peer ratings: Historical background, critical issues, and new directions. In B. Laursen, T. Little, & N. Card (Eds.), *Developmental methods*. New York, NY, US: Guilford.
- Bush, E. S., Ladd, G. W., & Herald, S. L. (2006). Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement? *Journal of Educational Psychology*, 98(1), 1-13. doi: 10.1037/0022-0663.98.1.1
- Cairns, R. B., Leung, M. C., Gest, S. D., & Cairns, B. D. (1995b). A brief method for assessing social development: Structure, reliability, stability, and developmental validity of the Interpersonal Competence Scale. *Behaviour Research and Therapy*, 33(6), 725-736.
- Cairns, R. B., Perrin, J. E., & Cairns, B. D. (1985). Social structure and social cognition in early adolescence: Affiliative patterns. *Journal of Early Adolescence*, 5(3), 339-355.
- Cartwright-Hatton, S., Tschernitz, N., & Gomersall, H. (2003). Social anxiety in children: Social skill deficit, or cognitive distortion? *Behaviour Research and Therapy*, 43, 131-141.
- Chronis-Tuscano, A., Danko, C. M., Rubin, K. H., Coplan, R. J., & Novick, D. R. (2018). Future

- directions of research on early intervention for young children at risk for social anxiety. *Journal of Clinical Child and Adolescent Psychology*, 47(4), 655-667. doi: 10.1080/15374416.2018.1426006
- Chung-Hall, J. & Chen, X. (2009). Aggressive and prosocial peer group functioning: Effects on children's social, school, and psychological adjustment. *Social Development*, 19(4), 659-680. doi: 10.1111/j.1467-9507.2009.00556.x
- Cillessen, A. H. N. & Marks, P. E. L. (2017). Methodological choices in peer nomination research. *New Directions for Child and Adolescent Development*, 157, 21-44.
- Coplan, R. J. & Armer, M. (2007). A “multitude” of solitude: A closer look at social withdrawal and nonsocial play in early childhood. *Child Development Perspectives*, 1(1), 26-32. doi: 10.1111/j.1750-8606.2007.00006.x
- Coplan, R. J., Prakash, K., O'Neil, K., & Armer, M. (2004). Do you “want” to play? Distinguishing between conflicted shyness and social disinterest in early childhood. *Developmental Psychology*, 40(2), 244-258. doi: 10.1037/0012-1649.40.2.244
- Coplan, R. J., Rubin, K. H., Fox, N. A., Calkins, S. D., & Stewart, S. L. (1994). Being alone, playing alone, and acting alone: Distinguishing among reticence and passive and active solitude in young children. *Child Development*, 65(1), 129-137.
- Creswell, C., Schniering, C. A., & Rapee, R. M. (2005). Threat interpretation in anxious children and their mothers: Comparison with nonclinical children and the effects of treatment. *Behaviour Research and Therapy*, 43(10), 1375-1381. doi: 10.1016/j.brat.2004.10.009.
- Danneel, S., Nelemans, S., Spithoven, A., Bastin, M., Bijttebier, P., Colpin, H., ... Goossens, L.

- (2019). Internalizing problems in adolescence: Linking loneliness, social anxiety symptoms, and depressive symptoms over time. *Journal of Abnormal Child Psychology*, 47, 1691-1705.
- Degnan, K. A., Almas, A. N., Henderson, H. A., Hane, A. A., Walker, O. L., & Fox, N. A. (2014). Longitudinal trajectories of social reticence with unfamiliar peers across early childhood. *Developmental Psychology*, 50(10), 2311-2323. doi: 10.1037/a0037751
- Demir, M., Ozen, A., Dogan, A., Bilyk, N. A., & Tyrell, F. A. (2011). I matter to my friends, therefore I am happy: Friendship, mattering, and happiness. *Journal of Happiness Studies*, 12, 983-1005.
- Dirks, M. A., Dunfield, K. A., & Recchia, H. E. (2018). Prosocial behavior with peers: Intentions, outcomes, and interpersonal adjustment. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 243-264). New York, NY, US: The Guildford Press.
- Doey, L., Coplan, R. J., & Kingsbury, M. (2013). Bashful boys and coy girls: A review of gender differences in childhood shyness. *Sex Roles*, 70(7-8), 255-266. doi: 10.1007/s11199-013-0317-9.
- Ellis, W., Zarbatany, L., Chen, X., Kinal, M., & Boyko, L. (2018). Peer groups as a context for school misconduct: The moderating role of group interactional style. *Child Development*, 89(1), 248-263.
- Erath, S. A., Flanagan, K. S., Bierman, K. L., & Tu, K. M. (2010). Friendships moderate psychological maladjustment in socially anxious early adolescents. *Journal of Applied Developmental Psychology*, 31, 15-26.

- Fabes, R. A., Hanish, L. D., Martin, C. L., Moss, A., & Reesing, A. (2012). The effects of young children's affiliations with prosocial peers on subsequent emotionality in peer interactions. *British Journal of Developmental Psychology*, 30, 569-585.
- Farmer, T. W., Hall, C. M., Petrin, R., Hamm, J. V., & Dadisman, K. (2010). Evaluating the impact of a multicomponent intervention model on teacher' awareness of social networks at the beginning of middle school in rural communities. *School Psychology Quarterly*, 25(2), 94-106.
- Farmer, T. W., Leung, M., Keagy, K., Boudah, D. J., Akos, P., McDonough, E., & Hall, C. M. (2009). Social preference choices in late elementary school: Within and across group nominations. *Psychology in the Schools*, 46(4), 362-374. doi: 10.1002/pits.20381
- Feng, X., Shaw, D. S., & Silk, J. S. (2008). Developmental trajectories of anxiety symptoms among boys across early and middle childhood. *Journal of Abnormal Psychology*, 117(1), 32-47. doi: 10.1037/0021-843X.117.1.32.
- Fontaine, R. G., Yang, C., Burks, V. S., Dodge, K. A., Price, J. M., Pettit, G. S., & Bates, J. E. (2009). Loneliness as a partial mediator of the relation between low social preference in childhood and anxious/depressed symptoms in adolescence. *Development and Psychopathology*, 21(2), 479-491. doi: 10.1017/S0954579409000261.
- Fortuin, J., van Geel, M., & Vedder, P. (2015). Peer influences on internalizing and externalizing problems among adolescents: A longitudinal social network analysis. *Journal of Youth and Adolescence*, 44(4), 887-897. doi: 10.1007/s10964-014-0168-x.
- Gaertner, A. E., Fite, P. J., & Colder, C. R. (2010). Parenting and friendship quality as predictors of internalizing and externalizing symptoms in early adolescence. *Journal of Child and*

- Family Studies, 19, 101-108. doi: 10.1007/s10826-009-9289-3.
- Gommans, R. & Cillessen, A. H. N. (2014). Nominating under constraints: A systematic comparison of unlimited and limited peer nomination methodologies in elementary school. *International Journal of Behavioral Development*, 39(1), 77-86.
- Greener, S., & Crick, N. R. (1999). Normative beliefs about prosocial behavior in middle childhood: What does it mean to be nice? *Social Development*, 8(3), 349-363.
- Gries, E. R., & Buhs, E. S. (2004). Prosocial behavior as a protective factor for children's peer victimization. *Journal of Youth and Adolescence*, 43, 1052-1065. doi: 10.1007/s10964-013-0046-y.
- Grosscup, S. J., & Lewinsohn, P. M. (1980). Unpleasant and pleasant events, and mood. *Journal of Clinical Psychology*, 36(1), 252-259.
- Hanish, L. D., Martin, C. L., Fabes, R. A., Leonard, S., & Herzog, M. (2005). Exposure to externalizing peers in early childhood: Homophily and peer contagion process. *Journal of Abnormal Child Psychology*, 33(3), 267-281. doi: 10.1007/s10802-005-3564-6
- Henderson, H. A., Pine, D. S., & Fox, N. A. (2015). Behavioral inhibition and developmental risk: A dual-processing perspective. *Neuropsychopharmacology Reviews*, 40, 207-224.
- Hirshfeld-Becker, D. R., Biederman, J., Henin, A., Faraone, S. V., Davis, S., Harrington, K., & Rosenbaum, J. F. (2007). Behavioral inhibition in preschool children at risk is a specific predictor of middle childhood social anxiety: A five-year follow-up. *Journal of Developmental and Behavioral Pediatrics*, 28(3), 225-233.
- Hoza, B., Bukowski, W. M., & Beery, S. (2000). Assessing peer network and dyadic loneliness.

Journal of Clinical Child Psychology, 29(1), 119-128.

Hymel, S., Rubin, K. H., Rowden, L., & LeMare, L. (1990). Children's peer relationships: Longitudinal predictions of internalizing and externalizing problems from middle to late childhood. *Child Development*, 61(6), 2004-2021.

Jiao, C., Wang, T., Liu, J., Wu, H., Cui, F., & Peng, X. (2017). Using exponential random graph models to analyze the character of peer relationship networks and their effects on the subjective well-being of adolescents. *Frontiers in Psychology*, 8(583).

Kindermann, T. A. (2007). Effects of naturally existing peer groups on changes in academic engagement in a cohort of sixth graders. *Child Development*, 78(4), 1186-1203.

Kindermann, T. A., & Gest, S. D. (2018). The peer group: Linking conceptualizations, theories, and methods. In W. M. Bukowski, B. Laursen, & K. H. Rubin (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 84-105). New York, NY, US: the Guilford Press.

Kingery, J. N., Erdley, C. A., Marshall, K. C., Whitaker, K. G., & Reuter, T. R. (2010). Peer experiences of anxious and socially withdrawn youth: An integrative review of the developmental and clinical literature. *Clinical Child and Family Psychology Review*, 13(1), 91-128. doi: 10.1007/s10567-009-0063-2

Kornienko, O., & Santos, C. E. (2014). The effects of friendship network popularity on depressive symptoms during early adolescence: Moderation by fear of negative evaluation and gender. *Journal of Youth and Adolescence*, 43(4), 541-553. doi: 10.1007/s10964-013-9979-4

- La Greca, A. M., & Harrison, H. M. (2005). Adolescent peer relations, friendships, and romantic relationships: Do they predict social anxiety and depression? *Journal of Clinical Child and Adolescent Psychology*, 34(1), 49-61.
- Laursen, B. (2017). Making and keeping friends: The importance of being similar. *Child Development Perspectives*, 11(4), 282-289.
- Lazarfeld, P. F., & Merton, R. K. (1954). Friendship as a social process: A substantive and methodological analysis. In Berger, M. (ed) *Freedom and Control in Modern Society* (pp. 18-66). New York, NY, US: Van Nostrand.
- Low, S., Polanin, J. R., & Espelage, D. L. (2013). The role of social networks in physical and relational aggression among youth adolescents. *Journal of Youth and Adolescence*, 42, 1078-1089. doi: 10.1007/s10964-013-9933-5.
- Markovic, A., & Bowker, J. C. (2017). Friends also matter: Examining friendship adjustment indices as moderators of anxious-withdrawal and trajectories of change in psychological maladjustment. *Developmental Psychology*, 53(8), 1462-1473.
- Masten, A. S., Morison, P., & Pellegrini, D. S. (1985). A revised class play method of peer assessment. *Developmental Psychology*, 21(3), 523-533.
- McCormick, M. P., Cappella, E., Hughes, D. L., & Gallagher, K. E. (2015). Feasible, rigorous, and relevant: Validation of a measure of friendship homophily for diverse classrooms. *Journal of Early Adolescence*, 35(5-6), 817-851. doi: 10.1177/0272431614547051.
- McDonald, K. L., Dashiell-Aje, E., Menzer, M. M., Rubin, K. H., Oh, W., & Bowker, J. C. (2013). Contribution of racial and sociobehavioral homophily to friendship stability and

- quality among same-race and cross-race friends. *Journal of Early Adolescence*, 33(7), 897-919. doi: 10.1177/0272431612472259.
- Meulders, A., Van Daele, T., Volders, S., & Vlaeyen, J. W. S. (2016). The use of safety-seeking behavior in exposure-based treatments for fear and anxiety: Benefit or burden? A meta-analytic review. *Clinical Psychology Review*, 45, 144-156.
- Miers, A. C., Blöte, A. W., de Rooij, M., Bokhorst, C. L., & Westenberg, P. M. (2013). Trajectories of social anxiety during adolescence and relations with cognition, social competence, and temperament. *Journal of Abnormal Child Psychology*, 41(1), 97-110. <https://dx.doi.org/10.1007%2Fs10802-012-9651-6>
- Mineka, S., & Zinbarg, R. (2006). A contemporary learning theory perspective on the etiology of anxiety disorders: It's not what you thought it was. *American Psychologist*, 61(1), 10-26.
- Morales, S., Taber-Thomas, B. C., & Perez-Edgar, K. (2017). Patterns of attention to threat across tasks in behaviorally inhibited children at risk for anxiety. *Developmental Science*, 20(2), el 2391. doi: 10.1111/desc.12391.
- Neal, J. W., Cappella, E., Wagner, C., & Atkins, M. S. (2011). Seeing eye to eye: Predicting teacher-student agreement on classroom social networks. *Social Development*, 20(2), 376-393. doi: 10.1111/j.1467-9507.2010.00582.x
- Neal, J. W., & Neal, Z. P. (2013). The multiple meanings of peer groups in social cognitive mapping. *Social Development*, 22(3), 580-594. doi: 10.1111/j.1467-9507.2012.00656.x
- Oh, W., Rubin, K. H., Bowker, J. C., Booth-LaForce, C., Rose-Krasnor, L., & Laursen, B. (2008). Trajectories of social withdrawal from middle childhood to early adolescence.

Journal of Abnormal Child Psychology, 36(4), 553-566. doi: 10.1007/s10802-007-9199-z

Parker, J. G., Rubin, K. H., Erath, S. A., Wojslawowicz, J. C., & Buskirk, A. A. (2006). Peer relationships, child development, and adjustment: A developmental psychopathology perspective. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental Psychopathology: Theory and Method*, Vol. 1, 2nd ed. (pp. 419-493). Hoboken, NJ: John Wiley & Sons Inc.

Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood: Links with peer group acceptance and feelings of loneliness and social dissatisfaction. *Developmental Psychology*, 29(4), 611-621. <http://dx.doi.org/10.1037/0012-1649.29.4.611>

Poulin, F., & Dishion, (2008). Methodological issues in the use of peer sociometric nominations with middle school youth. *Social Development*, 17(4), 908-921.

Ramsawh, H. J., Weisberg, R. B., Dyck, I., Stout, R., & Keller, M. B. (2011). Age of onset, clinical characteristics, and 15-year course of anxiety disorders in a prospective, longitudinal, observational study. *Journal of Affective Disorders*, 132(1-2), 260-264. doi: 10.1016/j.jad.2011.01.006

Ranta, K., Kaltiala-Heino, R., Koivisto, A. M., Tuomisto, M. T., Pelkonen, M., & Marttunen, M. (2007). Age and gender differences in social anxiety symptoms during adolescence: The Social Phobia Inventory (SPIN) as a measure. *Psychiatry Research*, 153(3), 261-270.

Ranta, K., Laakkonen, E., & Niemi, P. M. (2016). Patterns of metaperceptions in adolescents with social anxiety: Mind reading in the classroom. *Journal of Child and Family Studies*, 25, 3497-3510. doi: 10.1007/s10826-016-0519-1.

Rapee, R. M. (2013). The prevention effects of a brief, early intervention for preschool-aged

- children at risk for internalizing: Follow-up into middle adolescence. *Journal of Psychology and Psychiatry, and Allied Disciplines*, 54(7), 780-788. doi: 10.1111/jcpp.12084
- Rapee, R. M., Kennedy, S., Ingram, M., Edwards, S., & Sweeney, L. (2005). Prevention and early intervention of anxiety disorders in inhibited preschool children. *Journal of Consulting and Clinical Psychology*, 73(3), 488-497. doi: 10.1037/0022-006X.73.3.488
- Reavis, R. D., Donohue, L. J., & Upchurch, M. C. (2015). *Friendship, negative peer experiences, and daily positive and negative mood. Social Development*, 24(4), 833-851.
- Rosenbaum, J. F., Biederman, J., Hirshfeld-Becker, D. R., Kagan, J., Snidman, N., Friedman, D., ...Faraone, S. V. (2000). A controlled study of behavioral inhibition in children of parents with panic disorder and depression. *American Journal of Psychiatry*, 157(12), 2002-2010.
- Rubin, K H., Bukowski, W. M., & Bowker, J. C. (2015). Children in peer groups. In M. H. Bornstein, T. Leventhal, & R. M. Lerner (Eds.), *Handbook of Child Psychology and Developmental Science: Ecological Settings and Processes.*, Vol. 4, 7th ed. (pp 175-222). Hoboken, NJ: John Wiley & Sons Inc.
- Rubin, K. H., Chen, X., McDougall, P., Bowker, A, & McKinnon, J. (1995). The Waterloo Longitudinal Project: Predicting internalizing and externalizing problems in adolescence. *Development and Psychopathology*, 7(4), 751-764. doi: 10.1017/S0954579400006829.
- Rubin, K. H., & Coplan, R. J. (2004). Paying attention to and not neglecting social withdrawal and social isolation. *Merrill-Palmer Quarterly*, 50(4), 506-534.
- Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology*, 60, 141-171. doi: 10.1146/annurev.psych.60.110707.163642

- Rubin, K. H., Wojslawowicz, J. C., Rose-Krasnor, L., Booth-Laforce, C., & Burgess, K. B. (2006). The best friendships of shy/withdrawn children: Prevalence, stability, and relationship quality. *Journal of Abnormal Child Psychology*, 34(2), 143-157. doi: 10.1007/s10802-005-9017-4
- Rudy, B. M., Davis, T. E., & Matthews, R. A. (2014). Cognitive indicators of social anxiety in youth: A structural equation analysis. *Behavior Therapy*, 45, 116-125.
- Salvas, M. C., Vitaro, F., Brendgen, M., & Cantin, S. (2016). Prospective links between friendship and early physical aggression: Preliminary evidence supporting the role of friendship quality through a dyadic intervention. *Merrill-Palmer Quarterly*, 62(3), 285-305.
- Schneider, B. H., Younger, A. J., Smith, T., & Freeman, P. (1998). A longitudinal exploration of the cross-contextual stability of social withdrawal in early adolescence. *The Journal of Early Adolescence*, 18(4), 374-396. doi: 10.1177/0272431698018004003
- Schwartz, D., Chang, L., & Farver, J. M. (2001). Correlates of victimization in Chinese children's peer groups. *Developmental Psychology*, 37(4), 520-532. <http://dx.doi.org/10.1037/0012-1649.37.4.520>.
- Schwartz, D., Farver, J. M., Chang, L., & Lee-Shin, Y. (2002). Victimization in South Korean children's peer groups. *Journal of Abnormal Child Psychology*, 30(2), 113-125.
- Shin, H. (2017). Friendship dynamics of adolescent aggression, prosocial behavior, and social status: The moderating role of gender. *Journal of Youth and Adolescence*, 46, 2305-2320. doi: 10.1007/s10964-017-0702-8.
- Spencer, S. V., Bowker, J. C., Rubin, K. H., Booth-LaForce, C., & Laursen, B. (2013). Similarity

- between friends in social information processing and associations with positive friendship quality and conflict. *Merrill-Palmer Quarterly*, 59(1), 106-131.
- Sterba, S. K., Prinstein, M. J., & Cox, M. J. (2007). Trajectories of internalizing problems across childhood: Heterogeneity, external validity, and gender differences. *Development and Psychopathology*, 19(2), 345-366.
- Stone, L. L., Giletta, M., Brendgen, M., Otten, R., Engles, R. C. M. E., & Janssens, J. M. A. M. (2013). Friendship similarities in internalizing problems in early childhood. *Early Childhood Research Quarterly*, 28, 210-217.
- Strauss, C. C., Frame, C. L., & Forehand, R. (1987). Psychosocial impairment associated with anxiety in children. *Journal of Clinical Child Psychology*, 16(3), 235-239. doi: 10.1207/s15374424jccp1603_8.
- Strauss, C. C., Lease, C. A., Kazdin, A. E., Dulcan, M. K., & Last, C. G. (1989). Multimethod assessment of the social competence of children with anxious disorders. *Journal of Clinical Child Psychology*, 18(2), 184-189.
- Suls, J., Martin, R., & Wheeler, L. (2002). Social comparison: Why, with whom, and with what effect? *Current Directions in Psychological Science*, 11(5), 159-163.
- Suveg, C., Jacob, M. L., Whitehead, M., Jones, A., & Kingery, J. N. (2014). A model-based cluster analysis of social experiences in clinically anxious youth: Links to emotional functioning. *Anxiety, Stress, & Coping*, 27(5), 494-508. doi: 10.1080/10615806.2014.890712.
- Trinh, S. L., Lee, J., Halpern, C. T., & Moody, J. (2019). Our buddies, ourselves: The role of

- sexual homophily in adolescent friendship networks. *Child Development*, 90(1), e132-e147.
- van Niekerk, R. E., Klein, A. M., Allart-van Dam, E., Hudson, J. L., Rinck, M., Hutschemaekers, G. J. M., & Becker, E. S. (2017). The role of cognitive factors in childhood social anxiety: Social threat thoughts and social skills perception. *Cognitive Therapy and Research*, 41, 489-497. doi: 10.1007/s10608-016-9821-x.
- Van Zalk, N., Van Zalk, M., Kerr, M., & Stattin, H. (2011). Social anxiety as a basis for friendship selection and socialization in adolescents' social networks. *Journal of Personality*, 79(3), 499-526. doi: 10.1111/j.1467-6494.2011.00682.x.
- Verduin, T. L., & Kendall, P. C. (2008). Peer perceptions and liking of children with anxiety disorders. *Journal of Abnormal Child Psychology*, 36(4), 459-469. doi: 10.1007/s10802-007-9192-6.
- Vollet, J. W., Kindermann, T. A., & Skinner, E. A. (2017). Peer matters, teachers matter: Peer group influences on students' engagement depend on teacher involvement. *Journal of Educational Psychology*, 109(5), 635-652.
- Wade, T. J., Cairney, J., & Pevalin, D. J. (2002). Emergence of gender differences in depression during adolescence: National panel results from three countries. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41(2), 190-198.
- You, J., Zheng, C., Lin, M. P., & Leung, F. (2016). Peer group impulsivity moderated the individual-level relationship between depressive symptoms and adolescent nonsuicidal self-injury. *Journal of Adolescence*, 47, 90-99. doi: 10.1016/j.adolescence.2015.12.008
- Zhao, S., Chen, X., Ellis, W., & Zarbatany, L. (2016). Affiliation with socially withdrawn groups

and children's social and psychological adjustment. *Journal of Abnormal Child Psychology*, 44, 1279-1290. doi: 10.1007/s10802-015-0120-x.