

ABSTRACT

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PREFERENCE-FOR-SOLITUDE,
FRIENDSHIP SUPPORT, AND
INTERNALIZING DIFFICULTIES DURING
EARLY ADOLESCENCE IN THE U.S.A. AND
CHINA

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Social withdrawal has been associated with adjustment difficulties across development. Although much is known about shyness, little is known about preference-for-solitude; even less is known about how friendship might influence its relations with adolescent adjustment across different cultures. In particular, despite the significance of friendship for youth adjustment, not much is known about the ways in which friendship quality might lead to different adjustment outcomes for youth who prefer solitude; even less is known about these relations across different cultures. Accordingly, the overall goal of this research was to examine the relations between preference-for-solitude, friendship support, and internalizing difficulties during early adolescence in the U.S.A. and China. Specifically, this research examined the moderating role of friendship support in the relations between preference-for-solitude and internalizing difficulties (negative affect, negative self-esteem) in early adolescence across the U.S.A. and China.

The U.S.A sample comprised 300 American youth (121 boys; M age = 14.28 years, SD = .51) from the greater Washington DC metropolitan area. The China sample comprised 201 youth living in Beijing, China (86 boys; M age = 14.21 years, SD = .62). Participants across both samples completed self-reports of social withdrawal (shyness; preference-for-solitude),

friendship support, and internalizing difficulties (negative affect; negative self-esteem). Results from structural equation modeling demonstrated that preference-for-solitude and shyness emerged as related but unique dimensions of withdrawal across both the U.S.A. and China. Consistent with previous research, preference-for-solitude was positively associated with negative affect and negative self-esteem across both samples. In the U.S.A., friendship support significantly moderated the link between preference-for-solitude and *negative self-esteem*: preference-for-solitude was most associated with negative self-esteem beyond shyness for American youth with low friendship support. This was not found for *negative affect*; friendship support did not significantly moderate the effect of preference-for-solitude on negative affect in American youth. In China, friendship support did not significantly moderate any of the relations between preference-for-solitude and internalizing difficulties. Rather, for Chinese youth, preference-for-solitude and friendship support contributed independently beyond the effects of shyness to negative affect and negative self-esteem. In summary, preference-for-solitude was positively associated with negative affect and negative self-esteem in early adolescence across the U.S.A. and China. In the U.S.A., preference-for-solitude was most associated with negative self-esteem for youth with low friendship support. In addition to contributing to the developmental literature on preference-for-solitude, findings highlight the role of close interpersonal relationships for understanding the heterogeneity of withdrawal in development and across different cultures.

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DIFFICULTIES DURING EARLY ADOLESCENCE IN THE U.S.A. AND CHINA**

By

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It's such a cliché to talk about how fast time passes. Yet it is perplexing to find it's been six years since I abandoned sunny Los Angeles for the bipolar weather of Washington, D.C. Bright-eyed and brimming with idealism (*I am going to make a difference in children's lives!*), I had little idea what I was getting myself into. Academia is a strange and intriguing wonderland replete with horror stories of wasted potential and soulless pursuits. Graduate school, in particular, often appears as a sordid place dripping with hopelessness and exploitation. Although my overzealous flame has since dimmed to a more sensible flicker of reality, I have emerged from this journey mostly unscathed; my love for developmental research still largely intact. For this, I am indebted to so many people that I hardly know where to begin. If you're not here and know you should be, please forgive my oversight: I'm currently low on sleep and a bit deranged.

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Preference-For-Solitude, Friendship Support, and Internalizing Difficulties during Early
Adolescence In The U.S.A. And China

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CHAPTER 1: INTRODUCTION

Social withdrawal, the behavior of consistently withdrawing oneself from the peer group (Rubin & Coplan, 2004), has been linked with such internalizing difficulties as anxiety and depression in childhood and adolescence (see Rubin, Coplan, & Bowker, 2009 for a review). Despite these findings, the risks associated with withdrawal may depend on the underlying motivations; different outcomes have been found for youth with differing combinations of social approach and social avoidance motivations (Bowker, Markovic, Cogswell, & Raja, 2012; Bowker & Raja, 2011; Thijs, Koomen, de Jong, van der Leij, & van Leeuwen, 2004). For example, *shyness* consists of high approach and high avoidance motivations (Asendorpf, 1990, 1993); shy youth are interested in interacting with others but withdraw because they are socially anxious. *Preference-for-solitude* consists of low approach and low-to-high avoidance motivations; preferred-solitary youth withdraw due to a preference and desire for solitary activities.

Research across different disciplines has supported these distinctions and conceptualizations. For example, Coplan, Girardi, Findlay, and Frohlick (2007) found that young, solitude-preferring children express less interest in playing and being friends with hypothetical peers than do their shy and non-shy peers. Significantly, these researchers found that even young children are able to distinguish between children who are shy and those who prefer to be alone. Silvia and Kwapil (2010) found social anxiety and social anhedonia to be distinct constructs of social withdrawal in adults—whereas social anxiety was associated with self-consciousness, anxiety, and perceived negative evaluations, social anhedonia was associated with a preference for aloneness and positive affect during solitude. Wang, Rubin, Laursen,

Booth-LaForce, and Rose-Krasnor (2013) found that shyness and preference-for-solitude emerged as related but distinct constructs of withdrawal in both early and late adolescence.

Although shyness has been associated with maladjustment across development (Rubin & Coplan, 2010), little is known about the implications of preference-for-solitude for adjustment, particularly in adolescence. Of the limited research conducted, preference-for-solitude appears to be maladaptive in early adolescence. Marcoen and Goossens (1989) found that an affinity for aloneness was associated with loneliness in early adolescence. Bowker and colleagues found that preference-for-solitude was associated with peer difficulties (Bowker et al., 2012; Bowker & Raja, 2011). Preference-for-solitude has also been linked with psychoemotional difficulties such as depression and low self-esteem in early adolescence (Wang et al., 2013). Because researchers have yet to examine the role that close interpersonal relationships might play in these links, however, it is not known whether the lack of friends or low friendship quality might differentially place preferred-solitary youth at risk for adjustment difficulties.

Researchers have consistently linked high-quality friendships with well-being and positive adjustment across development (see Rubin, Bukowski, & Bowker, in press for a relevant review). Given its offerings of emotional and social support, high-quality friendship may be particularly helpful for youth considered at risk for adjustment problems and social difficulties (Wight, Botticello, & Aneshensel, 2006). Indeed, shy children who have a mutual best friend are perceived by peers as more sociable and popular than their counterparts who lack a mutual best friendship (Rubin, Wojslawowicz, et al., 2006). Very little research to date, however, has examined the role that friendship plays in the adjustment of preferred-solitary youth. Because emerging evidence suggests that preference-for-solitude is maladaptive in early adolescence given the importance of peers in this developmental period (Coplan et al., 2012; Marcoen &

Goossens, 1989; Wang et al., 2013), understanding the role that friendship plays in the adjustment of preferred-solitary youth will yield important insights for understanding the heterogeneity of social withdrawal across development. Such an understanding will also help provide pertinent information for developing effective interventions and preventions for withdrawn young adolescents.

Because both social withdrawal and social relationships are defined and regulated by the rules and value systems of a given culture (Chen, 2010; Hinde, 1997), culture is an important context to consider in understanding their roles in youth's adjustment. In particular, cultural values provide guidance for the evaluations of, and responses to, withdrawn behaviors and social interactions; they also help define their meanings (Chen & French, 2008). Given that cultures may place different values on similar behavioral and relationship attributes, research on preference-for-solitude and friendship quality in different countries is particularly important for understanding the heterogeneity of withdrawn youth. Despite this acknowledgement, however, little research has been conducted on preference-for-solitude beyond the North American and European contexts (see Bowker & Raja, 2011; Liu et al., 2013, for exceptions). There is also a paucity of research on the implications of friendship support for youth adjustment in countries beyond North America and Western Europe. Thus, the overarching goal of this proposed study was to examine the role of friendship support in the links between preference-for-solitude and internalizing difficulties in young adolescents living in the United States and China.

CHAPTER 2: LITERATURE REVIEW

I. Preference-for-Solitude

Although shyness has been the main topic of interest in the social withdrawal literature for the past decade, recent efforts have been made to examine the individual penchant for aloneness (Coplan & Bowker, 2014). Despite such efforts, the empirical investigation of preference-for-solitude is plagued by a lack of conceptual clarity. This lack of clarity is further exacerbated by the plethora of terms used by researchers across different disciplines. Indeed, at various times, these terms have been employed, often interchangeably, to refer to emotionality (e.g., negative affect; BIS/BAS), states of mind (e.g., solitude), personality traits (e.g., introversion; unsociability), social motivations (e.g., desire to be with others or sociotropy; desire to avoid others; desire to be alone or solitropy), psychoemotional states (e.g., capacity to be alone; tolerance for being alone), observable behavioral patterns (e.g., time spent alone when in the company of others), and symptoms of psychopathology (e.g., social anhedonia), among many others. For the purpose of this research, preference-for-solitude is conceptualized as the *preference to spend time alone* (Wang et al., 2013).

Preference-for-Solitude in Developmental Research

The conceptualization of preference-for solitude in the developmental literature draws its roots from the theoretical frameworks of approach-avoidance motivations. In his behavioral theory of motivation, Gray (1982) proposed two orthogonal motivational systems, the *behavioral activation system* (BAS) and the *behavior inhibition system* (BIS), as psychophysiological mechanisms responsible for behavior and affect. According to Gray, BAS is responsible for regulating approach and goal-directed activity, and is responsive to appetitive stimuli (e.g., reward-like cues). In contrast, BIS underlies avoidant tendencies and is sensitive to aversive

stimuli (e.g., cues of punishment). Whereas BAS is thought to underlie processes associated with impulsivity, BIS is presumed to underlie behaviors related to avoidance. Thus, whereas individuals with highly activated BAS are likely to engage in risk-taking behaviors because of their need for and sensitivity to reward cues, individuals with highly activated BIS are likely to avoid aversive stimuli due to feelings of fear and anxiety. In research with adults, BAS has been associated with trait measures of extraversion and positive affect, whereas BIS has been related to anxiety, depression, neuroticism, and negative affect (Gable, Reis, & Elliot, 2000; Johnson, Turner, & Iwata, 2003; Jorm et al., 1999; Zelenski & Larsen, 1999). Although relatively few in number, there is converging evidence that the two motivational systems may influence socioemotional functioning in a similar manner for children as it does in adults. For example, Coplan, Wilson, Frohlick, & Zelenski (2006) found that child self-reports of BIS sensitivity were associated with increased depressive symptoms, less positive reports of well-being, greater negative affect, and higher levels of social anxiety.

Although Gray (1990) proposed BIS and BAS to function independently of one another, more recent research has suggested that BIS and BAS may act as interdependent systems and jointly influence behavior (Kambouropoulos & Staiger, 2004; Smillie & Jackson, 2005). For example, Corr (2002) asserted that individuals high in BIS and low in BAS would be most sensitive to punishment and experience the most negative affect. These writings were influential for the examination of preference-for-solitude in later research with children (see Coplan & Weeks, 2010, for a review).

Drawing from Gray's (1982) model of BAS and BIS, Asendorpf (1990; 1993) proposed a two-factor model aimed at explaining the heterogeneity of social withdrawal in children. According to Asendorpf, the motivations of social approach and social avoidance underlie an

individual's social behavior in the company of others. Whereas approach motivation is defined as the social orientation to *approach* and interact with others, avoidance motivation is defined as the social orientation to *avoid* interaction with others. In addition, Asendorpf argued that individuals can vary greatly in their approach and avoidance motivations. For instance, some children have a high approach motivation and a low avoidance motivation; these children are often described as "sociable." Other children have a low approach motivation and a low-to-medium avoidance motivation; these children have been described as "socially disinterested" or "unsociable" (e.g., Coplan & Weeks, 2010). In contrast to sociable children, unsociable children prefer spending time alone over being with others, although they do not actively avoid social interactions. Additionally, there are children who have simultaneously high approach and high avoidance motivations. For example, some children may desire social interactions, yet are highly afraid to do so; these children have been described as "anxiously withdrawn" or "shy" (e.g., Rubin, Coplan, & Bowker, 2009). It has been postulated that it is this internal conflict that drives many of shy individuals' behavior and affect. Finally, there are children who have a low approach motivation and a high avoidance motivation; these children have been described as "avoidant," although not much research has been conducted on this subgroup. Because the majority of the extant literature on social withdrawal in childhood has focused on shyness and relatively little is known about youth who prefer to be alone, this research focuses on the general preference to be alone or preference-for-solitude rather than the underlying reasons behind such a preference. Although differentiating between unsociability and avoidance is important, it is difficult to do so without a comprehensive understanding of preference-for-solitude. Given the paucity of research on preference-for-solitude, rather than on differentiating between

unsociability and avoidance, the focus of the research presented herein is on understanding preference-for-solitude in general.

There is some empirical evidence that support the view of shyness and preference-for-solitude as distinct constructs of withdrawal. For instance, shyness and preference-for-solitude have been found to have different underlying neurophysiological bases in adulthood (e.g., Schmidt & Schulkin, 1999). Researchers have found that parents (Coplan et al., 2004), teachers (Arbeau & Coplan, 2007; Harris et al., 1997; Thijs, Koomen, de Jong, van der Leij, & van Leeuwen, 2004), and even young children (Coplan, Girardi, et al., 2007; Galanaki, 2004; Gavinski-Molina, Coplan, & Younger, 2003) are able to distinguish between children who are shy and those who prefer to be alone. Furthermore, unlike shy children, preferred-solitary children are thought to be socially skilled at interacting with others when they choose to (Coplan & Weeks, 2010). Adult personality research has also shown that an inclination toward solitude is more strongly associated with a high need or desire for solitude (*high solitropy*) than a low need or desire for social interactions (*low sociotropy*; Leary, Herbst, & McCrary, 2003). These lines of research have been instrumental in the conceptualization of preference-for-solitude.

Measuring Preference-for-Solitude

A wide variety of methodological approaches exists in the assessment of preference-for-solitude. Across different disciplines, measurement choice is often field-specific and dependent on the characteristics of the sample. Whereas teacher- and parent-reports are often used to measure preference-for-solitude in young children, self-report remains the most commonly-used method for measuring this non-fear-based form of withdrawal beyond childhood. Brief descriptions of these methodological approaches, along with their limitations, are provided below.

Parent- and teacher-reports. Parent- and teacher-reports are often used to measure social withdrawal in children. Recently, efforts have been made to develop measures that specifically assess the preference to be alone. For example, Ladd and Profilet (1996) designed a teacher-report measure (*Child Behavior Scale*) that assesses two types of social withdrawal in young children—*asocial* and *anxious-fearful* behaviors. Whereas *asocial* behavior is similar to unsociability in that it is a form of “self-imposed” solitude that reflects children’s inclination to distance themselves from peers to pursue solitary activities, *anxious-fearful* behavior is similar to shyness in that reflects children’s proclivity to worry or be fearful. Based on Asendorpf’s (1990, 1993) model, Coplan et al. (2004) developed the *Child Social Preference Scale* (CSPS), a parent measure that includes items specifically tapping into children’s preference for solitary activities (e.g., “My child often seems content to play alone,” “My child is just as happy to play by quietly by his/herself than to play with a group of children”).

Parent-reports and teacher-reports have generally been demonstrated as valid for assessing preference-for-solitude in early and middle childhood (Coplan et al., 2004). The utility of these measures for measuring preference-for-solitude beyond childhood, however, is not known, as very little research has been conducted on the validity of these reports in late childhood and adolescence.

Peer-reports. Peer-reports are also another common method of assessing social behaviors in children. Peer nominations have been the most commonly- used procedures for assessing social withdrawal during middle and late childhood, although these measures often fail to make distinctions between subtypes of withdrawal. For example, items that assess peers’ attributions of different subtypes of withdrawal (e.g., “A person who hardly ever starts up a conversation,” “Someone who is very shy,” “Someone who talks quietly or rarely”; *Extended Class Play*;

Wojslawowicz Bowker et al., 2006) are often combined together as an overall score for social withdrawal. As such, traditional peer-reports have not always been the most adequate at differentiating preference-for-solitude from other withdrawal subtypes like shyness.

Recently, some efforts have been made to help differentiate different subtypes of withdrawal in peer-reports. For example, using peer-nominations that attempt to assess underlying social motivations (e.g., “Does this kid want to play with other kids but does not because they are too shy or afraid?” “Does this kid want to play alone instead of playing with other kids?”), Ladd and colleagues (2011) were able to identify distinct subgroups of shy and unsociable 5th graders. However, such peer-reports are relatively rare, and their utility for assessing preference-for-solitude beyond childhood is not yet known.

Although reports from other individuals such as teachers, parents, and peers provide the advantage of having multiple informants, their utility for measuring preference-for-solitude may be rather limited. For example, parent-child and parent-parent concordance is generally low for internalizing symptoms and behaviors, especially for domains that are less observable by parents such as social withdrawal (e.g., Jensen et al., 1993). For instance, children and parents consistently demonstrate poor interrater agreement on anxiety measures in both clinical and community samples (e.g., Birmaher et al., 1997). Parents are also much more likely to identify internalizing symptoms that are readily observable (e.g., social avoidance) than those that are not (e.g., contentment in playing alone). Given that preference-for-solitude is thought to be driven primarily by internal social motivations, reports from others may not be adequate at capturing this voluntary form of withdrawal. Indeed, in older children and adolescents, self-reports appear to be psychometrically stronger than reports from others such as parents and teachers for

capturing the internal motivational states presumably underlying preference-for-solitude (e.g., Coplan & Bowker, 2014; Coplan & Weeks, 2010; Ganellen, 2007).

Self-reports. Self-reports appear to be the most commonly used research methodology in adult research on preference-for-solitude. Indeed, compared to other methodological approaches, self-report measures are often convenient and easy to administer. Thus, it is no surprise that the majority of the research on preference-for-solitude in adults comes from self-report measures.

Conducted with adults, each item in Burger's (1995) *Preference for Solitude Scale* asks participants about their preference for aloneness when given a choice between spending time alone or with other people. More specifically, participants are asked to choose between two options for each item, one reflecting a preference for solitude (e.g., When I have to spend several hours alone, I find the time productive and pleasant) and the other a preference for being with other people (e.g., "When I have to spend several hours alone, I find the time boring and unpleasant"). Because Burger assumed that most people enjoy both time alone and time with others, each test item was designed to force the participants into a decision about whether he/she would actually select solitude over the appeal of a social interaction; scores on these items are then combined to form an overall preference-for-solitude *personality* score.

Additionally, there are measures of preference-for-solitude that combine different types of self-reports. For example, in addition to having participants fill out a self-report measure that assessed their disposition to prefer solitude, Silvia and Kwapil (2011) requested participants to carry a palm pilot that beeped throughout the day. Each time the palm pilot beeped, participants were instructed to write down answers to questions that assessed their attitudes and feelings about solitude and social interactions (e.g., "I like this person," "My time with this person is

important to me,” “I feel close to this person,” “Right now I would prefer to be alone”). The researchers used these scores in conjunction to form a general score for social anhedonia.

Taken together, it is evident that self-report measures vary greatly in content and construction. Regardless of such differences, it is clear that self-reports offer much important and reliable information regarding youth’s preference for spending time alone.

Preference-for-Solitude and Adjustment Difficulties across Development

Despite the lack of research, there is some evidence that preference-for-solitude may place individuals at risk for adjustment difficulties across development. Research has shown that school-aged children (e.g., Terrell-Deutsch, 1999; Chen & Wang, 2011), preadolescents (Larsen, 1999), adolescents (e.g., Bowker & Raja, 2011; Wang et al., 2013), and college students (Burger, 1995) who report an affinity or preference for being alone report more internalizing problems than their more sociable peers. Using a child psychiatric sample, Pauw et al. (2009) found introversion to be a major indicator of internalizing problems in youth. Similarly, unsociable youth have been found to suffer more interpersonal difficulties than their more sociable counterparts during preschool (Coplan et al., 2004), elementary school (Coplan & Weeks, 2010; Ladd et al., 2011), middle school (Marcoen & Goossens, 1989), and high school (Wang, Rubin, Laursen, Booth-LaForce, & Rose-Krasnor, 2013). For example, Coplan et al. (2007) found that unsociable preschoolers were seen as less attractive playmates and liked less than both typical and shy children (Coplan et al., 2007). Ladd et al. (2011) found that unsociable 5th graders were significantly less accepted and more excluded by their peers compared with their non-withdrawn counterparts. Wang et al. (2013a) found that preference-for-solitude was associated with depression and emotion dysregulation even after controlling for shyness in both preadolescents and older adolescents. Marcoen and Goossens (1989) found that not only was affinity for

aloneness positively associated with loneliness, but also that young adolescents who reported more affinity for aloneness had fewer intimate friends than those who reported less affinity toward aloneness.

Similar relations between preference-for-solitude and maladjustment are evident in the adult literature. Burger (1995) found that even though preference-for-solitude was not associated with social anxiety, trait anxiety, or social desirability, those who reported a high preference for solitude tended to report more loneliness. Moreover, research on social anhedonia provides strong evidence that extreme forms of preference-for-solitude may be indicative of serious clinical disorders such as schizophrenia. In a longitudinal study of college students, Kwapil (1998) found that not only was social anhedonia related to impaired social functioning at the initial assessment, but also that 24% of those who scored high on social anhedonia suffered from schizophrenia-spectrum disorders at the follow-up assessment 10 years later. Importantly, those who scored high on social anhedonia but who were not clinically diagnosed with schizophrenia-spectrum disorders still exhibited higher ratings of schizophrenic symptoms, poorer overall adjustment, and greater social impairment relative to those who scored low on social anhedonia at the follow-up. Similarly, Gooding, Tallent, and Matts (2005) found that compared to low-scorers, those who scored high on social anhedonia at the beginning of their study had higher rates of schizophrenia-spectrum diagnoses (15.6%) at the follow-up assessment 5 years later. These findings have led researchers to view social anhedonia as a sign of psychopathology that represents aberrant deficits in human's fundamental need to belong. Given that both preference-for-solitude and social anhedonia share the voluntary penchant for aloneness, the research on social anhedonia suggests that preference-for-solitude may be a risk factor for serious psychopathology.

Theoretical Rationale for the Links between Preference-for-Solitude and Maladjustment

The relations between preference-for-solitude constructs and maladjustment may be attributed to the negative effects of solitude. Indeed, spending large amounts of time alone has been linked with an array of disorders such as depression (Beck, 1967; deVries, Delespaul, & Dijkman-Caes, 1987), bulimia (Johnson & Larson, 1982), autism (Baron-Cohen et al., 2001), s?elective mutism (Tancer & Klein, 1997), and schizophrenia (Silvia & Kwapil, 2010; Szatmari, 1997) across development. For example, a lack of enjoyment of being with other people and a lack of social or emotional reciprocity are some of the most salient markers of autism according to the DSM-IV-TR (Baron-Cohen et al., 2001); and social skills facilitation remains one of the major goals behind many autism interventions today (Rap, Beidel, & Murray, 2008).

There is also evidence that, across development, people experience worse moods, on average, when alone than when with others (Brown, 1992; Larson, 1990, 1997; Larson and Lee, 1996; Larson & Richards, 1991). Indeed, greater amounts of time alone has been associated with less positive affect and more negative affect in children (5th and 6th graders; Larson & Richards, 1991), young female college students (Matias, Icolson, Freire, 2011), and adults (Larson, 1990; Larson, Zuzanek, & Mannell, 1985). Larson et al. (1985) found that older unmarried adults who were living alone spent the majority of their waking hours alone, and that they experienced negative affect and low arousal during these hours of solitude. Larson and Lee (1996) found that solitary coping predicted greater depression in highly stressed individuals.

Cortisol levels have been found to be significantly higher when individuals are alone compared to when they are in other social contexts (Adam, Hawkley, Kudielka, & Cacioppo, 2006; Matias et al., 2011), suggesting that solitude may represent a biological vulnerability

marker. For example, Adam (2006) found that even after controlling for feelings of worry and stress, adolescents displayed higher cortisol levels when alone than when with others.

Even when experienced positively at the moment, solitude encountered everyday is associated with negative affect. For example, Larson et al. (1982) found that adults who felt a more positive mood while alone than while with others tended to experience more negative moods across all situations. In fact, people who had the most positive average moods were those who reported feeling the worst while alone. Similarly, Brown (1992) found that even when being alone was voluntary, solitude was frequently accompanied by negative feelings.

Importantly, a preference for solitude may be associated with adjustment difficulties due to its detrimental effects on relationships (Suomi, 2003). Given that human beings are inherently social (Hinde, 1987), spending too much time alone might negatively impact one's social relationships and lead to adjustment difficulties. Indeed, theories across diverse disciplines have devoted significant focus on the importance of social relationships for well-being. From an evolutionary perspective, group living provides certain advantages over solitary living. For example, ancestral groups were probably more able than individuals to coordinate important activities essential for survival, such as hunting and gathering, sharing, food, building shelters, and protecting resources and themselves. In addition, groups provide more opportunities for meeting a mate with whom to reproduce, and for receiving more assistance in raising offspring. Researchers have also proposed that natural selection likely results in the propagation of internal mechanisms that affectively reward positive social contact and punish social deprivation (Baumeister & Leary, 1995).

The importance of social relationships for optimal adjustment has a long history in the psychological literature. Horney (1945) viewed a strong desire to be by oneself as a type of

detachment motivated by the neurotic to remove themselves from anxiety-provoking social situations. In her view, a high need for solitude is a symptom of neurosis, and an inclination toward solitude is a sign of aberrant development. Erikson (1963) proposed that successful conflict resolutions with others are necessary for the development of meaningful social relationships. Bowlby (1969) proposed that children's attachment to primary caregivers are pivotal for the development of intimate relationships in later development; a plethora of research has provided support for this premise, linking insecure attachments with adjustment difficulties across development (see Cassidy & Shaver, 2010, for a review). Developmental theorists such as Cooley (1902), Mead (1934), and Sullivan (1935) have emphasized the importance of peer relationships for child development. Indeed, these theorists believed that peers play a pivotal role in the development of important abilities and concepts such as self-reflection, perspective-taking, and mutual respect and reciprocity.

Drawing from these perspectives, the relations between preference-for-solitude and maladjustment can also be understood from a "developmental cascade" or "cumulative deficits" model. In particular, preference-for-solitude might be maladaptive because any form of withdrawn behavior, regardless of its underlying motivations, may be viewed as deviant during development. Given that peers may view any withdrawn behavior as non-normative, preference-for-solitude may put youth at risk for peer exclusion and victimization. Interpersonal difficulties are known to accompany and predict adjustment difficulties such as depression and low self-esteem (Rubin et al., in press). Thus, through the compounded effects of peer difficulties and increasing perceptions of deviance from age-normal social expectations, preference-for-solitude may put youth at risk for adjustment difficulties. This proposition may be especially true in early

adolescence, given that peers play a particularly important role during this developmental period (Rubin et al., in press).

Taken together, the extent to which individuals can develop, maintain, and experience high quality social relationships is a pivotal area to investigate the understanding preference-for-solitude and its implications for youths' well-being. Given that peer relationships peak in importance in early adolescence (Bagwell & Schmidt, 2011; Rubin et al., 2009), examining close, dyadic relationships (e.g., friendships) during this developmental period may provide important insights for understanding the links between preference-for-solitude and youth adjustment across development.

II. Friendship in Childhood and Adolescence

Children's peer relationships can be understood in terms of their social standing within the peer group (*peer acceptance*) as well as their close, intimate dyadic relationships with other peers (*friendship*). Although peer group acceptance is important to consider, this study is focused specifically on the quality of best friendship for several reasons. First, intimacy and trust become increasingly important for children's social relationships as they transition to adolescence. Indeed, developmental theorists such as Sullivan (1953) have emphasized the particular importance of close friendships for youth's adjustment during adolescence (see below). Researchers have also shown that whereas peer acceptance is a primary concern for youth in childhood, establishing close dyadic friendship becomes a prominent concern for youth in adolescence (Bagwell & Schmidt, 2011; see Rubin, Bukowski, & Laursen, 2009 for reviews). Given its significance, examining best friendship during this unique developmental period may provide a more comprehensive understanding of youth's behavior and adjustment than an examination of peer acceptance. Moreover, researchers have shown that high-quality or socially

supportive friendship buffers youth from negative peer experiences such as peer rejection and victimization (Vitaro, Boivin, & Bukowski, 2009). Indeed, researchers have shown that socially supportive friendship protects youth from internalizing difficulties such as depression and anxiety (Bowker, Thomas, Norman, & Spencer, 2011; Burk & Laursen, 2005). There is also evidence that socially supportive friendship helps buffer youth from the consequences of negative family and peer experiences (e.g., Bagwell & Schmidt, 2011; Rubin et al., 2004).

Second, although peer acceptance is related to some aspects of friendship across development, these constructs represent unique socialization experiences. While much is known about peer group acceptance, less is known about youth's friendship, particularly in adolescence. Yet, adolescence is a developmental period in which youth can conceptualize the meaning of friendship in a relatively mature manner (e.g. Berndt & Perry, 1986). It is also a developmental period during which close social relationships outside the family serve as important sources of social support as youth struggle with establishing a sense of autonomy and independence. Given the importance of close interpersonal relationships in adolescence and the paucity of research on such relationships, examining best friendship in adolescence will shed important insights on youth's development and adjustment.

Along similar lines, although the prevalence of mutual friendships is important to consider, the quality of such relationships may provide a more comprehensive understanding of youth's adjustment than merely noting whether a child has friends. In particular, youth's perceptions of their friendships shape their own behavior as well as their interpretations of the behavior of their friends (Bagwell, 2011; Gifford-Smith & Brownell, 2003). There is also research demonstrating that quality plays an important role in the influence of friends (Berndt, 2002). Specifically, research has suggested that high-quality or socially supportive friendship

may amplify the influence of friends on youth's behavior and adjustment. In this view, whether an adolescent has friends may not provide adequate information about the role that friendships play in youth's development and adjustment. Despite this acknowledgment, however, the majority of the research on youth's friendship has focused on the prevalence of friendships to the exclusion of its features (e.g., Hodges et al., 1999). Yet, without considering its features, it is difficult to gain a complete picture of the role that friends play in youth's lives. By focusing specifically on friendship support in the U.S.A. and China, findings from this study will help contribute to a more comprehensive understanding of friendship and its contributions to youth's well-being across development.

Developmental Theories of Friendship

Several developmental theories are relevant for understanding the importance of friendship in youths' well-being.

Selman's Developmental Model of Friendship Conceptions. Selman (1981) created an influential developmental theory on how children's conceptualizations of social relationships change over time. According to his model, attitudes toward friendship, intimacy, and peers take on new meaning as children transition into new developmental periods. In particular, friendships are largely defined by play and momentary interactions at Stage 0. At Stage 1, children begin to understand the concrete benefits associated with friendships: they begin to view friends as those who can help them perform or complete tasks. At Stage 2, intimacy, trust, and reciprocity become important in children's friendships. Children at this stage are not only more able to understand others' perspectives, they also become increasingly willing to disclose their own intimate thoughts and feelings. At Stage 3, intimacy between close friends takes on further importance, as loyalty and commitment become even more central to youth's friendships. At

Stage 4, youth begin to understand the concept of “autonomous interdependence” in friendships. Youth begin to understand during this stage that others may have many different types of relationships for different needs and reasons, and that friendships are fluid entities that can grow and change, as well as form and dissolve, over time.

Sullivan’s Theory of Interpersonal Relationships. According to Sullivan (1953), different developmental periods have different implications for the role of friendship in youth’s lives. During the juvenile stage (6 to 9 years), group membership and social acceptance become prominent concerns for children—those who are rejected or excluded by peers often suffer from loneliness and internalizing difficulties (Rubin, Bowker, McDonald, & Menzer, 2013; Rubin et al., 2011). Whereas friendship in childhood is marked by group belongingness, friendship in early adolescence is primarily defined by intimacy. In particular, “chumships,” the intimate dyadic relationships that preadolescents form with select same-sex peers, occupy a central role during the transition to early adolescence. Based on loyalty and trust, Sullivan believed that chumships provide youth with a secure environment to disclose personal thoughts and feelings, many of which are uncomfortable to discuss with adults. Through involvement in chumships, youth also build the social skills needed for relationships with romantic partners in the future. By emphasizing the importance of chumships, Sullivan’s theory of interpersonal relationships offers a critical framework for understanding the positive benefits of close friendships during development.

Friendship Quality across Development

Much empirical research has supported the aforementioned theoretical propositions (e.g., Furman & Buhrmester, 1992; Hartup, 1993). In their meta-analysis of research on youths’ friendships, Newcomb and Bagwell (1995) argued that loyalty, commitment, and self-disclosure

become increasingly important as youth enter adolescence. In contrast to 4th graders, Furman and Buhrmester (1992) found that 7th and 8th graders relied more on friends than parents for social support. High perceptions of friendship quality are also associated with indices of well-being such as higher self-esteem and lower depression across development (Rubin et al., 2004, Stocker, 1994). Thus, both theoretical and empirical evidence convincingly show that close friends influence many facets of youths' social behavior and adjustment (Bagwell & Schmidt, 2011), particularly during early adolescence (Collins & Laursen, 1999; McDonald, Wang, Menzer, Rubin, & Booth-LaForce, 2010; Rubin et al., 2004).

Although the presence of a mutual friendship has been associated with positive benefits (Bagwell & Schmidt, 2011), the *quality* of a friendship is particularly important to consider for understanding the implications of friendship for children's and adolescents' adjustment. Indeed, social exchange theory posits that individuals are drawn to relationships in which one's own benefits and costs from the relationship are proportional to the benefits and costs incurred by the friend (Kenrick, Neuberg, & Cialdini, 2002). Accordingly, the ways that children perceive their relationship with a friend are likely to affect their behavior toward the friend as well as the nature and course of the friendship (Brendgen et al., 2004; Furman, 1996). In particular, whereas high-quality friendships fulfill youths' needs for intimacy and help provide them with experiences that promote positive adaptation (Bagwell & Schmidt, 2011), poor-quality friendships likely fail in meeting these needs. From a stress and coping perspective, poor-quality friendships may also represent a significant stressor for youth, thus requiring substantial coping mechanisms (Sandstrom & Zakriski, 2004). Thus, the extent to which youth view their friendships as socially supportive may have important implications for their psychoemotional adjustment during development.

Measuring Friendship Quality

According to Weiss (1974), there are six basic provisions that individuals strive to attain in close interpersonal relationships: attachment, guidance, nurturance, reliable alliance, enhancement of worth, and social integration. Researchers have developed questionnaires based on these views. For instance, the *Network Inventory Relationship-Social Provision Version* (NRI-SPV; Furman & Buhrmester, 1985)—one of the most often utilized measures of relationship quality across development and cultures (Furman, 1996)—asks youth to rate the extent to which their relationships with different network members (e.g., parents, best friends) are characterized by positive, socially supportive features (affection, reliable alliance, enhancement of worth, intimacy, instrumental help, companionship, and nurturance) and negative, relationship-straining features (conflict, antagonism). Evidence of reliability and validity for the friendship portion has been demonstrated. For instance, using a sample of North American youth, Furman and Buhrmester (1985, 1992) found that all nine features of friendship (affection, reliable alliance, enhancement of worth, intimacy, instrumental help, companionship, nurturance, conflict, and antagonism) were internally consistent and reliable (average $\alpha = .80$). In particular, results from a principal component analysis demonstrated that these features loaded onto two distinct higher-order factors: a) Social Support (comprising affection, reliable alliance, enhancement of worth, intimacy, instrumental help, companionship, and nurturance, and b) Negative Interactions (comprising conflict and antagonism). Other studies have found similar results (Connolly & Konarski, 1994; Gavin & Furman, 1992). Thus, the NRI may be an important tool for understanding the role that friendships play in youth's adjustment across development.

III. Social Withdrawal and Friendship Support

Given its significance, friendship support may act as a moderator that either strengthens or weakens the association between another aspect of functioning and adjustment in youth. Indeed, Gauze, Bukowski, Aquan Assee, and Sippola (1996) found that although low cohesion in the family was significantly associated with lower levels of perceived social competence and self-worth, this association was not significant for young adolescents who had a high-quality or a reciprocated best friendship. From this view, highly supportive friendship may help buffer at-risk youth from adjustment difficulties (Rubin et al., 2004).

Despite the significance of friendship for youth's adjustment, little research has examined whether friendship might moderate the relations between social withdrawal and youth adjustment. Given that social withdrawal places youth at significant risk for a myriad of adjustment problems (see Coplan & Rubin, 2010, for a review), it is important to examine whether friendship support might help buffer withdrawn youth from these difficulties.

Of the few studies that have been conducted, friendship appears to play a significant role in withdrawn youth's lives, particularly those who are shy or anxiously withdrawn. For instance, research has shown that the majority of shy or anxiously withdrawn youth have at least one stable, mutual best friendship (Rubin et al., 2006) across both early (Ladd & Burgess, 1999) and middle-to late childhood (Rubin et al., 2006; Schneider, 1999). Although they generally have fewer friends (e.g., Beidel et al. 1999; La Greca and Lopez 1998; Pedersen et al. 2007), shy or anxiously-withdrawn children are just as likely as non-withdrawn counterparts to have a mutual best friend (e.g., Chansky and Kendall 1997; Rubin et al. 2006).

There is some evidence that withdrawn youth, specifically those who are shy or anxiously withdrawn, may have less supportive friendships compared with non-withdrawn youth. Fordham

and Stevenson-Hinde (1999) found that positive friendship qualities (e.g., validation, intimacy) were negatively correlated with shyness in childhood. La Greca and Hanison (2005) found that lower scores on positive friendship quality (e.g., companionship, disclosure, support, reliable alliance) and higher scores on negative friendship quality (e.g., conflict, criticism) were associated with higher levels of social anxiety. Rubin et al. (2006) found that anxiously-withdrawn young adolescents and their best friends both perceived their friendships as unsupportive or low in quality: anxiously-withdrawn youth rated their best friendships as lacking in guidance, helpfulness, and intimate disclosure, while their best friends rated these friendships as lacking in help, guidance, and fun.

Despite such findings, there is evidence that the presence of *socially supportive* friendships may help protect shy or anxiously-withdrawn youth from adjustment difficulties (LaGreca & Hanison, 2005; Oh et al., 2008; Rubin et al., 2006). Rubin et al. (2006) found that shy or anxiously-withdrawn children who have a mutual best friend are perceived by peers as more sociable and popular than withdrawn children who are friendless. Using hypothetical vignettes, Burgess and colleagues (2006) found that the tendency of shy or anxiously-withdrawn children to blame themselves for social difficulties were diminished when scenarios involved a good friend. Oh et al. (2008) found that having a mutual and stable best friendship was associated with decreases in anxious withdrawal from the 5th grade through the 8th grade. Vernberg et al. (1992) found that socially supportive friendship (e.g., friendships that are high in intimacy and companionship) at the beginning of the school year in predicted lower social anxiety at the end of the school year for adolescents. Although these findings suggest that having a socially supportive best friendship may help protect shy or anxiously-withdrawn youth from

adjustment problems, virtually nothing is known about whether such relationship may confer similar benefits for youth who prefer to be alone.

Given that preferred-solitary youth are assumed to be socially competent (Coplan & Weeks, 2010), they may have little difficulty in establishing socially supportive friendships. Indeed, it has been suggested that although preferred-solitary youth may prefer to be alone, they are relatively socially competent (Coplan, Prakash, O'Neil, & Armer, 2004; Coplan & Weeks, 2010). Consistent with these views, Ladd et al. (2011) found that preferred-solitary 5th grade children did not differ from their peers in terms of the likelihood of having a mutual best friend, nor did they differ in the stability of this friendship over the school year.

Alternatively, given that preferred-solitary youth may spend significantly more time alone at the expense of their social relationships, their friendships may be more susceptible to deterioration and dissolution. In this view, even if preferred-solitary youth are able to become involved in friendships, their friendships may be lower in quality or less supportive. Indeed, Marcoen and Goossens (1989) found that young adolescents who reported more affinity for aloneness had fewer intimate friends than those who reported less affinity toward aloneness. Because no research to date has directly examined the friendship quality of preferred-solitary youth during early adolescence, however, these speculations remain to be explored.

IV. Social Withdrawal and Friendship Quality in a Cultural Context

Culture affects the social relationships and experiences of youth in many ways. According to Bronfenbrenner's ecological model, culture is a context that directly shapes social relationships and interactions (Bronfenbrenner, 1997). Cultural contexts also significantly affect the display of social and asocial behaviors through processes of facilitation and suppression. Specifically, cultural norms and values provide guidance for social evaluations of, and responses

to, behaviors and help define their meanings (Chen & French, 2008). Because cultures may place different values on similar behavioral and relationship attributes, examining the links between social withdrawal and friendship quality in different countries may help provide important insights for developing effective interventions and preventions for withdrawn youth across different cultures.

Social Withdrawal across Different Cultures

Researchers have demonstrated that social withdrawal is a culturally bound phenomenon (Chen, 2010). The influence of cultural values on withdrawal may occur through the social interaction process (Chen, Chung, & Hsiao, 2009). Specifically, youths' displays of withdrawn behaviors in social interactions may be perceived and evaluated by peers and adults in manners that are consistent with the value systems and cultural beliefs of the society. Accordingly, withdrawal dimensions may be differentially associated with youth adjustment between different cultures.

It has been argued that in individualistic and self-oriented societies such as North American and European cultures, preference-for-solitude may not be viewed as negatively as shyness, because the former is sometimes considered an expression of personal choice and may be conducive to performance on constructive tasks and emotional health (Coplan et al., 2004), whereas the latter is considered to be an index of social incompetence since it inhibits social initiative and assertiveness (Rubin et al., 2009). In contrast, shy, reserved, quiet youth in traditional, collectivistic and group-oriented cultures may be accepted by others since the display of such behavior may be considered conducive to group organization and harmony. On the other hand, preferred-solitary youth in such cultures may be regarded as anti-collectivistic and

thereby viewed as having serious social and adjustment problems (Chen, 2008; Cheah & Rubin, 2004; Rubin, Cheah, & Menzer, 2009).

Research appears mixed regarding these speculations. Despite past research linking shyness or anxious-withdrawal with positive adjustment in Chinese schools (see Chen, 2010, for a review), increasing evidence suggests that this withdrawal dimension places Chinese youth at risk for negative peer experiences and adjustment difficulties, particularly in contemporary urban regions (Chang, 2003; Chen et al., 1995; Wang, Duong, Schwartz, Chang, & Luo, 2013). For instance, Schwartz et al. (2001) found that peer victimization was positively associated with anxious- withdrawal or shyness in children living in China. Chang et al. (2005) found that anxious- withdrawal was negatively predictive of peer acceptance during adolescence in Hong Kong. Similarly, Wang et al. (2013b) found that anxious-withdrawal predicted peer victimization from middle childhood to early adolescence in Hong Kong schools. Others have found similar relations in different urban regions of China (e.g., Chen et al., 2005; Xu et al., 2003). With the rapid industrialization and economic growth of China, it appears that shyness is no longer beneficial in this increasingly market-oriented society, at least in urban regions.

The limited research on preference-for-solitude in Eastern cultures also paints a mixed picture. Kim et al. (2008) found that preference-for-solitude was not uniquely associated with any index of adjustment for South Korean youth. By contrast, Chen, Wang, and Cao (2011) found that Chinese youth who preferred to be alone had significant psychological, school, and social difficulties. Using hypothetical vignettes, Coplan, Zheng, Weeks, and Chen (2012) found that Chinese young children reported they would like to play less with an unsociable child. Liu et al. (2013) found that after controlling for shyness, preference-for-solitude in Chinese young adolescents was associated concurrently and predictively with negative self-perceptions, low

academic achievement, peer difficulties, and internalizing problems. Taken together, these mixed findings suggest that much research on preference-for-solitude in different cultures is currently needed before a comprehensive and accurate understanding of its role in youth adjustment can be understood.

Friendship Quality across Different Cultures

Given that social relationships are conceptualized and regulated by the norms and values of culture, culture also plays a significant role in youth's friendships (Rubin et al., 2011). In particular, although friendships are generally conceptualized as voluntary associations between individuals, they invariably occur within a cultural context. Because cultural values reflect abstract notions of normative beliefs (Chen, 2011; Harkness & Super, 2002; Rubin et al., 2011), the degree to which a youth is satisfied with a given relationship likely reflects the influences of the broader sociocultural context on what is appropriate in relationships (Hinde, 1997).

Accordingly, youth in different cultures likely have different expectations about the extent to which certain phenomena (e.g., intimacy) are displayed within friendships. These beliefs likely guide youths' selection of friends and their dyadic interactions within these relationships (Chen & French, 2008). As described below, the dimensions of power distance, individualism, and collectivism (Hofstede, 1980; Markus & Kitayama, 1991; Oyserman & Kemmelmeier, 2002; Triandis, 1995) offer helpful frameworks for understanding youth's friendships across different cultures.

Power distance: Vertical and horizontal relationships. The extent to which each partner assumes dominant status and wields power is a central feature of dyadic relationships such as friendships. *Vertical* relationships involve asymmetrical distributions of power; one partner assumes authority and power over the other. By contrast, *horizontal* relationships involve more

egalitarian distributions of power; power and control are generally distributed symmetrically between each partner in the relationship (Hartup & Laursen, 1991; Hinde, 1997; Rubin et al., 2008).

Horizontal relationships may best be represented within friendships; friendships generally involve a relatively symmetrical distribution of power between two individuals. Vertical relationships, on the other hand, may best be exemplified by the parent-child relationship; parents generally hold more power and authority than their children (Youniss, 1980). In North American and Western European cultures, however, this asymmetrical balance of power between parent and child often shifts with the emergence of adolescence; peers become increasingly more influential as children transition to adolescence (Laursen et al., 2006; Rubin et al., 2009). By contrast, such a shift in power is less salient in Eastern cultures. Whereas conflicts with parents during adolescence are expected in North American and Western European cultures, youth in Eastern cultures are expected to obey and comply with authority figures across all stages of development (e.g., China; Chen, 2011). Thus, cultures vary in the acceptance of power distance within particular relationships; while shifts in power distance within particular relationship (e.g., parent-child relationship) may be expected and generally accepted in North American and Western European cultures, such changes may be less salient and less acceptable in Eastern cultures.

V. Summary and Hypotheses

Although social withdrawal is associated with a myriad of adjustment difficulties across development (Coplan & Rubin, 2010), little is known about the implications of preference-for-solitude for youth adjustment, particularly beyond childhood. Despite acknowledgment of the significance of friendship (Bagwell & Schmidt, 2011; Parker & Asher, 1993; Rubin et al., 2009),

not much is known about the ways in which friendship features might lead to different developmental outcomes in early adolescence; even less is known about friendship and its implications for youth's adjustment in countries beyond North America and Western Europe. Yet the extent to which a friendship is supportive may provide important information for understanding the heterogeneity of preference-for-solitude across different cultures. For instance, whereas supportive friendship may help buffer preferred-solitary youth from the types of internalizing difficulties commonly associated with withdrawal (e.g., depression, low self-esteem; Coplan & Rubin, 2010), unsupportive friendship may further exacerbate these negative consequences. Although such information provides critical insights for developing and implementing effective youth interventions and preventions, researchers have yet to examine these possibilities. In particular, virtually nothing is known about how friendship support contributes to adolescent adjustment across different cultures.

Expanding our understanding of preference-for-solitude in the U.S.A. and China will help contribute to a more global understanding of social withdrawal and its universal implications for youth adjustment. Investigating how friendship support may moderate the links between preference-for-solitude and youth adjustment in different countries will help us understand the developmental significance for preferred-solitary youth across different cultures. Together, these findings will provide critical global insights for enhancing and promoting the well-being of youth across development.

The overall aim of this research was to examine the relations between preference-for-solitude, friendship support, and internalizing difficulties during early adolescence in the U.S.A. and China. Specifically, this research examined the moderating role of friendship support in the

relations between preference-for-solitude and internalizing difficulties (negative affect; negative self-esteem) in young adolescents living in the U.S.A. and China.

Hypotheses

Hypotheses Part I: Preference-for-Solitude and Shyness as Distinct Dimensions of Social Withdrawal

Theoretical and empirical evidence has shown that social withdrawal is a multidimensional construct (Asendorpf, 1993; Rubin & Coplan, 2010; Wang, Rubin, Laursen, Booth-LaForce, & Rose-Krasnor, 2013). Based on such evidence, it is hypothesized that distinct dimensions of withdrawal will emerge across both the U.S.A. and China samples. In particular, it is hypothesized that shyness and preference-for-solitude will emerge as related but distinct dimensions of withdrawal in the U.S.A. and China.

Hypotheses Part II: Preference-for-Solitude and Internalizing Difficulties (Negative Affect, Negative Self-Esteem)

Although the majority of the research on withdrawal has focused on shyness to the exclusion of preference-for-solitude, recent evidence has linked preference-for-solitude with internalizing difficulties across different cultures. Drawing from such work, it is hypothesized that, above and beyond the effects of shyness, preference-for-solitude will be *positively* associated with increased negative affect and negative self-esteem in the U.S.A. and China.

Hypothesis III: Friendship Support as a Moderator of the Links between Preference-for-Solitude and Internalizing Difficulties (Negative Affect, Negative Self-Esteem)

The aim of this study was to examine whether friendship support would moderate the relations between preference-for-solitude and internalizing difficulties across the U.S.A and

China. Given that friendship support is a significant contributor to youth well-being (Bagwell & Schmidt, 2011; Rubin et al., 2009), I hypothesized that, above and beyond the effects of shyness, friendship support will moderate the relations between preference-for-solitude and internalizing difficulties across the U.S.A. and China. In particular, I hypothesized that, across both the U.S.A. and China, preference-for-solitude will be most strongly associated with negative affect and negative self-esteem beyond shyness for youth with low friendship support. In other words, I hypothesized that preference-for-solitude will put young American and Chinese adolescents with low friendship support at the greatest risk for internalizing difficulties.

CHAPTER 3: METHODOLOGY

Participants

This project drew from two samples. The U.S.A. sample derived from the project, “Friendship: The transitions to middle school and psychological adjustment,” funded from the National Institute of Mental Health (NIMH grant 1R01MH58116). The China sample drew from the research project, “Social Withdrawal, Friendship, and Social, School, and Psychological Adjustment in Chinese Adolescents,” funded from the National Science Foundation (NSF OISE-1107281).

The U.S.A. sample comprised 300 9th graders (121 boys, M age = 14.28 years, SD = .51) from the greater Washington DC metropolitan area. The sample was racially/ethnically diverse with approximately 53.9% of the adolescents self identifying as Caucasian, 15.9% as African-American, 13.3% as Asian, 11.4% as Latino/a, and 5.2% as bi- or multiracial. Hollingshead (1975) socioeconomic scores ranged from 9 to 66 (M = 54.14, SD = 10.28) out of a potential range of 8 to 66.

The China sample comprised 201 9th graders (86 boys; M age = 14.21 years, SD = .62 years) in Beijing, China (consent rate = 100%). All participants identified as Han Chinese, the predominant ethnic group in China. The percentage of youth living with two parents was 85%.

Although this research was not concerned with cross-cultural comparisons, available demographic information suggested that participants were generally comparable between the two countries. Participants in both countries resided in urban areas (the Washington metropolitan area for the U.S.A. sample; Beijing for the Chinese sample, respectively). Participants in both countries were also classified as middle- to upper-middle class. The only notable difference

appears to pertain to ethnic composition, with the sample in the U.S.A. being more racially diverse than the sample in China.

Procedure

Across both samples, participants were first contacted by telephone; if both parents and adolescents expressed interest, an informational letter, parental consent form, and adolescent assent form were mailed to the home (consent rate = 100%, China; 84%, U.S.A.), along with packets of questionnaires (see below). All questionnaires have been shown to be reliable and valid across cultures (e.g., Achenbach, Howell, McConaughy, & Stranger, 1995). All Chinese translations were conducted by researchers fluent in both languages; translations were back-translated and cross-checked for reliability and validity.

Measures

Preference-for-solitude and Shyness were measured using the 1) Social Withdrawal Scale (SWS; Terrell-Deutsch, 1999) and the 2) Youth Self-Report (YSR; Achenbach & Rescorla, 2001). The SWS is a self-report of withdrawal that ranges from 0 (not at all true) to 5 (always true). The YSR is a self-report of youth adjustment on a scale that ranges from 0 (not true) to 2 (very often true). This assessment of different withdrawal dimensions has been shown to be reliable and valid (Wang et al., 2013a).

The Preference-for-Solitude scale consists of 4 item indicators (three SWS items and one YSR item; “I like spending time alone more than being with other kids;” “I would rather be with other kids than be alone” [reversed]; “I spend time alone because I want to be alone more than I want to be with other kids;” and “I would rather be alone than with others”; $\alpha = .79$, U.S.; $\alpha = .85$, China). The Shyness scale consists of 3 item indicators (two SWS items and one YSR

item; “I am shy;” “I spend time alone because I want to be with other kids but I don’t because I’m too shy or afraid;” and “I am too timid or shy”; $\alpha = .82$, U.S.; $\alpha = .73$, China). Table 2 provides more details for these items. Past research has shown a moderate to high correlation between preference-for-solitude and shyness (Wang et al., 2013a).

Friendship support was measured using the Network of Relationships Inventory (NRI; Furman and Buhrmester, 1985). Participants rated how each of 33 items described their relationships with mothers, fathers, and best friends on a scale from 1 (none/not at all) to 5 (very much/almost always). Items comprised 11 conceptually distinct subscales that load onto three factors (Burk and Laursen 2005; Furman 1996): (a) social support (affection, admiration, companionship, instrumental help, intimacy, nurturance, and reliable alliance); (b) negativity (antagonism and conflict); and (c) relative power. The Social Support subscale ($\alpha = .88$, U.S.; $\alpha = .83$, China) was used to assess friendship support in this study (see Table 3). Past research has shown this scale to be reliable across development in different cultures (e.g., Furman & Buhrmester, 2009; Wang, 2014).

Internalizing Difficulties were measured using the Child Depression Inventory (CDI; Kovacs, 1992). The CDI comprises 27 groups of sentences, and sentences within each group correspond to a level of symptomology, ranging from 0 (symptom not present) to 2 (high level of symptom). Participants were asked to pick a sentence from a group of sentences that best describe them during the past 2 weeks. Items assess five categories of depressive symptoms: 1) negative affect 2) interpersonal problems; 3) ineffectiveness; 4) anhedonia; and 5) negative self-esteem.

Most psychometric studies on the CDI generally suggest a three-factor model (Negative Affect, Negative Self-esteem, Interpersonal/Externalizing Problems) to be the most appropriate

(e.g., Cole, Hoffman, Tram, & Maxwell, 2000; Craighead, Smucker, Craighead, & Ilardi, 1998; Drucker & Greco-Vigorito, 2002; Garcia, Aluja, & del Blarrio, 2008; also see Huang & Dong, 2013, for a meta-analytic review). Because this study is primarily focused on internalizing difficulties rather than interpersonal or externalizing problems, items on the negative affect (e.g., 4 items; “Feel like crying everyday”; $\alpha = .73$, U.S.; $\alpha = .71$, China) and negative-self-esteem (e.g., 4 items; “Nothing will ever work out for me”; $\alpha = .85$, U.S.; $\alpha = .70$, China) scales were used (see Table 2).

Data Analysis Plan

On average, 0.0 to 8% of the data were missing across all variables in the U.S.A. sample, and 0.00 to 0.9% of the data were missing across variables in the China sample. Missing data across both samples were considered with maximum likelihood estimation with robust chi-squares and standard errors (MLR) under the assumption that data were missing at random (MAR). To examine this assumption, pattern-mixture modeling (Little, 1993; 1994; 1995) was used to further ensure that data missingness did not adversely impact data outcomes. In particular, across both the U.S.A. and China samples, participants were divided into groups based on their pattern of missingness. These groups were then used to examine the effects of the missing-data pattern on the research outcomes of interest. Results demonstrated that missing-data patterns on the independent variables did not appear to significantly affect study results in both samples. Additionally, results from Little’s MCAR test (Little & Rubin, 1987) failed to reject MCAR, suggesting that all data were missing completely at random in both the U.S.A. ($\chi^2 = 891.68$, $df = 842$, $p = .13$) and China samples ($\chi^2 = 237.50$, $df = 219$, $p = .20$). Full information maximum likelihood (FIML) was used to address all data missingness; this procedure is a robust estimator of results under MAR (Hancock & Mueller, 2006).

In MLR, estimates of standard errors and test statistics are corrected for the degree of data non-normality. MLR provides data-model fit indices and test statistics adjusting for non-normality via the Satorra-Bentler (S-B) correction. In particular, the S-B adjusted chi-square (S-B χ^2 ; Satorra & Bentler, 2001) was used to test model-fit. Correcting for normality is critical because failing to adjust for non-normality can bias results of structural relations. Using MLR with S-B test statistics have been shown to adequately address non-normality and unmodeled heterogeneity (Muthén & Asparouhov, 2002; Yuan & Bentler, 2000). For instance, model fit indices like root mean square error of approximation (RMSEA) based on Satorra-Bentler scaled chi-square performed better than those based on standard ML in non-normal samples (Nevitt & Hancock, 2000).

Across all samples, analyses were conducted using structural equation modeling (SEM) within Mplus 7 (Muthen & Muthen, 1998–2014). Satorra-Bentler adjusted chi-square (S-B χ^2), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square (SRMR) were used to assess model-fit. Differences in the Satorra-Bentler adjusted chi-square (Δ S-B χ^2), adjusted Akaike Information Criteria (Δ AIC), adjusted Bayesian Information Criteria (Δ BIC), and adjusted Sample-Size Adjusted Bayesian (Δ Adjusted BIC) were used to compare different models.

Construct reliability, also known as maximal reliability, represents the stability of a latent construct as reflected from the chosen indicators. Across the U.S.A and China samples, Coefficient H (H , Equation 1; Hancock & Kroopnick, 2005; Hancock & Mueller, 2001) was used to calculate the construct reliability of all latent factors. Coefficient H differentiates from Cronbach's alpha (α) in important ways. First, contrary to common belief, α is *not* an index of unidimensionality but rather the mean of all possible split-half coefficients. Because split-half

reliability estimates do not yield a unique estimate of reliability for observed data, α is generally an inconsistent estimator of scale reliability (Hancock & Mueller, 2001; also see Hoyle, 2012, for an extended review). In contrast to this inconsistency, Coefficient H represents the proportion of variance in a construct that is theoretically explainable by its indicators. In this view, Coefficient H reflects the unidimensionality of a latent construct; it yields a unique estimate of reliability for a given set of observed data. Moreover, because the value of Coefficient H is constricted between 0 to 1, it is consistent with the theoretical frameworks of scale reliability (see Hancock & Mueller, 2001, for more details). Specifically, Coefficient H is : a) unaffected by the sign of loading indicators, b) always greater than (or equal to) the reliability of its strongest indicator, and c) can never decrease with additional indicators. By contrast, α violates all of these assumptions. Put together, Coefficient H is a stronger and more appropriate assessment of reliability for latent constructs than α . In this study, Coefficient H is computed for all latent constructs across the U.S. and China samples.

$$H = \frac{1}{1 + \frac{1}{\frac{\ell_1^2}{(1-\ell_1^2)} + \dots + \frac{\ell_p^2}{(1-\ell_p^2)}}} \quad (\text{Equation 1}).$$

Although past research studies have provided some evidence of gender differences in the links between withdrawal and adjustment (Coplan & Rubin, 2010), the majority of these findings concerned *shyness*. Findings on gender differences in preference-for-solitude and youth adjustment, on the other hand, do not appear to suggest significant differences in patterns of associations between boys and girls (Bowker & Raja, 2011; Wang et al., 2013). Additionally, using multigroup structural equation modeling, preliminary results in this study did not demonstrate significant differences between gender (all p 's > .20) across both the U.S.A. and

China samples. Accordingly, and because the primary focus of this study was not on gender differences, gender was not included in the analyses. Omitting gender in the main analyses also helped to make the models more parsimonious (Hancock & Mueller, 2006).

To address the research questions in this study, a two-step process was followed (Anderson & Gerbing, 1988). Specifically, a measurement model of indicators to latent factors was first tested within each country for preference-for-solitude, shyness, negative affect, and negative self-esteem (Table 2). Friendship support was modeled as a scale indicator (Table 3) due to its formative nature (i.e., nurturance, helpfulness, companionship, admiration, reliability, affection, and intimacy are all composites rather than manifestations of friendship support). Previous research has demonstrated the adequacy behind such ways of modeling (Huang & Dong, 2013; Schmittmann et al., 2011; Wang et al., 2013).

Following evidence of adequate fit in all measurement models, structural models of the relations of interest (with shyness as a control) were then tested within each country. This two-phase approach helps diagnose model misspecification in the data (Anderson & Gerbing, 1988; Hancock & Mueller, 2006).

CHAPTER 4: RESULTS

Part I. Measurement Models

1. Withdrawal Dimensions: Preference-for-Solitude and Shyness in the U.S.A. and China

To examine the validity of shyness and preference-for-solitude as related but distinct constructs of withdrawal, separate confirmatory factor analyses (CFA) were conducted comparing the two-factor model with the one-factor model within each country.

1.1. Preference-for-Solitude and Shyness in the U.S.A.

Based on previous research (Wang et al., 2013), a model was specified in which items describing preference-for-solitude (“Want to be alone more than with other kids,” “Like spending time alone more than with other kids,” “Would rather be with other kids than alone (reverse), and “Would rather be alone than with others”) loaded onto a Preference-for-Solitude factor, and items describing shyness (“Want to be with other kids but too shy,” “I am very shy,” and “I am too shy or timid”) loaded onto a Shyness factor. Results demonstrated good model-fit for this two-factor model (S-B $\chi^2 = 27.41$, $df = 13$, RMSEA = .06, SRMR = .04, CFI = .97). As Figure 1 demonstrates, all items loaded adequately onto their respective factors (Preference-for-solitude: .53 to .84; Shyness: .67 to .89); correlation between the two factors was moderate in magnitude ($r = .47$, $p < .01$). Preference-for-solitude displayed good latent construct reliability ($H = .81$), as did shyness ($H = .86$).

To further examine the validity of withdrawal as a multidimensional construct, a one-factor model, in which all withdrawal items loaded onto a single factor, was compared to the two-factor model. Results demonstrated poor model-fit for the one-factor model (S-B $\chi^2 = 149.25$, $df = 14$, RMSEA = .18, SRMR = .09, CFI = .71). In particular, the one-factor model exhibited significantly poorer fit compared with the two-factor model, $\Delta\chi^2_{SB}(1) = 121.84$, $p <$

.001. As demonstrated by Table 4 and Figure 1, these results provided further evidence of preference-for-solitude and shyness as unique dimensions of withdrawal in American youth.

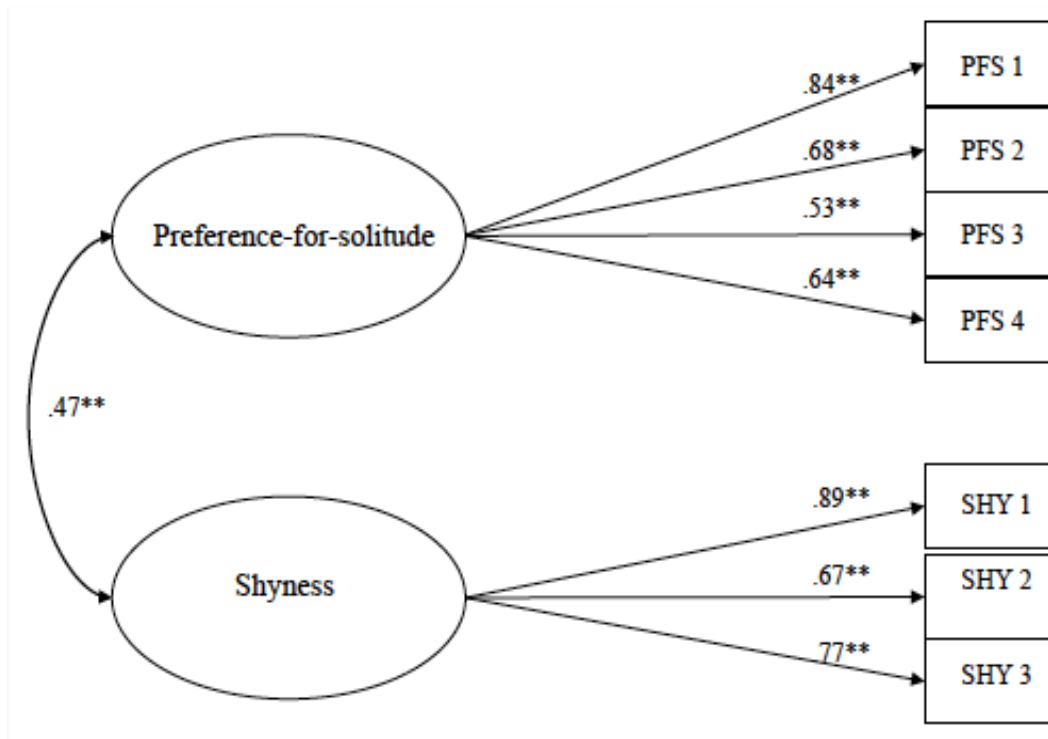


Figure 1. Preference-for-Solitude and Shyness in the U.S.A. ** $p < .01$.

1.2. Preference-for-Solitude and Shyness in China

Consistent with the U.S.A. sample, a model was specified for the China sample in which items describing preference-for-solitude (“Want to be alone more than with other kids,” “Like spending time alone more than with other kids,” “Would rather be with other kids than alone (reverse), and “Would rather be alone than with others”) loaded onto a Preference-for-Solitude factor, and items describing shyness (“Want to be with other kids but too shy,” “I am very shy,” and “I am too shy or timid”) loaded onto a shyness factor. Results demonstrated good model-fit for this two-factor model (S-B $\chi^2 = 37.22$, $df = 13$, RMSEA = .06, SRMR = .05, CFI = .96). As Figure 2 demonstrates, all items loaded adequately onto their respective factors (Preference-for-

solitude: .72 to .91; Shyness: .59 to .83); correlation between the two factors was small to moderate in magnitude ($r = .26, p < .01$). Preference-for-solitude displayed good latent construct reliability ($H = .91$), as did shyness ($H = .79$).

To further examine the validity of withdrawal as a multidimensional construct, a one-factor model, in which all withdrawal items loaded onto a single factor, was compared to the two-factor model. Results demonstrated poor model-fit for the one-factor model (S-B $\chi^2 = 152.77, df = 14, RMSEA = .22, SRMR = .13, CFI = .78$). In particular, the one-factor model exhibited significantly poorer fit compared with the two-factor model, $\Delta\chi^2_{SB}(1) = 115.55, p < .001$). As demonstrated by Table 4 and Figure 2, these results provided further evidence of preference-for-solitude and shyness as unique dimensions of withdrawal in Chinese youth.

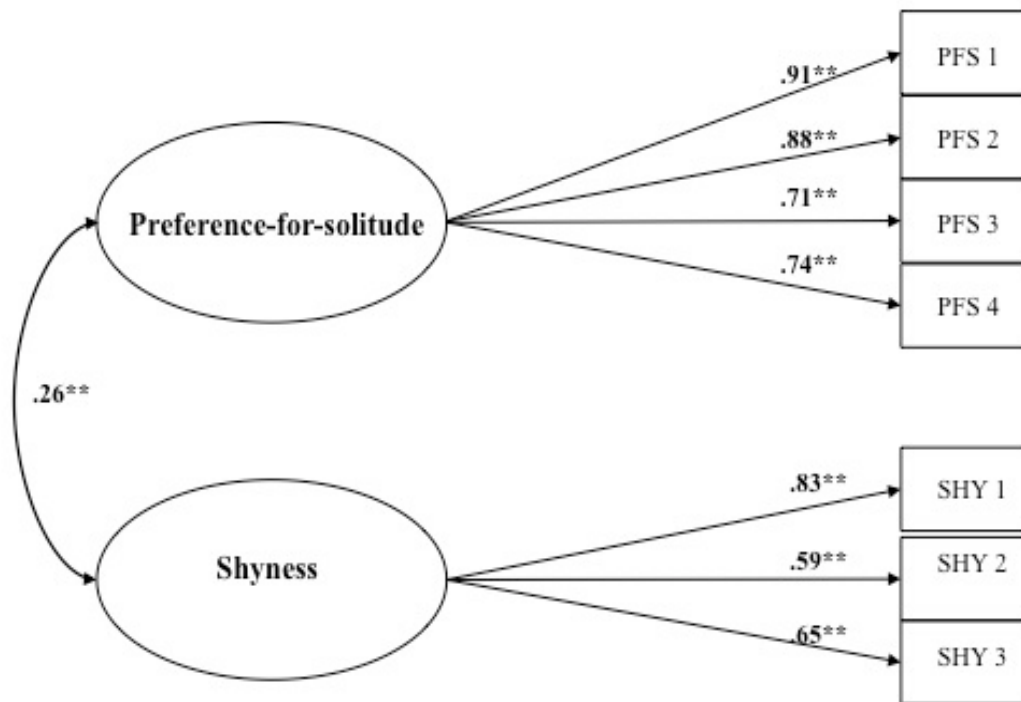


Figure 2. Preference-for-Solitude and Shyness in China. ** $p < .01$.

1.3. Measurement Invariance in Preference-for-Solitude and Shyness between the U.S.A. and China

Testing for equivalence or invariance of measures is important because it examines whether phenomenon are perceived similarly by members of different cultures. To assess the measurement invariance of preference-for-solitude and shyness between the U.S.A. and China, several confirmatory factor analyses (CFA) were conducted following Byrne's (2006) recommendations for examining multigroup invariance.

First, *configural invariance* of the measurement model for withdrawal was established. This step combined the U.S.A and China samples to estimate the parameters previously examined in the baseline model. The fit of this configural model was excellent (robust CFI = .94; robust RMSEA = .07; SRMR = .05; S-B χ^2 (501) = 64.74, $p < .0001$). These fit indices served as baseline values for comparing subsequent invariance models.

Second, *metric invariance* (also known as measurement invariance) of the measurement model for withdrawal was tested by comparing the configural model in Step 1 with a model in which all paths from item indicators to latent factors were constrained to be equal between the U.S.A. and China samples. The fit of this metric invariant model was excellent (robust CFI = .94; robust RMSEA = .07; SRMR = .06; S-B χ^2 (501) = 74.85, $p < .0001$). This model did not differ significantly in model-fit compared with the previous configural model ($\Delta \chi^2_{(SB)} = 11.67$, $df = 5$, $p = .07$), providing support for complete metric invariance in the withdrawal model across the U.S.A. and China.

Third, *scalar invariance* of the measurement model for withdrawal was tested by comparing the metric model in Step 2 with a model in which all intercepts were constrained to be equal between the U.S.A. and China samples. The fit of this scalar invariant model was excellent

(robust CFI = .94; robust RMSEA = .07; SRMR = .06; S-B χ^2 (501) = 76.41, $p < .0001$). This model did not differ significantly in model-fit compared with the previous scalar model ($\Delta \chi^2_{(SB)} = 13.16$, $df = 5$, $p = .21$), providing support for complete scalar invariance in the withdrawal model across the U.S.A. and China.

Taken together, these results provided evidence of measurement invariance in the withdrawal model between the U.S.A. and China. These findings supported the cross-cultural validity of the study's withdrawal instruments (*SWS*; *YSR*), suggesting that preference-for-solitude and shyness may manifest themselves similarly during early adolescence across the two countries.

2. Depressive Symptoms: Negative Affect and Negative Self-esteem

Depressive symptoms modeled based on previous psychometric research on the factor structure of the Child Depression Inventory (CDI; Kovacs, 1992). Although great heterogeneity has been found in the number and nature of CDI factors, most studies with children and adolescents across different countries generally suggest a three-factor model (Negative Affect, Negative Self-esteem, Interpersonal/Externalizing Problems) to be the most appropriate (e.g., Cole, Hoffman, Tram, & Maxwell, 2000; Craighead, Smucker, Craighead, & Ilardi, 1998; Drucker & Greco-Vigorito, 2002; Garcia, Aluja, & del Blarrio, 2008; also see Huang & Dong, 2013, for a meta-analytic review). As explained previously, because this study is primarily focused on internalizing difficulties rather than interpersonal or externalizing problems, the negative affect and negative self-esteem factors were examined.

2.1. Factor Structure of Negative Affect and Negative Self-esteem in the U.S.A.

To examine the factor structure of negative affect and negative self-esteem in the U.S.A., several confirmatory factor analysis (CFA) models were constructed within Mplus 7 based on previous research (Cole et al., 2000; Garcia et al., 2008; Huang & Dong, 2013). In particular, a measurement model was constructed with four items loaded onto the negative affect factor (“Sad all the time,” “Sure terrible things will happen,” “Feel like crying everyday,” “Things bother me all the time”) and four items loaded onto the negative self-esteem factor (“Nothing will ever work out for me,” “Hate myself,” “All bad things are my fault,” “Nobody really loves me”); the two factors were specified to correlate. Results demonstrated good model-fit for this model (S-B $\chi^2 = 33.95$; $df = 17$; RMSEA = .06; SRMR = .04; CFI = .98). As demonstrated by Table 5 and Figure 3, all items loaded highly (average = .50 to .90) onto their appropriate factors. Negative affect displayed adequate latent construct reliability ($H = .75$), as did negative self-esteem ($H = .87$).

To further test the structural validity of the two-factor model, this model was compared with a one-factor model in which all items loaded onto a single factor. Compared with the two-factor model, results demonstrated a significant decrease in model-fit in the one-factor model, $\Delta\chi^2_{SB} = 53.18$, $df = 3$, $p < .001$, providing support for the distinctiveness of these depression indices in American youth.

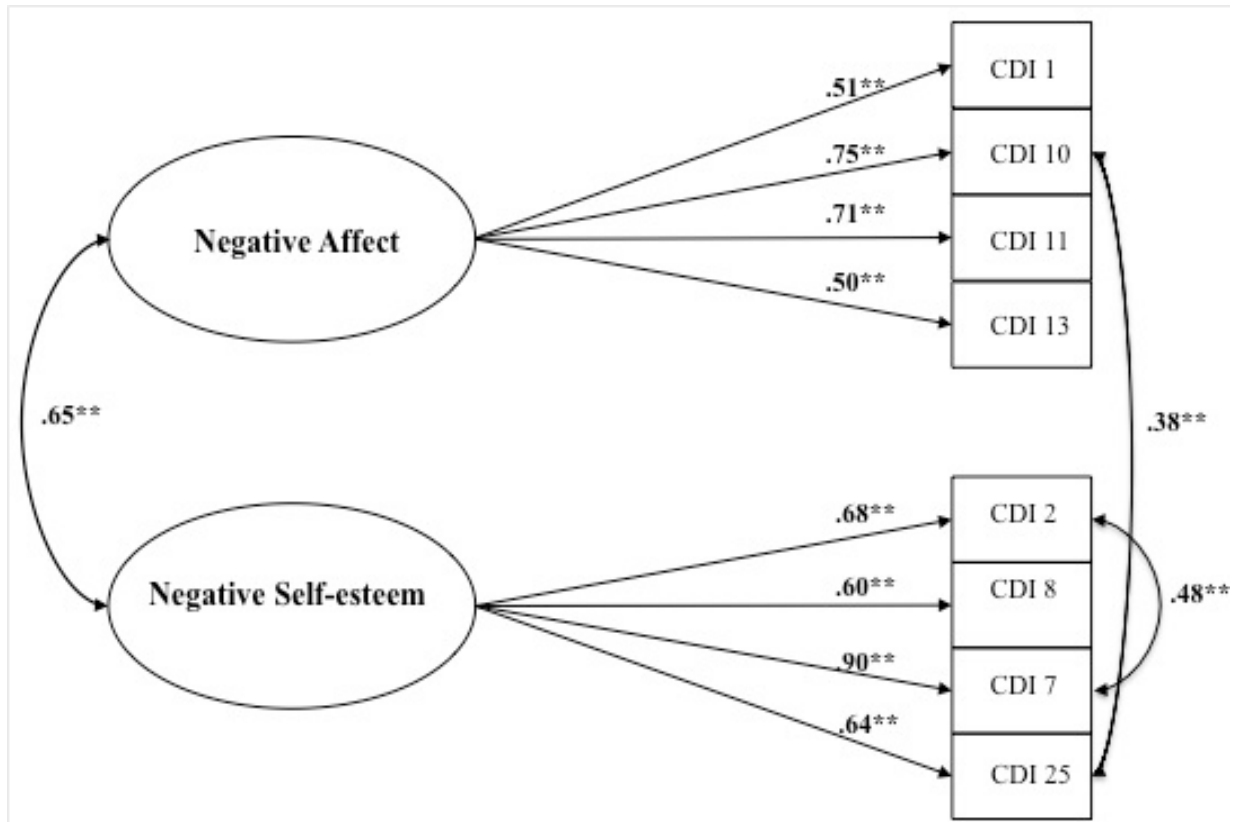


Figure 3. Standardized Measurement Model of Negative Affect and Negative Self-esteem in the U.S.A. $**p < .01$.

2.2. Factor Structure of Negative Affect and Negative Self-esteem in China

To examine the factor structure of negative affect and negative self-esteem in China., several confirmatory factor analysis (CFA) models were constructed within Mplus 7 based on previous research (Cole et al., 2000; Huang & Dong, 2013; Garcia et al., 2008). In particular, a measurement model was constructed in which four items loaded onto the negative affect factor (“Sad all the time,” “Feel like crying everyday,” “Sure terrible things will happen,” “Things bother me all the time”) and four items loaded onto the negative self-esteem factor (“Nothing will ever work out for me,” “All bad things are my fault,” “Hate myself,” “Nobody really loves me”); the two factors were specified to correlate. Results demonstrated acceptable model-fit for

this model (S-B $\chi^2 = 43.80$; $df = 17$; RMSEA = .07; SRMR = .04; CFI = .93). As demonstrated by Table 5 and Figure 4, all items loaded highly (average = .51 to .80) onto their appropriate factors. Negative affect displayed adequate latent construct reliability ($H = .75$), as did negative self-esteem ($H = .72$).

To further test the structural validity of the two-factor model, this model was compared with a one-factor model in which all items loaded onto a single factor. Compared with the two-factor model, results demonstrated a significant decrease in model-fit in the one-factor model, $\Delta\chi^2_{SB} = 65.24$, $df = 3$, $p < .001$, providing support for the distinctiveness of these depression indices in Chinese youth.

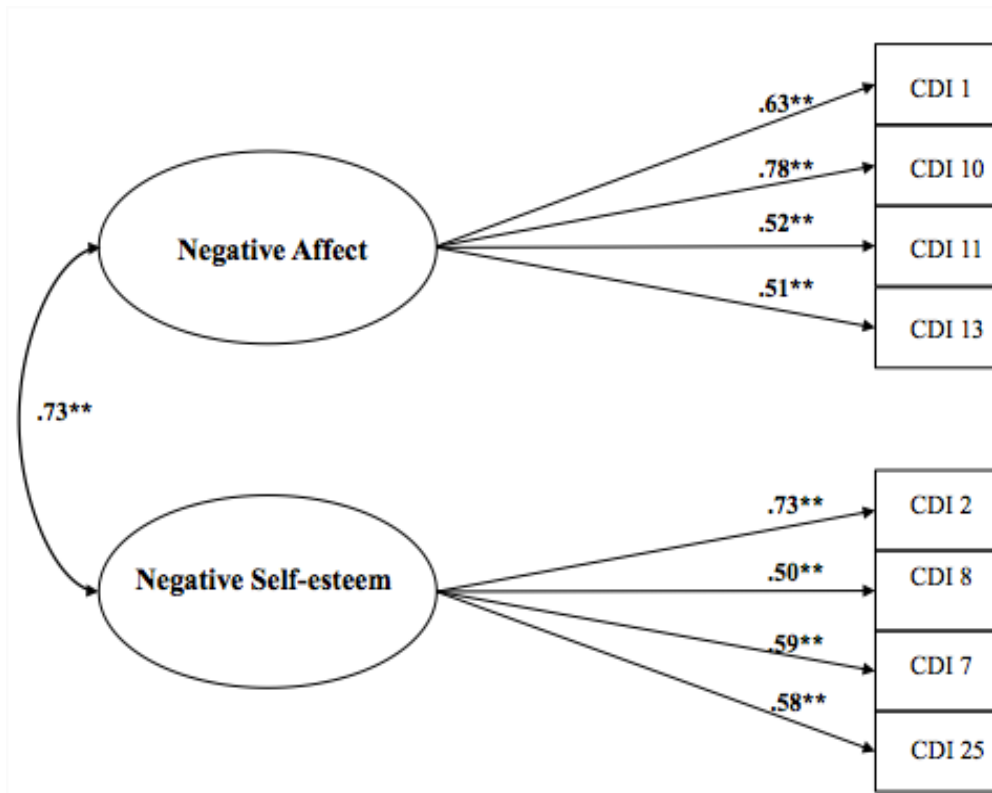


Figure 4. Standardized Measurement Model of Negative Affect and Negative Self-esteem in China.

2.3. Measurement Invariance in Depressive Symptoms between the U.S.A. and China

To assess the measurement invariance of depressive symptoms (negative affect; negative self-esteem) between the U.S.A. and China, several confirmatory factor analyses (CFA) were conducted following Byrne's (2006) recommendations for examining multigroup invariance.

First, *configural invariance* of the measurement model was established. This step combined the U.S.A and China samples to estimate the parameters previously examined in the baseline model. The fit of this configural model was adequate (robust CFI = .90; robust RMSEA = .07; SRMR = .06; S-B χ^2 (501) = 129.24, $p < .0001$). These fit indices served as baseline

values for comparing subsequent invariance models.

Second, *metric invariance* (also known as measurement invariance) of the measurement model was tested by comparing the configural model in Step 1 with a model in which all paths from item indicators to latent factors were constrained to be equal between the U.S.A. and China samples. The fit of this metric invariant model was poor (robust CFI = .88; robust RMSEA = .09; SRMR = .08; S-B χ^2 (501) = 161.16, $p < .0001$). Compared with the previous configural model, this model exhibited significantly poorer fit ($\Delta \chi^2_{(SB)} = 27.20$, $df = 6$, $p < .01$), suggesting that negative affect and negative self-esteem manifested themselves differently between the U.S.A. and China.

To examine the source of measurement variance between the two countries, path constraints from the item indicators to their latent constructs were released sequentially based on information from the modification indices (MI). First, constraint between the item “All bad things are my fault” and the Negative Self-esteem factor was released; this resulted in a statistically significant model improvement $\Delta \chi^2_{(SB)} = 12.86$, $df = 1$, $p < .05$, suggesting that how this item related to negative self-esteem differed between American and Chinese youth. Second, constraint between the item “Things bother me all the time” and the Negative Affect construct was released; this resulted in a statistically significant model improvement $\Delta \chi^2_{(SB)} = 7.37$, $df = 1$, $p < .05$, suggesting that how this item related to negative affect differed between American and Chinese youth. Finally, constraint between the item “Sure terrible things will happen” and the Negative Affect factor was released; this resulted in a statistically significant model improvement $\Delta \chi^2_{(SB)} = 5.68$, $df = 1$, $p < .05$, suggesting that how this item related to negative affect differed between American and Chinese youth. MI indices did not indicate that releasing any other constraints would result in a significant improvement in model-fit. Thus, the remaining

five constraints were not released, suggesting that they related similarly to the latent constructs of negative affect and negative self-esteem between the two samples. In the absence of complete metric invariance, scalar invariance was not examined

Although complete metric invariance in negative affect and negative self-esteem was not found, researchers suggest partial measurement invariance may still allow appropriate cross-group comparisons (see Hancock, Stapleton, & Arnold-Berkovits, 2009, for a review). Indeed, Hancock et al. (2009) asserted that only one common scale indicator needs to be invariant between samples for cross-group comparisons to be made. *Complete* measurement invariance was also not necessary given the purpose of this study. Rather than comparing rates of depressive symptoms between the U.S.A. and China, this study focused on their relations with preference-for-solitude and friendship support *within* each country.

Part II. Structural Models

1. Preference-for-Solitude, Friendship Support, and Internalizing Difficulties in the U.S.A.

Several structural equation models (SEM) were constructed to examine the relations between preference-for-solitude, friendship support, and internalizing difficulties in the U.S.A. Shyness was controlled in all models. As previously mentioned, all analyses were conducted with maximum likelihood estimation with robust chi-squares and standard errors (MLR).

To compare model-fit between different models, the following fit indices were used: Satorra-Bentler scaled chi-square difference test ($\Delta \chi^2_{(SB)}$), Akaike Information Criteria (AIC), Bayesian Information Criteria (BIC), and Sample-Size Adjusted Bayesian Information Criteria (Adjusted BIC). The Satorra-Bentler scaled chi-square difference test is different from the regular chi-square difference test in models that use ML estimation (see Equations 2 and 3).

$$\Delta \chi^2_{(SB)} = \bar{T}_d = T_d / \hat{c}_d \quad (\text{Equation 2})$$

$$\text{where } c_d := \frac{1}{m} \text{tr } U_d \Gamma \quad (\text{Equation 3})$$

1.1. Is Preference-for-Solitude Associated with Internalizing Difficulties in the U.S.A.?

To examine the relations from preference-for-solitude to internalizing difficulties in the United States, direct structural paths from preference-for-solitude to negative affect and negative self-esteem were modeled while controlling for shyness. This model exhibited adequate fit (robust RMSEA = .05; SRMR = .06; robust CFI = .95; S-B $\chi^2_{(300)} = 119.05, p < .001$).

Controlling for preference-for-solitude, shyness was not significantly associated with negative affect ($b = .09, p = .48, z = .48$); it was also not significantly associated with negative self-esteem ($b = .05, p = .67, z = .24$).

The main focus was to examine the associations between preference-for-solitude and internalizing difficulties. Results demonstrated that, controlling for shyness, preference-for-solitude was significantly associated with negative affect ($b = .24, p < .05, z = 2.95$) and negative self-esteem ($b = .27, p < .05, z = 4.92$). Thus, as previously hypothesized, preference-for-solitude was significantly associated with increased negative affect and negative self-esteem.

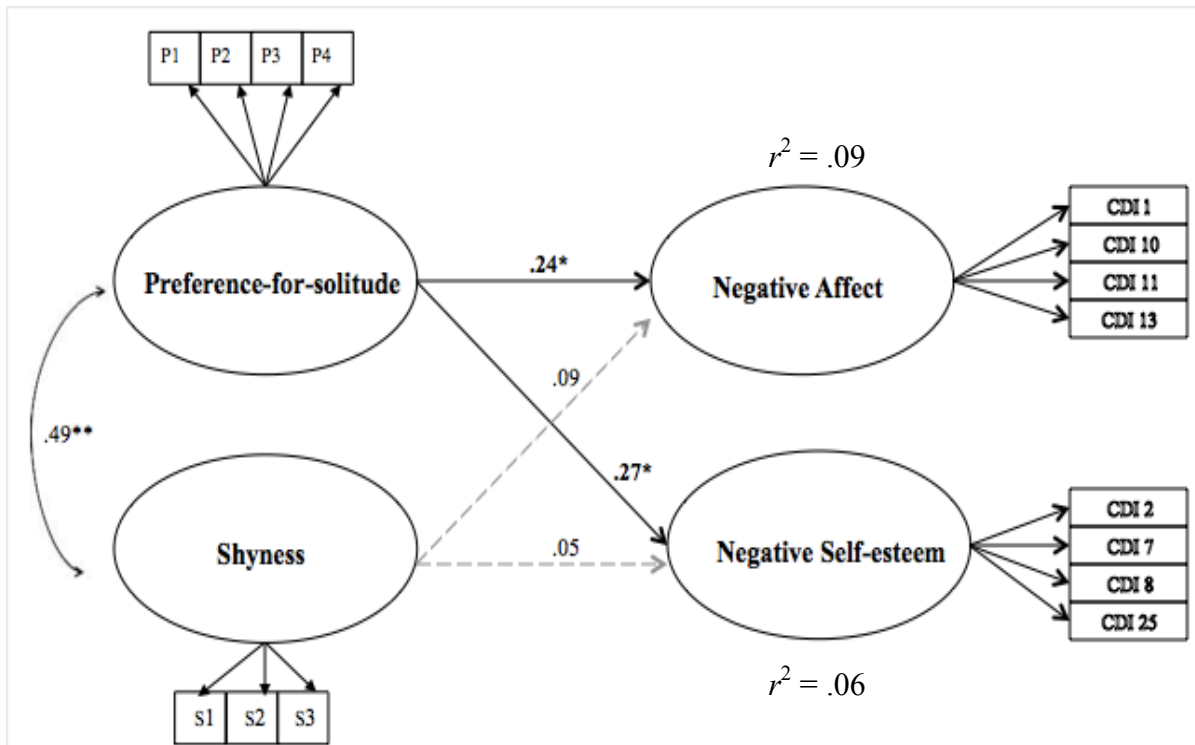


Figure 5 Structural Model of Preference-for-Solitude to Negative Affect and Negative Self-esteem in the U.S.A. $*p < .05$, $**p < .01$.

1.2. Are Preference-for-Solitude and Friendship Support Associated with Internalizing Difficulties in the U.S.A.?

To examine the relations between preference-for-solitude and friendship support and internalizing difficulties, the direct structural paths from preference-for-solitude and friendship support to negative affect and negative self-esteem were modeled. This model exhibited adequate fit (robust RMSEA = .04; SRMR = .06 ; robust CFI = .95; S-B $\chi^2_{(300)} = 146.65$, $p < .001$). Results demonstrated that, controlling for shyness, preference-for-solitude was significantly associated with negative affect ($b = .27$, $p < .05$, $z = 2.07$) and marginally associated

with negative self-esteem ($b = .24, p = .08, z = 1.75$). Controlling for shyness, friendship support was not significantly associated with negative affect ($b = -.08, p = .58, z = -.55$) or negative self-esteem ($b = -.10, p = .46, z = -.74$). Shyness was not significantly associated with negative affect ($b = .08, p = .49, z = .49$), nor was it significantly associated with negative self-esteem ($b = -.05, p = .66, z = .66$).

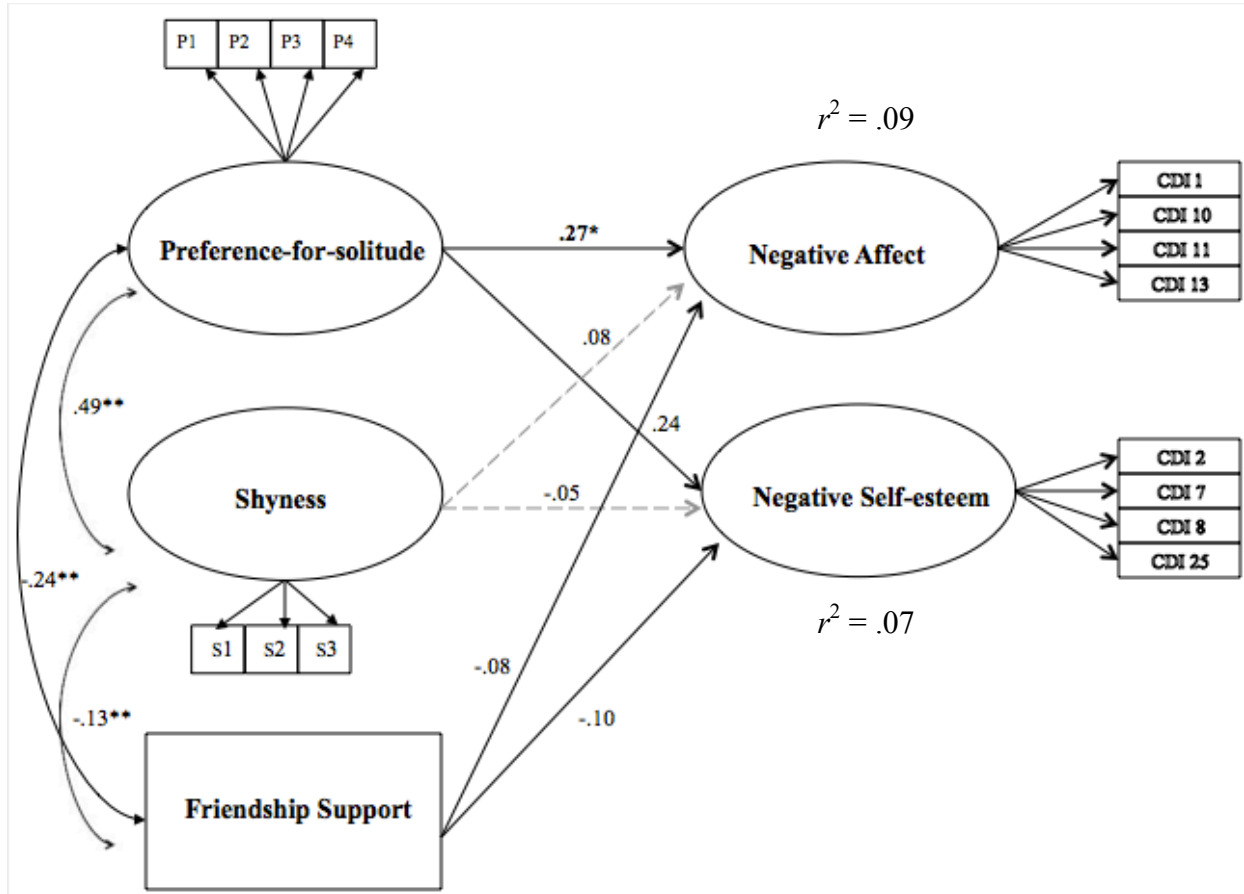


Figure 7. Structural Model of Preference-for-Solitude and Friendship Support to Negative Affect and Negative Self-esteem in the U.S.A. $^*p < .05$, $^{**}p < .01$.

1.3. Does Friendship Support Moderate the Relations between Preference-for-Solitude and Internalizing Difficulties in the U.S.A.?

To examine the central research question of whether friendship support will moderate the links between preference-for-solitude and internalizing difficulties in the U.S.A., an interaction term between preference-for-solitude and friendship support was created using established guidelines (Little, Bovaird, & Widaman, 2006; Marsh et al., 2007). Controlling for shyness, a direct link from this Preference-for-Solitude \times Friendship Support interaction term to the internalizing difficulties (negative affect; negative self-esteem) was modeled. This approach has been shown to be a reliable way of modeling moderation in a SEM framework (e.g., Little, 2013). Results demonstrated adequate fit for this moderation model (robust RMSEA = .04; SRMR = .06 ; robust CFI = .96; S-B $\chi^2_{(300)} = 129.43, p < .001$).

Negative Affect. Results from the model demonstrated that, above and beyond the effects of shyness, preference-for-solitude was not significantly associated with negative affect ($b = .04, p = .12, z = 1.55$). The path from friendship support to negative affect was not significant ($b = -.03, p = .24, z = -1.15$). Shyness was also not significantly associated with negative affect ($b = .02, p = .55, z = .60$). Figure 8 shows that the path from the Preference-for-Solitude \times Friendship Support term to negative affect was not significant ($b = -.06, p = 0.17, z = -1.37$). Contrary to what was hypothesized, friendship support did not significantly moderate the relation between preference-for-solitude and negative affect in American youth.

Negative Self-esteem. Results from the model demonstrated that above and beyond the effects of shyness, preference-for-solitude was marginally associated with negative self-esteem ($b = .09, p = .09, z = 1.71$). The path from friendship support to negative self-esteem was not significant ($b = .03, p = .51, z = .66$). Shyness was also not significantly associated with negative

self-esteem ($b = -.03, p = .48, z = -.71$). Figure 8 shows that the path from the Preference-for-Solitude \times Friendship Support term to negative self-esteem was significant ($b = -.17, p < .01, z = 2.64$); this effect is considered moderately large in magnitude (Cohen, 1988). Thus, as hypothesized, friendship support significantly moderated the relation between preference-for-solitude and negative self-esteem in American youth.

To ensure the validity of these findings, the moderation model was compared to a null model where paths from the Preference-for-Solitude \times Friendship Support interaction term to the negative affect and negative self-esteem outcomes were constrained to be 0 (Burnham & Anderson, 2002). Results demonstrated that the moderation model exhibited a better fit compared with the null model ($\Delta \chi^2_{(SB)} = 12.98, df = 2, p < .01$; $\Delta AIC = 1013.24, \Delta BIC = 1034.85, \Delta \text{Adjusted BIC} = 1025.27$), providing evidence of validity for the findings.

To probe the significant interaction between preference-for-solitude and friendship support for negative self-esteem, simple slopes analyses (Aiken & West, 1991; Marsh, Wen, & Hau, 2006) were conducted using values for friendship support that corresponded to 1 *SD* above (high) and 1 *SD* (low) below the mean. Results demonstrated that the relation between preference-for-solitude and negative self-esteem became increasing strong as friendship support decreased. In particular, Figure 9 shows that preference-for-solitude was significantly associated with negative self-esteem only at low levels of friendship support. Whereas preference-for-solitude was associated with increased negative self-esteem for youth who scored low on friendship support ($b = .20, p < .01, z = 2.71$), it was not associated with this outcome for youth who scored high on friendship support ($b = -.02, ns, z = -.64$). Thus, as hypothesized, preference-for-solitude was most associated with negative self-esteem for youth with low friendship

support; low supportive friendships appeared to put preferred-solitary youth at particular risk for experiencing negative self-esteem in the U.S.A.

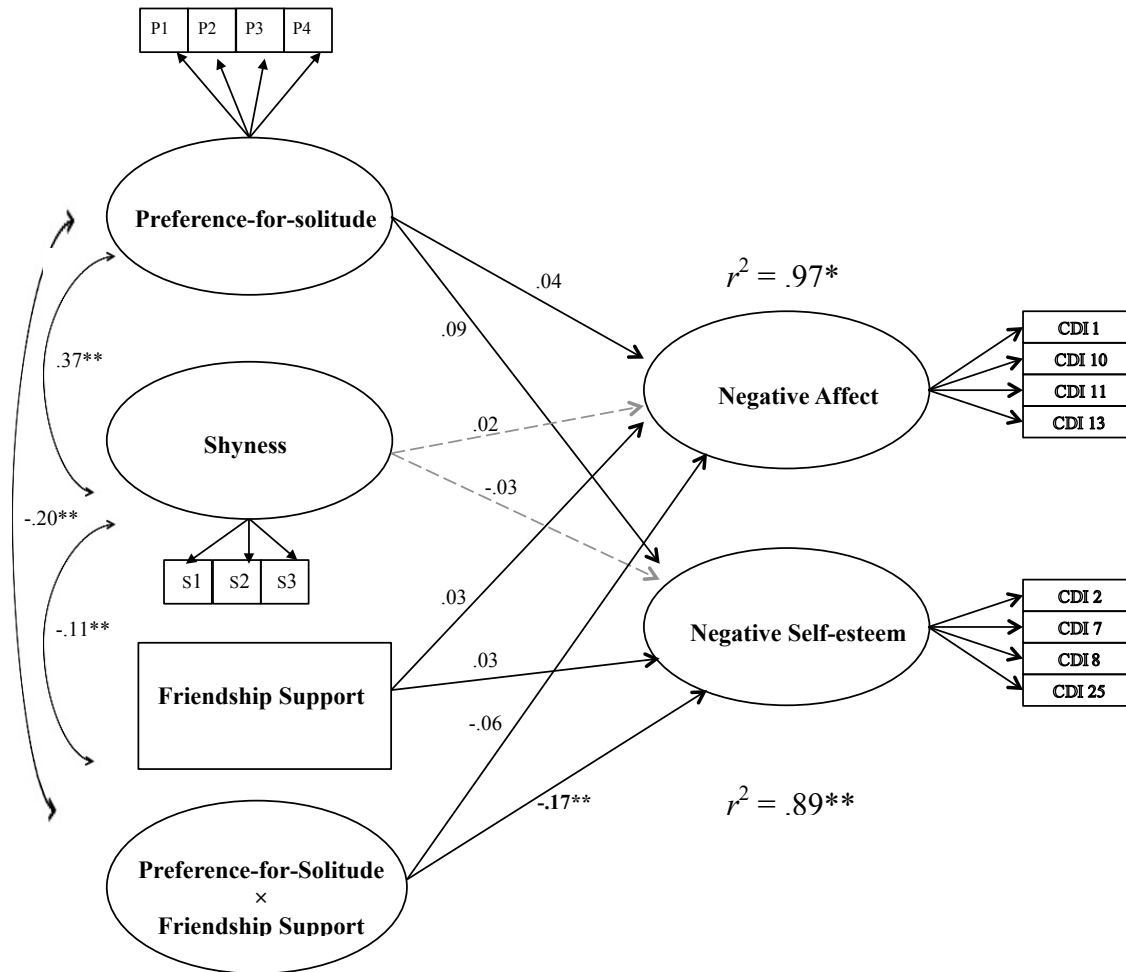


Figure 8. Structural Model of Friendship Support as a Moderator of the Relations from Preference-for-Solitude to Negative Affect and Negative Self-esteem in the U.S.A. $*p < .05$, $**p < .01$.

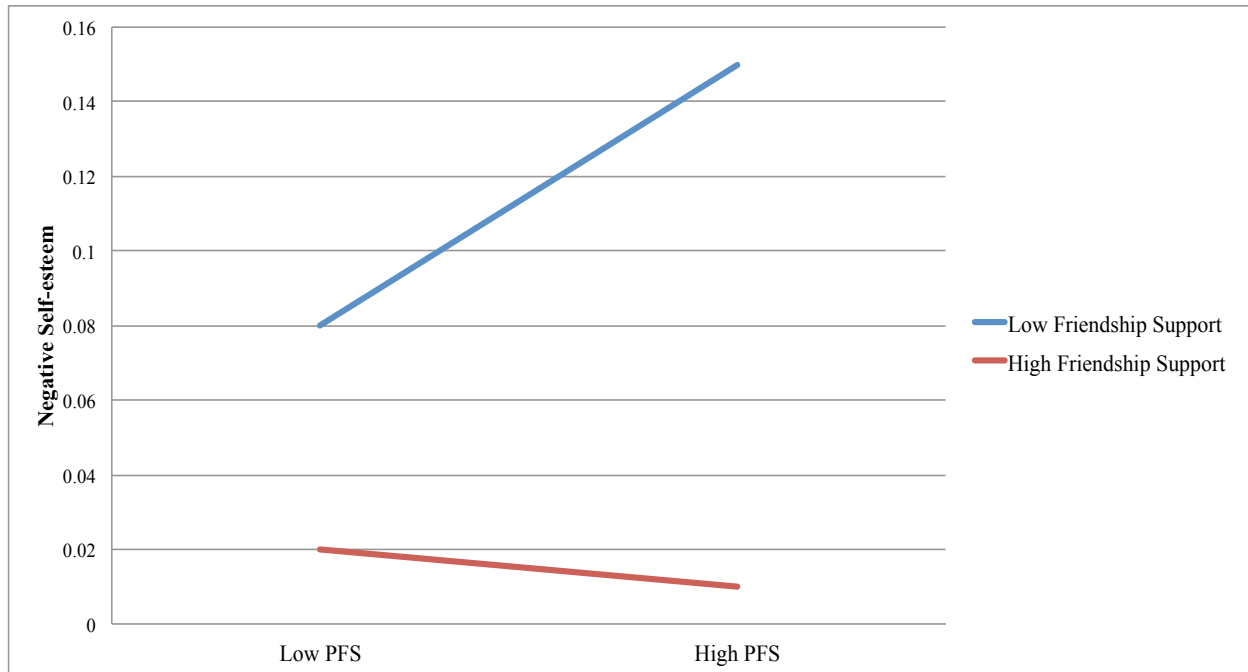


Figure 9. Interaction between Preference-for-Solitude and Friendship Support in the Prediction of Negative Self-Esteem in the U.S.A.

2. Preference-for-Solitude, Friendship Support, and Internalizing Difficulties in China

Consistent with the U.S.A. sample, several structural equation models (SEM) were constructed to examine the relations between preference-for-solitude, friendship support, and internalizing difficulties in China. All analyses were conducted with maximum likelihood estimation with robust chi-squares and standard errors (MLR); this approach has been shown to adequately address non-normality and unmodeled heterogeneity (Muthén & Asparouhov, 2002; Yuan & Bentler, 2000). Shyness was controlled in all models.

2.1. Is Preference-for-Solitude Associated with Internalizing Difficulties in China?

To examine the relations from preference-for-solitude to internalizing difficulties in China, direct structural paths from preference-for-solitude to negative affect and negative self-

esteem were modeled while controlling for shyness. This model exhibited adequate fit (robust RMSEA = .05; SRMR = .05 ; robust CFI = .95; S-B $\chi^2_{(201)} = 129.43, p < .01$). Controlling for preference-for-solitude, shyness was not significantly associated with negative affect ($b = .07, p = .31, z = .52$); it was also not significantly associated with negative self-esteem ($b = .02, p = .84, z = .18$).

The main aim was to examine the relations between preference-for-solitude and internalizing difficulties. Results demonstrated that, controlling for shyness, preference-for-solitude was significantly associated with negative affect ($b = .30, p < .05, z = 2.91$) and negative self-esteem ($b = .45, p < .001, z = 4.68$). Thus, as hypothesized, preference-for-solitude was significantly associated with increased negative affect and increased negative self-esteem.

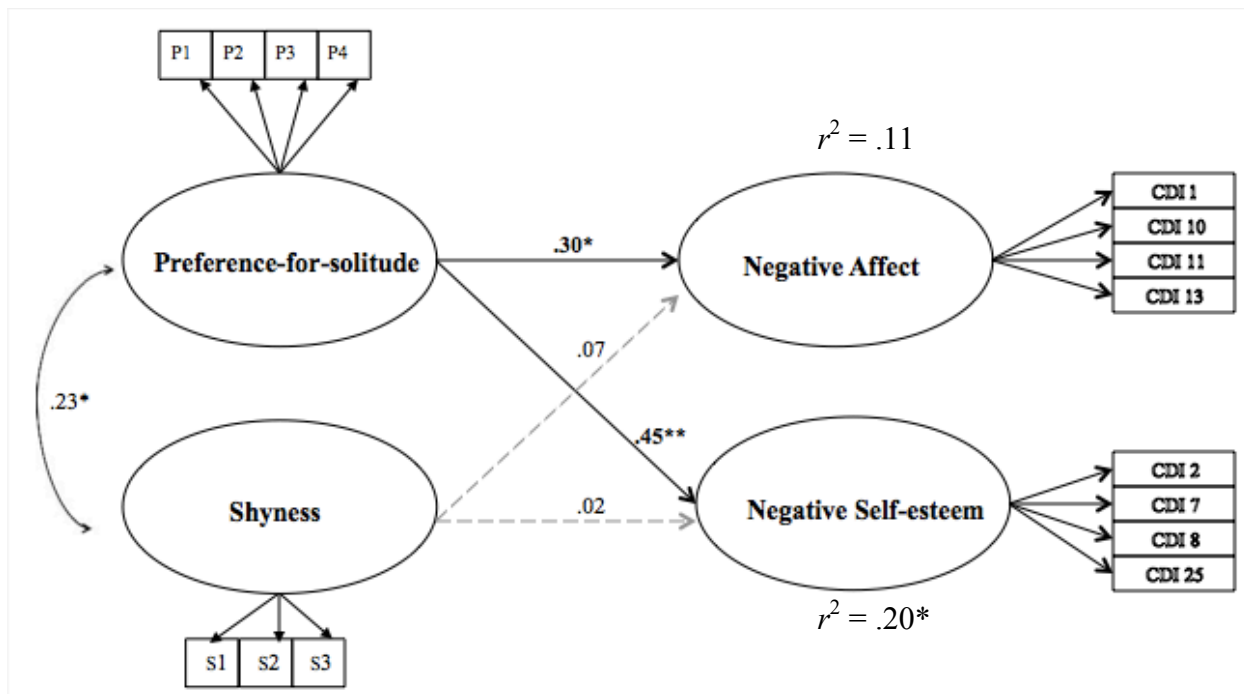


Figure 10. Structural Model of Preference-for-Solitude to Negative Affect and Negative Self-esteem in China. * $p < .05$, ** $p < .01$.

2.2. Are Preference-for-Solitude and Friendship Support Associated with Internalizing Difficulties in China?

To examine the relations between preference-for-solitude and friendship support and internalizing difficulties, the direct structural paths from preference-for-solitude and friendship support to negative affect and negative self-esteem were modeled. This model exhibited adequate fit (robust RMSEA = .05; SRMR = .06 ; robust CFI = .95; S-B $\chi^2_{(201)} = 131.76, p < .01$). Results demonstrated that, controlling for shyness, preference-for-solitude was significantly associated with negative affect ($b = .26, p < .05, z = 3.27$) and significantly associated with negative self-esteem ($b = .37, p < .01, z = 4.13$). Controlling for shyness, friendship support was significantly associated with negative affect ($b = -.28, p < .05, z = -3.89$) and negative self-esteem ($b = -.46, p < .01, z = -4.64$). Shyness was not significantly associated with negative affect ($b = .07, p = .31, z = -.60$); it was also not significantly associated with negative self-esteem ($b = .01, p = .89, z = -.84$).

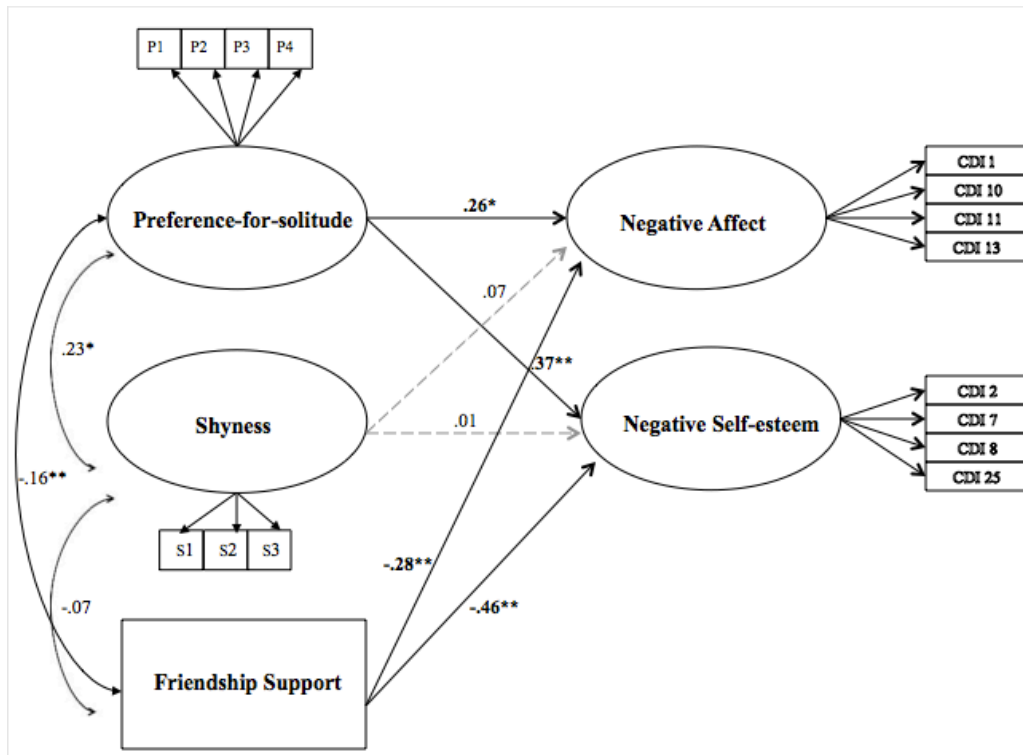


Figure 12. Structural Model of Preference-for-Solitude and Friendship Support to Negative Affect and Negative Self-esteem China. $*p < .05$, $**p < .01$.

2.4. Does Friendship Support Moderate the Relations between Preference-for-Solitude and Internalizing Difficulties in China?

To examine the central research question of whether friendship support will moderate the links between preference-for-solitude and internalizing difficulties in China, an interaction term between preference-for-solitude and friendship support was created using established guidelines (Little, Bovaird, & Widaman, 2006; Marsh et al., 2007). Controlling for shyness, a direct link from this Preference-for-Solitude \times Friendship Support interaction term to the internalizing difficulties (negative affect; negative self-esteem) was modeled. This approach has been shown to be a reliable way of modeling moderation in a SEM framework (e.g., Little, 2013). Results

demonstrated adequate fit for this moderation model (robust RMSEA = .05; SRMR = .06 ; robust CFI = .96; S-B $\chi^2_{(201)} = 108.52, p < .001$).

Negative Affect. Results from the moderation model demonstrated that, above and beyond the effects of shyness, preference-for-solitude was significantly associated with increased negative affect ($b = .13, p < .05, z = 2.20$). Friendship support was marginally associated with negative affect ($b = -.08, p = .07, z = -1.84$). Shyness was not significantly associated with negative affect ($b = .04, p = .61, z = .51$). Figure 13 shows that the path from the Preference-for-Solitude \times Friendship Support term to negative affect was not significant ($b = -.04, p = .31, z = -1.02$). Thus, contrary to what was hypothesized, friendship support did not significantly moderate the relation between preference-for-solitude and negative affect in Chinese youth.

Negative Self-esteem. Results from the same model demonstrated that above and beyond the effects of shyness, preference-for-solitude was significantly associated with increased negative self-esteem ($b = .22, p < .05, z = 3.15$). Friendship support was negatively associated with negative self-esteem ($b = -.18, p < .05, z = -3.14$). Shyness was not significantly associated with negative self-esteem ($b = .01, p = .94, z = .07$).

Figure 13 shows that the path from the Preference-for-Solitude \times Friendship Support term to negative self-esteem was not significant ($b = -.03, p = .52, z = -.64$). Thus, contrary to what was hypothesized, friendship support did not significantly moderate the relation between preference-for-solitude and negative self-esteem in Chinese youth.

To ensure the validity of these findings, the moderation model was compared to a null model where paths from the Preference-for-Solitude \times Friendship Support interaction term to the negative affect and negative self-esteem outcomes were constrained to be 0 (Burnham & Anderson, 2002). Results demonstrated that the moderation model exhibited a poorer fit

compared with the null model ($\Delta\chi^2_{(SB)} = 78.32$, $df = 2$, $p < .001$; $\Delta AIC = 48.87$, $\Delta BIC = 39.25$, $\Delta \text{Adjusted BIC} = 48.76$), suggesting that the interaction between preference-for-solitude and friendship support may not contribute uniquely to negative affect and negative self-esteem in Chinese youth.

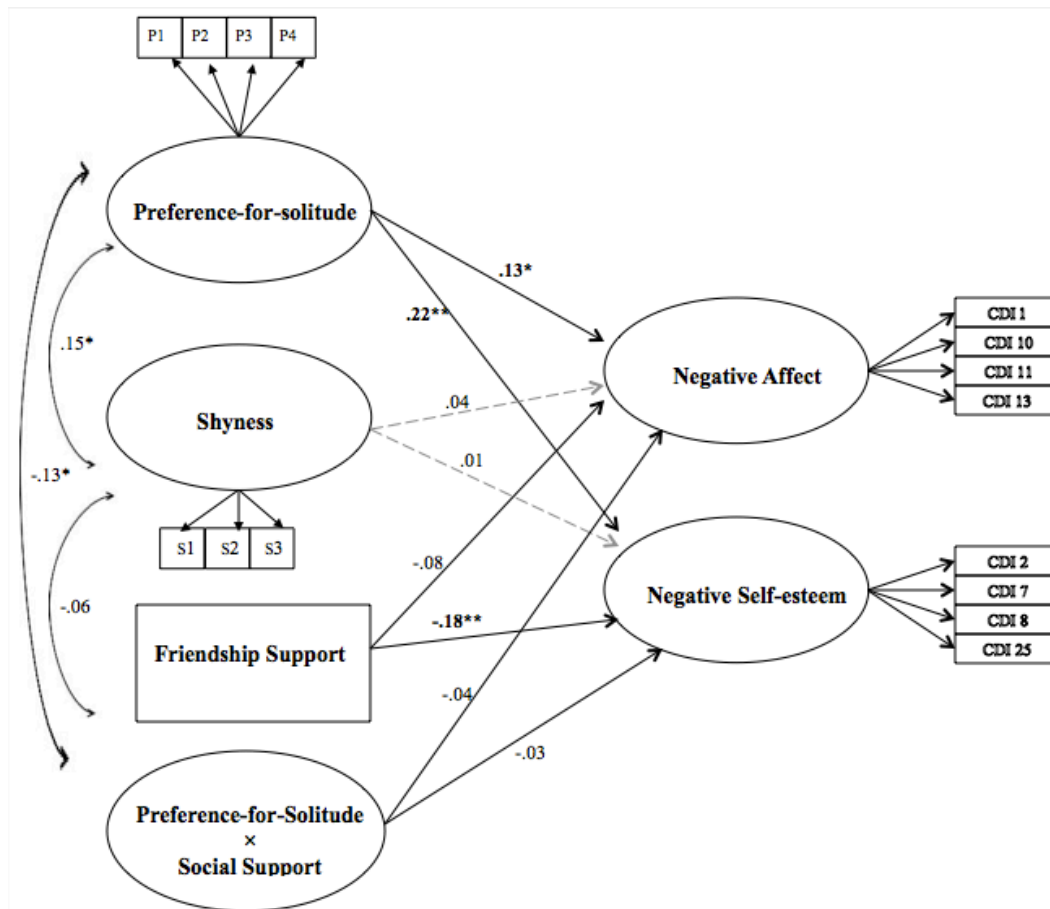


Figure 13. Friendship Support as a Moderator of the Relations from Preference-for-Solitude to Negative Affect and Negative Self-esteem in China.

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

Part III. Exploratory Analyses: Considering Negative Peer Experiences

To explore the possibility of negative peer experiences as a confound, *rejection sensitivity* was added as an additional control variable in the final moderation models across both the United States and China samples. Rejection sensitivity, the dispositional tendency to defensively expect, perceive, and overreact to rejection, has been shown to reflect negative social experiences (Downey & Feldman, 1996; Harb, Heimberg, Fresco, Schneier, & Leibowitz, 2002). Theoretically, rejection sensitivity stems from early rejection experiences (Feldman & Downey, 1994). From this perspective, peer rejection may cause one to misinterpret social cues and become overly sensitive to rejection cues, contributing to interpersonal difficulties and leading to a vicious cycle of rejection (see Rubin, Bukowski, & Bowker, in press). For instance, peer rejection alters youths' social schemas about relationships and, in turn, increases their tendency to defensively expect and overreact to rejection (London, Downey, Bonica, & Paltin, 2007). In line with such views, rejection sensitivity has been consistently linked with negative peer experiences across development (e.g., Butler, Doherty, & Potter, 2007; London, Downey, Bonica, & Paltin, 2007; Wang et al., 2012). Because direct measures of peer rejection were not available for either the U.S.A. or the China samples, controlling for rejection sensitivity represented an attempt to explore the potential role of negative peer experiences in the links between preference-for-solitude, friendship support, and depressive symptoms in early adolescence.

Rejection Sensitivity. Rejection sensitivity was assessed using the Children's Rejection-Sensitivity Questionnaire (CRSQ; Downey et al., 1998). Participants respond to six hypothetical vignettes describing potential rejection situations involving peers. After reading each vignette, participants rated the degree to which the situation would make them feel nervous on a scale

from 1 (not nervous) to 6 (very, very nervous). Sample item: “You hear some kids whispering... you wonder if they are talking about YOU.” After reading each vignette, participants also rated the degree to which they expected to be rejected in that situation on a scale from 1 (no) to 6 (yes). Sample item: “Do you think they were saying bad things about you?” The total rejection sensitivity score was created by multiplying the rating for affect by the rating for rejection expectation for each vignette and then summing the products. This total score was used in the exploratory analyses across both the U.S.A. ($\alpha = .85$) and the China ($\alpha = .78$) samples.

The addition of rejection sensitivity as a control variable (in addition to the original control variable of shyness) to the final moderation models did not affect the results in U.S.A sample; it also did not affect the results in the China sample. Across both samples, results were very similar to what was originally found. Specifically, in the U.S.A., the Preference-for-Solitude \times Friendship Support interaction remained significant for negative self-esteem ($b = -.15, p < .05$) even after controlling for rejection sensitivity. The interaction term also remained non-significant for negative affect ($b = -.05, n.s.$) after accounting for the effects of rejection sensitivity. All parameter estimates were very similar in magnitude and direction as the original results.

In China, the Preference-for-Solitude \times Friendship Support interaction remained non-significant for negative self-esteem ($b = -.03, n.s.$) as well as for negative affect ($b = -.02, n.s.$) even after controlling for rejection sensitivity. As was the case with the U.S.A. sample, all parameter estimates were very similar in magnitude and direction as the original results.

It is important to note that these analyses were for exploratory purposes only. Additional research is needed to better understand the role that negative peer experiences might play in the relations between different withdrawal dimensions, friendship quality, and psychoemotional adjustment in American and Chinese young adolescents

CHAPTER 5: DISCUSSION

This research examined the relations between preference-for-solitude, friendship quality, and internalizing difficulties in young adolescents living in the U.S.A. and China. In particular, this study examined whether friendship quality might moderate the relations between preference-for-solitude and negative affect and negative self-esteem in youth across the U.S.A. and China. Several findings stand out. First, as hypothesized and consistent with previous research (Bowker & Raja, 2011; Coplan et al., 2012; Wang et al., 2013), preference-for-solitude and shyness emerged as related but unique dimensions of withdrawal in both the U.S.A and China. Additionally, results demonstrated that these constructs were invariant between the two different cultures, further highlighting the need to consider both preference-for-solitude and shyness in understanding withdrawal across different cultures. As the first study to examine different withdrawal dimensions in early adolescence across the U.S.A. and China and the first to empirically examine the invariance of preference-for-solitude and shyness, these findings further demonstrated that there are several “faces” to withdrawal across development and cultures (Rubin & Mills, 1988)—whereas some youth spend time alone because they are conflicted, others spend time alone because they desire to be alone. Future research would do well to consider withdrawal as a multidimensional construct across development.

Second, as hypothesized, preference-for-solitude was negatively associated with friendship support above and beyond the effects of shyness in the U.S.A. and China. Accounting for the effects of shyness, preference-for-solitude was associated with less friendship support in young adolescents living in both the U.S.A. and China. These findings are consistent with past withdrawal research linking shyness with low friendship quality in childhood and adolescence. Fordham and Stevenson-Hinde (1999) found that friendship support was negatively correlated

with shyness in childhood. La Greca and Hanison (2005) found that lower friendship support (e.g., lower scores on companionship, disclosure, support, reliable alliance) was associated with higher social anxiety. Similarly, Rubin et al. (2006) found that both anxiously-withdrawn young adolescents and their best friends rated their friendships as lacking in guidance and helpfulness. Similar to these findings, results from this study suggest that preference-for-solitude also confers interpersonal costs to friendship for young adolescents in the U.S.A. and China. Notably, preference-for-solitude appeared to negatively impact friendship support even after accounting for the effects of shyness.

These relations between preference-for-solitude and low friendship support may be attributable to the lack of social interactions and the resulting interpersonal consequences of preference-for-solitude. Given that human beings are inherently social, spending too much time alone might negatively impact one's social relationships. Such views have received much theoretical and empirical support across diverse disciplines (Bowlby, 1969; Suomi, 2003). In particular, developmental researchers have long posited the significance of peer interaction for social skills development (Hartup & Laursen, 1999; Rubin et al., 2009). Developmental researchers such as Cooley (1902), Mead (1934), and Sullivan (1935) posited that peers play a pivotal role in the development of such important abilities as self-reflection, perspective-taking, and mutual respect and reciprocity. Drawing from such views, it is likely that, by consistently withdrawing from social interactions, adolescents who prefer solitude may miss out on opportunities to learn important social skills. Indeed, based on the "developmental cascade" or "cumulative deficits" model (Rubin et al., 2006), preference-for-solitude might be maladaptive because any form of withdrawn behavior, regardless of its underlying motivations, may be viewed as deviant during development. Given that peers may view any withdrawn behavior as

non-normative, preference-for-solitude may cause youth to become particularly unattractive candidates for friendship. Classmates may be put off by and unwilling to establish friendships with youth who actively prefer solitude. Consistent with such views, Coplan et al. (2007) found that preschoolers who preferred solitude were seen as less attractive playmates and liked less than both comparison and shy children (Coplan et al., 2007). Ladd et al. (2011) found that preferred-solitary 5th graders were significantly less accepted and more excluded by their peers compared with their non-withdrawn counterparts. Marcoen and Goossens (1989) found that young adolescents who reported more affinity for aloneness had fewer intimate friends than those who reported less affinity toward aloneness. Thus, despite their apparent social competence in early childhood (Coplan & Weeks, 2010), results of this study add further to the extant evidence that preferred-solitary youth may be at risk for relational difficulties in adolescence.

In addition to low friendship support, preference-for-solitude was also positively associated with negative affect and negative self-esteem across the U.S.A. and China. Above and beyond the effects of shyness, preference-for-solitude appeared to put American and Chinese young adolescents at significant risks for experiencing negative affect and negative self-esteem. These results are consistent with past research linking shyness and preference-for-solitude with such internalizing difficulties as depression across different cultures (Bowker & Raja, 2011). Researchers have shown that school-aged children (e.g., Terrell-Deutsch, 1999; Chen & Wang, 2011), preadolescents (Larsen, 1999), adolescents (e.g., Bowker & Raja, 2011; Wang et al., 2013), and college students (Burger, 1995) who report an affinity or preference for being alone report more internalizing problems than their more sociable peers. For instance, Wang et al. (2013b) found that preference-for-solitude was positively associated with depression, anxiety, and low self-perceptions in early adolescence, even after accounting for the effects of shyness.

The relations found in this study between preference-for-solitude and internalizing problems in the U.S.A. and China may be attributable to the negative effects of excessive solitude. Spending large amounts of time alone has been linked with depression across development (Beck, 1967; deVries, Delespaul, & Dijkman-Caes, 1987). For instance, a lack of enjoyment with other people and a lack of engagement in social activities are some of the salient markers of depression according to the DSM-V. Greater time spent alone is also associated with less positive affect and more negative affect across childhood (Larson & Richards, 1991), adolescence (Matias, Icolson, Freire, 2011), and adulthood (Larson, 1990; Larson, Zuzanek, & Mannell, 1985). Additionally, spending excessive time alone may adversely impact one's social standing during development. Because peers may view any withdrawn behavior as non-normative, preference-for-solitude may increase youth's risks for peer maltreatment and subsequent internalizing difficulties. As previously mentioned, preferred-solitary youth generally experience more peer difficulties compared with their non-withdrawn counterparts (Bowker & Raja, 2011; Coplan et al., 2004; Coplan & Weeks, 2010; Ladd et al., 2011). In this view, preference-for-solitude may place youth at risk for negative affect and negative self-esteem through contributing to peer difficulties and exacerbating their effects. Because the cross-sectional nature of the present research prevented the proper examination of mediation effects (Baron & Kenny, 1986), and because mediating mechanisms are proposed only if there is enough evidence to support a *causal* relation between the independent and outcome variables (Rose, Holmbeck, Coakley, and Franks, 2004), future research that incorporates longitudinal designs is needed to shed additional insights on these possibilities.

Importantly, the heightened importance of peers and the negative views of withdrawal associated with early adolescence likely played an imperative role in the links between

preference-for-solitude and youth's socioemotional outcomes across the U.S.A. and China. In particular, as peer groups such as cliques and crowds become prominent sources of influence in early adolescence (Veenstra & Dijkstra, 2011), the need to belong begins to take on increased importance. At the same time, time alone and withdrawn behavior also become increasingly viewed as atypical by young adolescents across different cultures (Marcoen & Goossens, 1989; Rubin et al., 2009; Wang et al., 2013b). The combination of these attitudes likely creates an environment in which preference-for-solitude confers particular risks for low friendship support and internalizing problems. For instance, withdrawn youth are often not members of peer groups (Rubin & Coplan, 2010). In a period characterized by heightened peer influence, not belonging to peer groups greatly decreases youth's opportunities to develop supportive friendships (Bierman, 1994); it also leads to feelings of alienation and depression (Ingram, Atchley, and Segal, 2011). Negative views of withdrawal likely compound these effects, causing peers to view preferred-solitary adolescents as even more unappealing candidates for close friendships. Indeed, Marcoen and Goossens (1989) found that preferred-solitary young adolescents reported fewer intimate friends than their more sociable peers. Moreover, young adolescents often base their self-concepts on social comparisons; early adolescence is a period in which social comparison with same-age peers peaks (Harter, 2006). By comparing themselves with their more sociable peers, preferred-solitary young adolescents might come to feel less self-assured and satisfied with themselves.

Despite the dearth of research on the implications of development for preference-for-solitude and youth adjustment, there is some evidence to support these premises. For instance, Wang et al. (2013a) found that accounting for the effects of shyness, preference-for-solitude was associated with internalizing difficulties and emotion dysregulation in early adolescence, but that

these effects were not found in late adolescence. Together with these findings, the results of this study provide further evidence that preference-for-solitude may confer particular risks for internalizing difficulties in young adolescents across cultures.

Interestingly, shyness was not significantly associated with internalizing difficulties beyond preference-for-solitude across the U.S.A. and China. Although this seems inconsistent with previous research (e.g., Rubin et al., 2009), the majority of these studies *did not* include preference-for-solitude; only shyness was examined in these studies. Thus, it is not known whether the results of these studies would have been different if shyness were examined alongside preference-for-solitude. Additionally, like the broader social withdrawal construct, preference-for-solitude is itself a multidimensional construct. Just like how some individuals may withdraw from social interactions because they are shy while others may do so because they prefer solitude, youth may prefer to be alone for a myriad reasons. Some youth may prefer solitude because of constructive and creative purposes: they may prefer solitude to social interactions simply because they find object-oriented activities more stimulating (see Leary et al., 2003, for reviews). These youth are defined as “unsociable” (see Coplan & Weeks, 2010). Others, by contrast, may prefer solitude because they dislike others and find social interactions unpleasant. These youth are defined as “avoidant” (Bowker & Raja, 2011; Coplan & Weeks, 2010). Thus, preference-for-solitude captures both unsociability and avoidance. In this view, preference-for-solitude may be more associated with shyness given avoidance is highly indicative of psychopathology and psychological dysfunction (e.g., Silvia & Kwapil, 2011). Because this study focused on the general preference for solitude rather than the underlying motivations behind such preference, (e.g., Bowker & Raja, 2011; Coplan & Weeks, 2010), future

research examining these different dimensions of preference-for-solitude alongside shyness is needed to better understand the heterogeneity of withdrawal across development.

Friendship Support as a Moderator

The central aim of this research was to examine the moderating role of friendship support in the relations between preference-for-solitude and internalizing difficulties in early adolescence across the U.S.A. and China. Support for this moderating model varied across different outcomes and countries. In the U.S.A., friendship support significantly moderated the link between preference-for-solitude and negative self-esteem after accounting for shyness; above and beyond the effects of shyness, preference-for-solitude was most associated with negative self-esteem for youth who reported low friendship support. The moderating role of friendship support, however, was not significant for negative affect in the U.S; friendship support did not significantly moderate the effect of preference-for-solitude on negative affect in American youth.

In China, friendship support did not significantly moderate the relations between preference-for-solitude and negative affect, nor did it significantly moderate the relation between preference-for-solitude and negative self-esteem. Rather, accounting for the effects of shyness, both preference-for-solitude and friendship support appeared to contribute independently to negative affect and negative self-esteem in Chinese youth.

Preference-for-Solitude, Friendship Support, and Negative Self-esteem in the U.S.A.

As hypothesized, preference-for-solitude was most associated with negative self-esteem for youth with low friendship support in the U.S.A. For youth with low friendship support, preference-for-solitude was significantly associated with negative self-esteem; this link was not found for youth with high friendship support. Thus, consistent with past research demonstrating the protective benefits of supportive friendship for shy youth (Burgess et al., 2006; Oh et al.,

2008; Vernberg et al., 1992), findings of the present research suggest high-quality friendship may help protect preferred-solitary youth from negative self-perceptions. Together with these findings, results of this study provide further evidence that supportive friendship plays an important role in the psychological adjustment of withdrawn youth. Importantly, results highlight the difficulties that preferred-solitary youth in North America might experience when their friendships are lacking in social supportiveness.

Several explanations exist for why the relation between preference-for-solitude and negative self-esteem might be strongest for American youth with low friendship support. Theoretical and empirical research findings provide strong evidence that close friendship with same-sex peers becomes increasingly important as youth enter adolescence; early adolescence is period in which intimacy and loyalty become pivotal (Newcomb & Bagwell, 1995). In addition to providing a developmental context for learning social skills, friendship also plays a central role in how adolescents come to develop and evaluate their sense of self. Indeed, the notion that close friendship helps foster the development and evaluation of one's self has received much support from developmental theorists throughout history. Mead (1934) and Cooley (1902) posited that adolescents form self-perceptions based on beliefs about how they are perceived by close others. Emphasizing that friendship and self-esteem are closely intertwined, Sullivan's (1953) asserted that intimacy and support between friends provide validation for personal worth. Consistent with such notions, empirical research has demonstrated that supportive friendship contributes positively to youth's self-esteem (Berndt & Murphy, 2002; Klima & Repetti, 2008). The presence of highly supportive friendship is associated with higher self-perceived social acceptance and higher general self-esteem in early adolescence (Berndt & Keefe, 1995; Keefe & Berndt, 1996). For instance, Ciairano, Rabaglietti, Roggero, Bonino, and Beyers (2007) found

that youth with high-quality relationships and those whose friendships improved from low to high support had greater positive self-perceptions in adolescence. Given that social comparison and a preoccupation with what others think peak in adolescence (Harter, 2006), friends likely play an important role for all youth, even for those who generally prefer to be alone. By providing validation, supportive friendship may help detract preferred-solitary young adolescents from internalizing their peers' negative views of withdrawal. Using hypothetical vignettes, Burgess and colleagues (2006) found that the tendency for shy or anxiously-withdrawn children to blame themselves for social difficulties were diminished when scenarios involved a good friend. Additionally, supportive friendship may provide preferred-solitary youth with the social and emotional competencies necessary to avoid negative peer experiences and reduce its negative effects on self-perceptions. Indeed, research has shown that youth with low peer acceptance are less likely to be victimized if they possess high-quality friendships (Malcolm et al., 2006; Salmivalli & Peets, 2009). Rubin et al. (2006) found that shy or anxiously-withdrawn children who have a mutual best friend are perceived by peers as more sociable and popular than their similarly withdrawn peers.

By contrast, friendship that lacks social support likely offers little benefits for youth. Unable to provide a place where adolescents feel safe to express themselves and manage the challenges of adolescence, low supportive friendship likely fails at meeting the emotional needs of young adolescents. Azmitia, Ittel, and Radmacher (2005) found that whereas adolescents with high self-esteem named many instances in which their friends were important sources of emotional support, those with low self-esteem recounted events where their friendships failed to provide the support they needed. Given that early adolescence is a developmental period during which peer influence peaks and close friendships become vital to one's sense of self, a lack of

support from close friends may be particularly maladaptive to youth's self-esteem during this period. In particular, lacking a high-quality friendship may make youth more vulnerable to adjustment difficulties in stressful times like early adolescence because they do not provide the adequate resources necessary to adjust and adapt to such challenging situations effectively (e.g., Garmesy, 1983; Sandler et al., 1989). Consistent with such notions, researchers have shown that failing to establish a close friendship is associated with low self-esteem in early adolescence (Bagwell et al., 1998). Call and Mortimer (2001) found that whereas comfort with friends is associated with high self-esteem, low comfort with friends is associated with low self-esteem in young adolescents.

Low supportive friendship may be particularly problematic for youth with existing vulnerabilities such as shyness or preference-for-solitude. In particular, unsupportive friendship likely fails to provide vulnerable youth such as preferred-solitary young adolescents with the supportive environment they need to successfully navigate both normative developmental stresses (e.g., school transition) and the non-normative difficulties (e.g., peer maltreatment), leading to or exacerbating negative self-perceptions. As well, from a stress and coping perspective, low supportive friendship may represent an additional stressor for preferred-solitary youth, further contributing to or exacerbating negative views of the self (Sandstrom & Zakriski, 2004). Ciairano, et al. (2007) found that decreases in friendship quality over the course of the high school year were associated with decreases in positive self-perceptions in young adolescents. Unstable best friendships further exacerbated social withdrawal for children from the 5th through the 8th grade (Oh et al., 2008). Additionally, low supportive friendship may further increase the risk of peer difficulties in preferred-solitary youth. By failing to offer protection and support, low supportive friendship may convey to others that preferred-solitary

youth are easy targets for abuse. Such peer difficulties are strongly associated with negative self-esteem across development (see Rubin et al., 2009). Indeed, although both shyness and preference-for-solitude are associated with peer rejection across development (Bowker & Raja, 2011; Wang et al., 2013), research suggests low-quality friendship may further strengthen these relations. Hodges et al. (1999) found that whereas the presence of friendship mitigated the relations between internalizing behaviors and victimization in youth, friendlessness further strengthened these relations. In addition to failing to provide the socioemotional skills and resources necessary for positive peer relationships, low supportive friendship may also emphasize to preferred-solitary youth that their personal characteristics are unacceptable and non-normative. Indeed, the comfort and security adolescents feel with friends help determine the kind of feedback they receive about themselves (Harter, 2006). By failing to provide a validating and secure environment for self-exploration and self-expression, low supportive friendship may contribute to feelings of low personal value and self-worth in preferred-solitary youth.

Preference-for-Solitude, Friendship Support, and Negative Affect in the U.S.A.

Although friendship support significantly moderated the relation between preference-for-solitude and negative self-esteem in the U.S.A., it did not affect the relation between preference-for-solitude and negative affect. Contrary to what was hypothesized, the relation between preference-for-solitude and negative affect did not differ as a function of friendship support in American youth. Viewing negative self-esteem and negative affect as related but distinct internalizing difficulties may help explain this counterintuitive finding. Specifically, although negative self-esteem and negative affect serve as defining features of internalizing difficulties such as depression, theoretical and empirical research suggest these constructs may be

etiologically heterogeneous and distinct (Fried, Nesse, Zivin Guille, & Sen, 2013; Ingram, Atchley, & Segal, 2011).

Negative self-esteem is often conceptualized as involving negative cognitive thoughts about the self. Thoughts about how one is not deserving of love or worthy of affection are common markers of low self-esteem (Harter, 2012; Kernis & Goldman, 2003). Negative affect, on the other hand, is often conceptualized as dysphoric mood or low affective states (Ingram et al., 2011). Feelings of sadness or emptiness are common manifestations of negative affect. Across psychology disciplines, negative self-esteem and negative affect are closely intertwined, commonly serving as core markers of depression (Ingram et al., 2011). In particular, the DSM-V diagnostic criteria for Major Depressive Disorder include “depressed mood most of the day, nearly every day” as well as “feelings of worthlessness or excessive guilt,” among other symptoms. Studies across development also often collapse symptoms of negative self-esteem and negative affect together to assess depression (Kernis & Goldman, 2003). Despite their close association, it might be empirically and clinically more accurate and fruitful to conceptualize negative self-esteem and negative affect as distinct constructs.

Although depression has long been thought of as a multidimensional and complex construct (Ingram et al., 2011), empirical and clinical research often collapse different symptoms like negative self-esteem and negative affect together in examining depression. Yet research provides strong evidence that different symptoms of depression have different risk factors and etiologies (Cramer et al., 2010; Hasler & Northoff, 2011). Different life stressors may contribute to different depression symptoms (Keller et al., 2007). Additionally, despite efforts spanning diverse disciplines, researchers have largely failed to identify a single underlying genetic factor for depression (Kendler et al., 2013). Rather, emerging research suggests that different

depression symptoms are associated with different specific genes (Myung et al., 2012). Indeed, at least 1497 potential unique symptom profiles for the same diagnosis of depression have been identified (Ostergaard et al., 2011). Fried et al. (2013) found in their longitudinal study of young adults that different risk factors have differential impact on different depression symptoms. For instance, whereas childhood stress and stressful life events uniquely predicted low perceived value of one's life, they did not significantly predict depressed affect. Rather, depressed affect was predicted by high neuroticism and long work hours. Importantly, the multidimensionality of depression and its heterogeneous symptoms may account for why distinct factors are typically found in factor analytic research of depression. Results from research on depression measures, for example, often demonstrate a better model-fit for a multi-factor model than a single-factor model. For instance, empirical studies on the Child Depression Inventory (CDI; Kovac, 1992) generally suggest a three-factor model of Negative Affect, Negative Self-esteem and Interpersonal/Externalizing Problems to be the most appropriate (e.g., Cole, Hoffman, Tram, & Maxwell, 2000; Craighead, Smucker, Craighead, & Ilardi, 1998; Drucker & Greco-Vigorito, 2002; Garcia, Aluja, & del Blarrio, 2008; also see Huang & Dong, 2013, for a meta-analytic review). Such were the findings found in both the American and Chinese samples in this study.

Given that negative self-esteem and negative affect appear to be individual symptoms of depression with autonomous causal relevance (Schmittman et al., 2013), it might be that friendship support is a less salient contributor to negative affect for young adolescents. In particular, low positive emotionality has strong roots in temperament and biology (e.g., Lapsley, Klein, Olino, Dyson, & Carlson, 2010). By contrast, feedback from peers plays a significant role in how youth come to view themselves (Harter, 2012). Given the importance of peers in early adolescence, social feedback plays a particularly influential role in youth's global self-worth

during this period. In this view, the social support in a best friendship may not be as relevant for young adolescents' affect than it is for their self-esteem; this may be particularly true for those who prefer solitude. In particular, there is some evidence that youth who prefer solitude may be generally lower in positive emotionality than those who prefer social company (Laptook et al., 2010).

Although it was not possible to empirically examine these speculations in the current study, results from this research provide further evidence that negative self-esteem and negative affect may have different etiologies and implications. Adding to the extant research on the multidimensionality of depression, findings from this research warn about the danger of obfuscating crucial information when researchers sum scores of depression symptoms such as negative self-esteem and negative affect instead of examining these symptoms individually. A more comprehensive understanding of how preference-for-solitude and social support may differentially contribute to different internalizing symptoms will have the potential to increase treatment efficacy for youth at risk for depression and similar internalizing disorders.

Taken together, results from the U.S.A. sample suggest that preferred-solitary youth who are able to establish supportive friendship, despite individual and social risk factors, may receive significant protective benefits from these relationships, at least in regards to self-esteem. By contrast, preferred-solitary youth who are unable to establish supportive friendship may be at particular risk for experiencing negative self-esteem. Additionally, findings highlight the importance of differentiating between different the cognitive and affective components of depression. Future research should examine how preference-for-solitude and close interpersonal relationships may differentially contribute to different internalizing symptoms across development.

Friendship Support as a Moderator: Preference-for-Solitude and Negative Self-esteem in China

In contrast to the hypothesis, friendship support did not significantly moderate the relation between preference-for-solitude and negative self-esteem in Chinese youth. Several reasons may help explain this lack of finding. First, given the emphasis on social harmony and interdependence in Chinese culture (Chen, 2008; Triandis, 1995), preference-for-solitude may be viewed as anti-collectivistic and thus particularly maladaptive for Chinese youth. Compared with their more sociable peers, Chinese youth who prefer solitude are found to suffer more psychological, school, and social difficulties (Chen, Wang, & Cao, 2011). Controlling for shyness, Liu and colleagues (2013) found that preference-for-solitude was positively associated with negative self-perceptions, low academic achievement, peer difficulties, and internalizing problems in young Chinese adolescents. Accordingly, regardless of differences in friendship support, preference-for-solitude may place Chinese youth at risk for internalizing difficulties such as negative self-esteem.

Given the emphasis on collectivistic values in Chinese culture, family support may be an important component of Chinese youth's self-concepts. In particular, a cultural bias toward collectivism encourages socialization of conformity and compliance to authority figures (Triandis & Gelfand, 1998). Accordingly, parents play a significant role in youth's adjustment across development in China (Chen, 2008; French, Rianasari, Pidada, Nelwan, & Buhrmester, 2001). In contrast to the drastic shift in reliance from parents to peers in North American and Western European youth during adolescence, youth in collectivistic cultures continue to rely on parents for social and emotional support throughout development. This less dramatic change in reliance between parents and peers may explain why youth in more collectivistic cultures such as China often perceive their relationships with family members as higher in quality than their

relationships non-family members. Takahashi, Ohara, Antonucci, and Akiyama (2002), for example, found that feelings of affection toward non-family members were higher for American college students than for Japanese college students. From this view, because parents may play a central role in how preferred-solitary Chinese youth evaluate themselves, friendship support alone may be unable to offer a complete picture of how social relationships impact their self-esteem. Because this study did not examine individualism- collectivism, and since cross-cultural comparisons and parent-child relationships were not the foci of the present study, future research is needed to examine these possibilities.

Friendship Support as a Moderator: Preference-for-Solitude and Negative Affect in China

Also inconsistent with the hypothesis, friendship support did not significantly moderate the relation between preference-for-solitude and negative affect in Chinese youth. This lack of association may be partially attributed to the strong negative effects that preference-for-solitude carries for Chinese youth. In particular, preference-for-solitude may be maladaptive for all Chinese youth irrespective of differences in friendship support. Given that preference-for-solitude is not conducive to the collectivistic values of social harmony and interdependence in Chinese culture, friendship support may play little role in how it relates to affect in Chinese young adolescents. As previously discussed, family support may also occupy a central role in the psychoemotional adjustment of Chinese young adolescents. Indeed, research has shown that parent-child relationships, particularly maternal acceptance and rejection, are strongly associated with major aspects of adolescent depression such as affect and emotionality (Chen, Rubin, & Li, 1997, Lau & Kwok, 2000). For instance, Chen, Liu, and Li (2000) found that maternal warmth uniquely predicted decreased depression in Chinese children after controlling for stability effects. Accordingly, by excluding family support, the present study may have inadvertently neglected a

key element of social experiences integral to the affective states of preferred-solitary Chinese youth. Future studies that incorporate both family relationships and close friendships are needed to better understand the role of interpersonal relationships in the affective and emotional well-being of preferred-solitary young adolescents in China.

Additionally, the lower affective well-being and higher negative emotional adjustment of Asian youth in general may be important to consider in understanding how the relations between preference-for-solitude, friendship support, and negative affect Chinese youth. Across East Asia and Southeast Asia, Asian adolescents and young adults tend to suffer higher levels of internalizing difficulties than their non-Asian counterparts. For instance, over *half* of Chinese youth in *secondary-school* report depressive symptoms (e.g., Shek, 1991); of these youth, over 20% exhibit symptoms consistent with moderate to severe depression. Research using clinical measures, such as the Children's Depression Inventory used in the present study (CDI; Kovac, 1992), suggests that between 24% to 64% of Chinese adolescents exhibit significant depressive symptoms such as persistent sadness and frequent crying (Bond, 2010; Chan, 1995, 1997). Even among North American and European countries, Chinese youth fare worse psychologically and experience more depressed affect than youth in other ethnic groups. Chinese American students have been shown to report greater depressed affect, emotional distress, and dissatisfaction with self than their North American counterparts (Okazaki, 1997; Uba, 1994; Zhou, Peverly, Xin, Huang, & Wang, 2003).

In addition to the important role that parents play in Chinese youth's psychoemotional adjustment, multiple other cultural factors may also contribute to affective problems among Chinese youth. For instance, given that negative emotions may disrupt social harmony, Chinese youth are socialized to conceal negative emotions in social interactions as a means to preserve

group harmony (Rothbaum & Rusk, 2011); such ways of emotional processing are shown to be maladaptive and predictive of psychopathology (Ingham & Price, 2010). Additionally, relying too heavily on interpersonal relationships for self identity may come at the cost of psychological and emotional well-being. For instance, compared with people who are more oriented toward individualistic values, those who place greater importance on interdependence and who endorse a greater interdependent self-construal are more vulnerable to internalizing difficulties (Mak, Law, & Teng, 2012). Across cultures, researchers have shown that an *interdependent* self-construal is associated with higher levels of depression (e.g., Sato & McCann, 1998), unhappiness (Kim, Kasser, & Lee, 2003), and anxiety (Hardin et al., 2006), whereas an *independent* self-construal is associated with lower levels of negative affect (Lam, 2005; Okazaki, 1997; see Cross, Hardin, & Swing, 2009). These findings are robust even among Asian cultures that are traditionally more collectivistic (e.g., Kim et al., 2003).

Moreover, given its cultural emphasis on group harmony, Chinese individuals may be higher on affiliative motivation than their North American and Western European counterparts. Yet high affiliative motivation is associated with emotional vulnerability and depression (Hill, 2009). Compared with more autonomous people, people with greater affiliation motivation are more sensitive to the social demands and reactions of others. They also report greater concern and distress about negative evaluation and disapproval; evidence suggests concerns about others' evaluation are significantly associated with anxiety and depressive symptoms (Nolen-Hoeksema & Jackson, 2001; Rudolph & Conley, 2005). Because coping with relationship challenges is an inevitable and natural part of human life (Leary, 2001), an excessive dependence on interpersonal relationships for identity likely increase one's vulnerability to distress and psychopathology (Bornstein, 2009; Wang et al., 2012). Indeed, cognitive dissonance (Festinger,

1957) and self-discrepancy (Higgins, 1987) theories suggest that failing in a domain deemed personally important would produce dissonance and lead to negative affect. Wang and colleagues (2012) found that peer rejection was predictive of rejection sensitivity only among young adolescents who highly valued social acceptance. People who place a greater value on friendship and love are more likely to experience negative emotions when rejected than those who do not value social relationships as highly (Morrison, Wheeler, & Smeesters, 2007). From this perspective, because relationships can be fragile and are dependent on others' behaviors, the emphasis on interdependence and group harmony in Chinese culture may put Chinese youth at risk for affective problems. Again, however, this study did not examine individualism-collectivism; it is not known what kind of cultural values were endorsed by the adolescent participants in this study. Thus, future research needs to further explore these possibilities.

Taken together, cultural factors associated with the Chinese culture may affect how personal characteristics such as preference-for-solitude interact with close interpersonal relationships in predicting Chinese youth's psychoemotional adjustment. Considering the impact of cultural values remains an important next step for gaining a better understanding of the complex relations between preference-for-solitude, close interpersonal relationships, and internalizing difficulties in Chinese young adolescents.

Conclusion

The present study examined the relations between preference-for-solitude, friendship support, and internalizing difficulties in young adolescents in the U.S.A. and China. In particular, this study examined whether friendship support might moderate the relations between preference-for-solitude and negative affect and negative self-esteem in across the U.S.A. and China. In the U.S.A. sample, friendship support significantly moderated the effect of preference-

for-solitude on negative self-esteem, such that preference-for-solitude was most associated with negative self-esteem for youth with low levels of friendship support; this moderation effect was not found for negative affect. In the China sample, friendship support did not significantly moderate the effects of preference-for-solitude on negative self-esteem or negative affect, though both preference-for-solitude and friendship support were associated with these outcomes.

Several limitations are worth noting. Due to the cross-sectional nature of the data and because analyses tested only for associative relations among constructs, results should be viewed as temporally descriptive rather than *causal*. Individual trajectories of shyness or anxious-withdrawal have been documented (Booth-LaForce & Oxford, 2008; Oh et al., 2008); it remains to be seen if similar patterns will emerge for preference-for-solitude in the U.S.A. and China. Without longitudinal studies, one cannot be certain of the continuity and implications of these different withdrawal dimensions across the lifespan. In particular, although shyness appears to be relatively stable across childhood (Booth-LaForce et al., 2013; Rubin et al., 2009), much remains to be understood about the developmental trajectory of preference-for-solitude. Research following youth from childhood to adolescence is particularly needed to better understand youth who prefer to be alone.

As well, the present research is limited in that only self-reports were used. Future research incorporating multiple informants and approaches, such as peer nominations, friendship nominations, and observational studies, may provide a more accurate and comprehensive understanding of the relations between preference-for-solitude, friendship support, and internalizing difficulties in early adolescence across different cultures. Given the dynamic nature of friendships, dyadic measures utilizing the perceptions of both youth and their friends would prove particularly fruitful. Despite its limitations, however, self-report remains the most reliable

measure for assessing social withdrawal and internalizing outcomes in adolescence (Coplan & Weeks, 2010). Indeed, because withdrawal dimensions such as preference-for-solitude and internalizing outcomes such as depression are often not directly observable, particularly in adolescence, self-report provides a reliable way to assess these constructs in adolescents. Future research would do well to incorporate self-report in a multi-informant framework.

Furthermore, given that internalizing distress (e.g., negative self-esteem, negative affect) was the only type of adjustment examined in this study, it is not known how preference-for-solitude might have contributed to other types of youth adjustment such as social anxiety across the United States and China. Indeed, although I speculated that preference-for-solitude may be associated with peer difficulties in early adolescence, future research is needed to further examine these negative social experiences. As well, given that peer difficulties contribute to withdrawal across cultures (Rubin & Coplan, 2010; Wang et al., 2013b), it also remains to be seen whether prior negative peer experiences might lead to later preference-for-solitude in both the United States and China. Indeed, peer rejection and victimization may cause youth in both countries to avoid social interactions. Similarly, although results from additional exploratory analyses in the present study did not suggest rejection sensitivity play a significant role in the relations found between preference-for-solitude, friendship support, and internalizing difficulties in the U.S.A. and China, future research that directly controls for negative peer experiences in a longitudinal framework would provide more clarity to the conceptualization of preference-for-solitude and its implications across different cultures.

Moreover, although the focus on this study was on social support in friendship, future research would do well to examine negative friendship features such conflict and antagonism. In particular, the correlates and outcomes associated with a low supportive friendship may not be

synonymous with those associated with a highly antagonistic friendship. In other words, a lack of support or emotional closeness may not have the same effects as the presence of conflict or antagonism. Given that few researchers have examined youth's negative friendship features in general, it remains to be seen how highly negative friendship might impact the psychoemotional adjustment of preferred-solitary youth across different cultures (Laursen & Collins, 1994).

Finally, although I examined preference-for-solitude, friendship support, and internalizing difficulties across the U.S.A. and China, cross-cultural comparison was not a focus of the current study. Rather, this research simply explored whether results in the United States might be replicated in China. Accordingly, it is important to note that claims of cross-cultural differences cannot be inferred from the study's findings. Rather, it may be best to view the results pertaining to China as an extension of the American findings. Future cross-cultural studies that demonstrate strong measurement invariance between different cultures is needed to better understand how culture may moderate the relations between withdrawal dimensions, interpersonal relationships, and psychoemotional adjustment in early adolescence.

Limitations withstanding, this study is the first empirical research to examine the significance of friendship quality in the psychoemotional adjustment of preferred-solitary young adolescents in different countries. Several contributions are notable. First, the majority of the withdrawal research has focused on shy youth to the exclusion of youth who prefer solitude. Little is also known about these different withdrawal dimensions beyond the childhood years. Thus, results from this study help contribute to the sparse research on preference-for-solitude in adolescence. Similarly, although social withdrawal has received much empirical attention and interest in recent years, the majority of such research has been confined to North American and European countries. Little is known about the social and emotional adjustment of withdrawn

youth in Eastern countries, particularly those who actively prefer solitude. Accordingly, results from this study help address the paucity of research on preference-for-solitude across different cultures. As well, it is precisely in early adolescence that close friendships take on an imperative role in promoting youth's social and emotional adjustment and well-being (Berndt, 2002; Selman, 1981). However, the simple *presence* of a friend does not ensure positive social, emotional, psychological, and cognitive outcomes. Indeed, in a review, Pettit (1997) wrote: "To be friendless is to be without an important source of social support, without a mirror with which to see oneself, and without a companion with whom one can pursue pleasurable interests. However, being friended by no means guarantees that one's social development will be enhanced" (pg. 808). Despite such acknowledgements, few researchers have examined *friendship quality* and its potential functions for youth's psychoemotional adjustment, particularly in early adolescence. Instead, developmental researchers have largely focused on such peer relations constructs as peer acceptance in middle childhood (Dodge et al., 2003; Woodward & Ferguson, 1999). Yet, examining peer group relationships alone does not provide a comprehensive or accurate picture of youth's complex social worlds, particularly in stressful transitional periods such as early adolescence during which intimate dyadic relationships serve as an irreplaceable source of social support (Bagwell & Schmidt, 2011). As such, results of this study contribute to the gap in research on friendship quality and help highlight its significance for understanding the heterogeneity of withdrawal across development and cultures.

Table 1.Estimated Means, Variance, and Correlations for All Latent Constructs in the U.S. ($N = 300$) and China ($N = 201$)

	<i>M</i>	Variance	Preference-for-Solitude	Shyness	Negative Affect	
Preference-for-Solitude	.11 (U.S.)	.70 (U.S.)				
	.10 (China)	.65 (China)				
Shyness	.15 (U.S.)	.75 (U.S.)	.47** (U.S.)			
	.18 (China)	.65 (China)	.26** (China)			
Friendship Support*	3.88 (U.S.)	.40 (U.S.)	-.24** (U.S.)	-.13** (U.S.)		
	3.77 (China)	.41 (China)	-.16** (China)	-.07 (China)		
Negative Affect	.09 (U.S.)	.04 (U.S.)	.24* (U.S.)	.09 (U.S.)	-	
	.10 (China)	.05 (China)	.30* (China)	.07 (China)	-	
Negative Self-esteem	.06 (U.S.)	.15 (U.S.)	.27* (U.S.)	.05 (U.S.)	.75** (U.S.)	<i>Note.</i>
	.11 (China)	.22 (China)	.45** (China)	.02 (China)	.75** (China)	*Friend

Support was a scale item and not a latent factor.

All correlations were significant at $p < .05$.

Table 2.

Indicators of Latent Constructs in the U.S. ($N = 300$) and China ($N = 201$)

Latent Constructs	Indicator
<i>Preference-for-Solitude</i>	PFS 1. I like spending time alone more than being with other
	PFS 2. I spend time alone because I want to be alone more th be with others.
	PFS 3. I would rather be alone than be with others
	PFS 4. I would rather be with others than be alone (reversed)
<i>Shyness</i>	SHY 1. I am very shy
	SHY 2. I spend time alone because I want to be with others bu because I am too shy or afraid
	SHY 3. I am shy
<i>Negative Affect</i>	CDI 1. I am sad all the time
	CDI 10. I feel like crying every day
	CDI 11. Things bother me all the time
	CDI 13. Sure terrible things will happen
<i>Negative Self-esteem</i>	CDI 2. Nothing will ever work out for me
	CDI 7. I hate myself
	CDI 8. All bad things are my fault
	CDI 25. Nobody really loves me

Table 3.

Scale Items of Friendship Support in the U.S. ($N = 300$) and China ($N = 201$)

Scale	Items
<i>Affection</i>	How much does this person like or love you?
	How much does this person really care about you?
	How much does this person have a strong feeling (love or liking) toward you?
<i>Admiration</i>	How much does this person treat you like you're admired and respected?
	How much does this person treat you like you're good at many things?
	How much does this person like or approve of the things you do?
<i>Companionship</i>	How much free time do you spend with this person?
	How much do you play around and have fun with this person?
	How often do you go to places and do enjoyable things with this person?
<i>Instrumental Help</i>	How much does this person teach you how to do things that you don't know how to do?
	How much does this person help you figure out or fix things?
	How much does this person help you when you need something done?
<i>Intimacy</i>	How much do you tell this person everything?
	How much do you share your secrets and private feelings with this person?
	How much do you talk to this person about things that you don't want others to know?
<i>Nurturance</i>	How much do you help this person with things she/he can't do by her/himself?
	How much do you protect and look out for this person?
	How much do you take care of this person?
<i>Reliable Alliance</i>	How sure are you that this relationship will last no matter what?
	How sure are you that this relationship will last even if you have fights?
	How sure are you that this relationship will continue in years to come?

Table 4.

Standardized Factor Loadings of Preference-for-Solitude and Shyness in the U.S. ($N = 300$) and China ($N = 201$)

Item Indicators of Latent Factors	Country	
	U.S.	China
<i>Preference-for-Solitude</i>		
Like spending time alone more than being with others	.84**	.91**
Spend time alone because want to be alone more than want to be with others	.68**	.88**
Would rather be alone than be with others	.53**	.71**
Would rather be with others than be alone (reversed)	.64**	.74**
<i>Shyness</i>		
Am very shy	.89**	.83**
Spend time alone because I want to be with others but I don't because I am too shy or afraid	.67**	.59**
I am shy	.77**	.65**

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

Table 5.

Standardized Factor Loadings of Negative Affect and Negative Self-esteem in the U.S. ($N = 300$) and China ($N = 201$)

Item Indicators of Latent Factors	Country	
	U.S.	China
<i>Negative Affect</i>		
Am sad all the time	.51**	.63**
Feel like crying every day	.75**	.78**
Sure terrible things will happen	.71**	.52**
Things bother me all the time	.50**	.51**
<i>Negative Self-esteem</i>		
Nothing will ever work out for me	.68**	.73**
Hate myself	.60**	.50**
All bad things are my fault	.90**	.59**
Nobody really loves me	.64**	.58**

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

Table 6.

Standardized Path Coefficients and Standard Errors in the Final Structural Model in the United States ($N = 300$)

	Negative Affect	Negative Self-esteem
Preference-for-Solitude	.04 (.03)	.09 (.05)
Shyness	.02 (.03)	-.03 (.05)
Friendship Support	.03 (.03)	.03 (.05)
Preference-for-Solitude \times Friendship Support	-.06 (.04)	-.17** (.07)

Note. Standard errors in parenthesis.

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

Table 7.

Standardized Path Coefficients and Standard Errors in the Final Structural Model in China. ($N = 201$)

	Negative Affect	Negative Self-esteem
Preference-for-Solitude	.13* (.06)	.22** (.07)
Shyness	.04 (.07)	.01 (.06)
Friendship Support	-.08 (U.S.)	-.18** (.06)
Preference-for-Solitude \times Friendship Support	-.04 (.04)	-.03 (.05)

Note. Standard errors in parenthesis.

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

APPENDICES

Appendix A: Measures in the U.S.A.

Social Withdrawal Scale (SWS)

1. There is a friend I feel close to.

Not at all	Hardly	Sometimes	True most	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. I would rather play with others than be alone.

Not at all	Hardly	Sometimes	True most	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. I am very shy.

Not at all	Hardly	Sometimes	True most	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. I like spending time alone more than being with other kids.

Not at all	Hardly	Sometimes	True most	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

When you spend time alone, why do you spend time alone:

5. I spend time alone because I want to play alone more than I want to play with other kids.

Not at all	Hardly	Sometimes	True most	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. I spend time alone because I want to play with other kids but I don't because I'm too shy or afraid.

Not at all	Hardly	Sometimes	True most	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. I want to play with other kids but other kids don't want to play with me.

Not at all	Hardly	Sometimes	True most	Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Network Relationship Inventory (NRI)

The next questions ask about your relationships with each of the following people:

1) your mother or step-mother (if you have both, describe your relationship with the one you live with); 2) your father or step-father (if you have both, describe your relationship with the one you live with); 3) your friend; 4) your teacher; 5) your relative; and 6) each of your siblings. Answer each of the following questions for each person. Sometimes the answers for different people may be the same; sometimes they may be different.

When answering questions about your **friend**, it should be the same person you named on page 2 (question #5). When answering questions about your **relative**, it should only be the person you named on page 2 (question #3).

1. How much **free time** do you spend with this person?

	None	Little	Some	A lot	
Almost all					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

2. How much do you and this person get upset with each other or mad at each other?

	None	Little	Some	A	
lot	Almost always				
Mother	1	2	3	4	5

Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

3. How much does this person teach you how to do things that you don't know how to do?

lot	A				
	Almost always	None	Little	Some	
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

4. How satisfied are you with your relationship with this person?

	Extremely satisfied	satisfied	Not	A little		Somewhat	Very
			satisfied	satisfied		satisfied	
Mother			1	2	3	4	5
Father			1	2	3	4	5
Friend			1	2	3	4	5
Teacher			1	2	3	4	5
Relative			1	2	3	4	5
Sibling 1			1	2	3	4	5
Sibling 2			1	2	3	4	5
Sibling 3			1	2	3	4	5
Sibling 4			1	2	3	4	5

5. How much do you tell this person everything?

	Tell a lot of	Tell all	Tell	Tell		Tell some	
			nothing	a little	things	things	
Mother			1	2	3	4	5
Father			1	2	3	4	5
Friend			1	2	3	4	5
Teacher			1	2	3	4	5
Relative			1	2	3	4	5
Sibling 1			1	2	3	4	5

Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5
6. How much do you help this person with things she/he can't do by her/himself?					

	Not at all	A little	Somewhat	A lot	
Almost always					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

7. How much does this person like or love you?

	Not at all	A little	Somewhat	A lot	Very
much					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5

Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5
8. How much does this person punish you?					

	Not at all	A little	Somewhat	A lot	
Very much					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

9. How much does this person treat you like you're admired and respected?

	Not at all	A little	Somewhat		A lot
Very much					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5

Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

10. How often does this person tell you what to do?

Always	Never	Seldom	Sometimes	Often	
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

11. How sure are you that this relationship will last no matter what?

	Not at all	A little	Somewhat	Very	
Extremely sure		sure	sure	sure	
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5

Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

12. How much do you play around and have fun with this person?

		Not at all	A little	Somewhat	A
lot	A ton				
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

13. How much do you and this person disagree and quarrel?

		Not at all	A little	Somewhat	A lot
A ton					
Mother	1	2	3	4	5
Father	1	2	3	4	5

Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

14. How much does this person help you figure out or fix things?

lot	The most	Not at all	A little	Sometimes	A
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

15. How happy are you with the way things are between you and this person?

Extremely happy	Not happy	A little happy	Somewhat happy	Very
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Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

16. How much do you and this person annoy or bug each other?

	Never	A little	Sometimes	Often	
Very often					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

17. How much do you share your secrets and private feelings with this person?

	Never	A little	Sometimes	Often	
Very often					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

18. How much do you protect and look out for this person?

	Never	A little	Sometimes	Often	
Very often					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

19. How much does this person really care about you?

	Not at all	A little	Somewhat	A lot	
Very much					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

20. How much does this person discipline you for disobeying him/her?

	Not at all	A little	Somewhat	A lot	
Very much					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5

Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

21. How much does this person treat you like you're good at many things?

	Not at all	A little	Somewhat	A lot	
Very much					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

22. How often is this person the boss in your relationship?

	Never	Seldom	Sometimes		
Often	Always				
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5

Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

23. How sure are you that your relationship will last even if you have fights?

		Not at all	A little	Somewhat sure	Very sure	
Extremely sure	sure					
	Mother	1	2	3	4	5
	Father	1	2	3	4	5
	Friend	1	2	3	4	5
	Teacher	1	2	3	4	5
	Relative	1	2	3	4	5
	Sibling 1	1	2	3	4	5
	Sibling 2	1	2	3	4	5
	Sibling 3	1	2	3	4	5
	Sibling 4	1	2	3	4	5

24. How often do you go places and do enjoyable things with this person?

	Never	Seldom	Sometimes	Often	
Always					
Mother	1	2	3	4	5
Father	1	2	3	4	5

Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

25. How much do you and this person argue with each other?

	Not at all	A little	Sometimes	A lot	
Very much					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

26. How often does this person help you when you need to get something done?

	Never	Seldom	Sometimes	Often
Always				

Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

27. How good is your relationship with this person?

	Bad		A little		Good
Very	Great				
good			bad		
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

28. How much do you and this person hassle or nag one another?

	Not at all	A little	Sometimes	A lot	
Almost always					
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

29. How much do you talk to this person about things that you don't want others to know?

		Not at all	A little	Some	A	
lot	Very much					
	Mother	1	2	3	4	5
	Father	1	2	3	4	5
	Friend	1	2	3	4	5
	Teacher	1	2	3	4	5
	Relative	1	2	3	4	5
	Sibling 1	1	2	3	4	5

Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

30. How much do you take care of this person?

		Not at all	A little	Some	
A lot	Very much				
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

31. How much does this person have a strong feeling of affection (love or liking) toward you?

		Not at all	A little	Some	
A lot	Very much				
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5

Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

32. How much does this person scold you for doing something you're not supposed to do?

		Not at all	A little	Some		
A lot	Very much					
	Mother	1	2	3	4	5
	Father	1	2	3	4	5
	Friend	1	2	3	4	5
	Teacher	1	2	3	4	5
	Relative	1	2	3	4	5
	Sibling 1	1	2	3	4	5
	Sibling 2	1	2	3	4	5
	Sibling 3	1	2	3	4	5
	Sibling 4	1	2	3	4	5

33. How much does this person like or approve of the things you do?

		Not at all	A little	Some		
A lot	Very much					
	Mother	1	2	3	4	5
	Father	1	2	3	4	5
	Friend	1	2	3	4	5

Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

34. How often does this person take charge and decide what should be done?

		Never	Seldom	Sometimes	
Often	Always				
Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

35. How sure are you that your relationship will continue in the years to come?

	Not at all Very sure	Extremely sure	A little sure	Somewhat sure
sure				

Mother	1	2	3	4	5
Father	1	2	3	4	5
Friend	1	2	3	4	5
Teacher	1	2	3	4	5
Relative	1	2	3	4	5
Sibling 1	1	2	3	4	5
Sibling 2	1	2	3	4	5
Sibling 3	1	2	3	4	5
Sibling 4	1	2	3	4	5

Child Depression Inventory (CDI)

**Remember: Pick out the sentences that describe your feelings and ideas in the
PAST TWO WEEKS.**

1. ☐ I am sad once in a while.
☐ I am sad many times.
☐ I am sad all the time.
2. ☐ Nothing will ever work out for me.
☐ I am not sure if things will work out for me.
☐ Things will work out for me O.K.
3. ☐ I do most things O.K.
☐ I do many things wrong.
☐ I do everything wrong.
4. ☐ I have fun in many things.
☐ I have fun in some things.
☐ Nothing is fun at all.
5. ☐ I am bad all the time.
☐ I am bad many times.
☐ I am bad once in a while.

***Remember: Pick out the sentences that describe your feelings and ideas in the
PAST TWO WEEKS.***

6. o I think about bad things happening to me once in a while.
 ☐ I worry that bad things will happen to me.
 o I am sure that terrible things will happen to me.
7. o I hate myself.
 ☐ I do not like myself.
 o I like myself.
8. o All bad things are my fault.
 ☐ Many bad things are my fault.
 o Bad things are not usually my fault.
9. o I do not think about killing myself.
 ☐ I think about killing myself but I would not do it.
 o I want to kill myself.
10. o I feel like crying every day.
 ☐ I feel like crying many days.
 o I feel like crying once in while.
11. o Things bother me all the time.
 ☐ Things bother me many times.
 ☐ Things bother me once in a while.

***Remember: Pick out the sentences that describe your feelings and ideas in the
PAST TWO WEEKS.***

12. o I like being with people.
 ☐ I do not like being with people many times.
 o I do not want to be with people at all.
13. o I cannot make up my mind about things.
 ☐ It is hard to make up my mind about things.
 o I make up my mind about things easily.
14. o I look O.K.
 ☐ There are some bad things about my looks.
 o I look ugly.
15. o I have to push myself all the time to do my schoolwork.
 ☐ I have to push myself many times to do my schoolwork.
 o Doing schoolwork is not a big problem.
16. o I have trouble sleeping every night.
 ☐ I have trouble sleeping many nights.
 o I sleep pretty well.
17. o I am tired once in a while.
 ☐ I am tired many days.
 ☐ I am tired all the time.

***Remember: Pick out the sentences that describe your feelings and ideas in the
PAST TWO WEEKS.***

18. o Most days I do not feel like eating.

- ☐ Many days I do not feel like eating.
 - ☐ I eat pretty well.
19. ☐ I do not worry about aches and pains.
- ☐ I worry about aches and pains many times.
 - ☐ I worry about aches and pains all the time.
20. ☐ I do not feel alone.
- ☐ I feel alone many times.
 - ☐ I feel alone all the time.
21. ☐ I never have fun at school.
- ☐ I have fun at school only once in a while.
 - ☐ I have fun at school many times.
22. ☐ I have plenty of friends.
- ☐ I have some friends but I wish I had more.
 - ☐ I do not have any friends.
23. ☐ My school work is alright.
- ☐ My schoolwork is not as good as before.
 - ☐ I do very badly in subjects I used to be good in.

***Remember: Pick out the sentences that describe your feelings and ideas in the
PAST TWO WEEKS.***

24. ☐ I can never be as good as other kids.

- ☐ I can be as good as other kids if I want to.
 - ☐ I am just as good as other kids.
- 25.
- ☐ Nobody really loves me.
 - ☐ I am not sure if anybody loves me.
 - ☐ I am sure that somebody loves me.
- 26.
- ☐ I usually do what I am told.
 - ☐ I do not do what I am told most times.
 - ☐ I never do what I am told.
- 27.
- ☐ I get along with people.
 - ☐ I get into fights many times.
 - ☐ I get into fights all the time.

Appendix B. Measures in China

Social Withdrawal Scale (SWS)

1. 我有一位对我来说很亲近的朋友

1	2	3	4
5			
完全不符合	不太符合	有时符合	比较符合 非常符合

2. 比起自己一个人, 我比较想跟别人在一起

1	2	3	4
5			
完全不符合	不太符合	有时符合	比较符合 非常符合

3. 我非常害羞

1	2	3	4
5			
完全不符合	不太符合	有时符合	比较符合 非常符合

4. 比起跟别人在一起, 我比较喜欢自己独处

1	2	3	4
5			
完全不符合	不太符合	有时符合	比较符合 非常符合

5. 我会花时间独处是因为比起跟其他人在一起, 我更喜欢自己独处.

1	2	3	4
5			
完全不符合	不太符合	有时符合	比较符合 非常符合

6. 我会花时间独处是因为虽然我想和其他同学在一起,但是我实在太害羞或畏惧了

1	2	3	4
5			
完全不符合	不太符合	有时符合	比较符合 非常符合

7. 我会花时间独处是因为虽然我想和其他同学在一起,但是他们不想跟我在一起

1	2	3	4	
5				
完全不符合	不太符合	有时符合	比较符合	非常符合

Network Relationship Inventory (NRI)

1. 你花多少自由時間裡和他/她待在一起？	從不	很少	有時	很多	幾乎總在一起
2. 在多大程度上，你和他/她讓對方感到心煩或生氣？	從不	很少	有時	很多	幾乎總是
3. 在多大程度上，他/她教你做你不會做的事情？	從不	很少	有時	很多	幾乎總是
4. 在多大程度上，你對和他/她之間的關係感到滿意？	不滿意	有一點滿意	有些滿意	很滿意	非常非常滿意
5. 在多大程度上，你告訴他/她所有的事情？	什麼都不告訴	告訴一點	告訴一些	告訴很多	所有事都告訴
6. 在多大程度上，你幫助他/她做他/她自己做不了的事情？	從不	很少	有時	很多	幾乎總是
7. 他/她有多喜歡或愛你？	一點也不	有點	有些	很喜歡/愛	非常喜歡/愛
8. 在多大程度上，他/她懲罰你。	從不	很少	有時	很多	非常多
9. 在多大程度上，他/她對待你的方式讓你覺得他/她欣賞、尊重你？	一點也不	有點	基本上是這樣	大多是這樣	完全是這樣
10. 在多少時候，他/她告訴你應該做什麼？	從不	偶爾	有時	經常	幾乎總是
11. 你有多確信你和他/她的關係會持續下去？無論發生什麼事情。	一點也不	有點	基本上確信	很確信	完全確信
12. 在多大程度上，你和他/她在一起玩、享受快樂？	從不	很少	有時	很多	幾乎總是
13. 在多大程度上，你和他/她發生分歧或爭吵？	從不	很少	有時	很多	幾乎總是
14. 在多大程度上，他/她幫你解決事情。	從不	很少	有時	很多	幾乎總是
15. 對於你和他/她之間的交往，你感到有多愉快？	一點也不愉快	有點愉快	基本上愉快	很愉快	極其愉快
16. 在多大程度上，他/她打攪你或者惹你煩？	從不	很少	有時	經常	幾乎總是
17. 在多大程度上，你和他/她分享你的秘密和私人的感覺？	從不	很少	有時	經常	幾乎總是
18. 在多大程度上，你保護或關係他/她？	從不	很少	有時	經常	幾乎總是
19. 他/她有多關心你？	一點也不	有點	基本上是	大多是這樣	完全是這樣

			這樣		
20. 在多大程度上，他/她因為你不服從他/她而教訓你？	從不	很少	有時	很多	幾乎總是
21. 在多大程度上，他/她把你看作是一個在很多事情上很能幹的人？	一點也不	有點	基本上是這樣	大多是這樣	完全是這樣
22. 在你們的關係中，在多少時候，他/她處於支配者的地位？	從不	偶爾	有時	經常	幾乎總是
23. 在多大程度上，就算你們吵架了，你也確信你們的關係仍能保持下去？	一點也不	有點	基本上	很確信	完全確信
24. 在多少時候，你和他/她一起到某些地方、做有意思的事情？	從不	偶爾	有時	經常	幾乎總是
25. 在多大程度上，你和他/她互相爭論？	從不	很少	有時	很多	幾乎總是
26. 在多少時候，當你需要完成某些事的時候，他/她幫助你？	從不	偶爾	有時	經常	幾乎總是
27. 你覺得你和他/她之間的關係有多好？	很壞	有點壞	好	很好	極其好
28. 在多大程度上，你和他/她互相打擾或招惹對方？	從不	很少	有時	很多	幾乎總是
29. 在多大程度上，你和他/她談論那些你不想和別人講的事情？	從不	很少	有時	很多	幾乎總是
30. 在多大程度上，你照顧他/她？	從不	很少	有時	很多	幾乎總是
31. 他/她對你有多強的感情（喜歡或愛你）？	一點也不	有點	有一些	很強	極其強
32. 當你做了不該做的事情時，在多大程度上，他/她責罵你？	從不	很少	有時	很多	幾乎總是
33. 在多大程度上，他/她喜歡或贊成你做的事？	從不	很少	有時	很多	幾乎總是
34. 在多少時候，他/她控制或決定你應當做哪些事情？	從不	偶爾	有時	經常	幾乎總是
35. 在多大程度上，你確信你們的關係在未來幾年裡會保持下去？	一點也不	有點	基本上	很確信	完全確信

Child Depression Inventory (CDI)

自我感觉

同学们，你们有时会有不同的想法和感受。下面列出了各种各样的感情体验，共有 27 组，每组包括 3 个句子。请仔细阅读每一组中的每一句，然后根据你在过去两个星期里的实际情况，从每一组中选出一句最符合你的想法和感受的句子，在边上打一个勾。

注意，这里没有什么“对”或“错”的答案，结果纯粹为了科学研究所用，除了研究者外，没有人会看到你的答卷。所以，请根据你的真实想法来选择。

下面我们先来试一下，请在最符合你的情况的句子边上打一个勾。

例如： ☒ 我所有的时间都在读书。

☐ 我有时读点书。

☐ 我从来不读书。

1、 ☐ 我偶尔不高兴。

☐ 我经常不高兴。

☐ 我总是不高兴。

2、 ☐ 我的情况糟糕透了，以后也不会好起来。

☐ 我不知道我的情况会不会好起来。

☐ 我相信我的情况会好起来的。

3、 ☐ 很多事情我都能做好。

☐ 我有时做错事。

☐ 我总是做错事。

4、 ☐ 很多东西对我来说都很有趣。

☐ 有些东西对我来说很有趣。

☐ 没有什么东西可以使我感兴趣。

5、 ☐ 我总是很坏。

☐ 我有时很坏。

☐ 我偶尔坏一下。

6、 ☐ 我认为我偶尔会有一些倒霉事。

☐ 我担心我可能会遇到倒霉事。

☐ 我肯定不久就要遇到倒霉事。

7、 ☐ 我恨我自己。

☐ 我不大喜欢我自己。

☐ 我喜欢我自己。

- 8、___所有坏的事情都是由于我的过错。
___很多坏的事情是由于我的过错。
___坏的事情一般不是我的过错。
- 9、___我每天想哭。
___我过几天就想哭。
___我偶尔想哭。
- 10、___总是有使我烦恼的事。
___经常有使我烦恼的事。
___偶尔有使我烦恼的事。
- 11、___我喜欢和别人在一起。
___我不太喜欢和别人在一起。
___我从来不想和别人在一起。
- 12、___我做事情总是犹豫不决。
___我想做什么事但很难决定下来。
___我想做什么事很容易就决定下来。
- 13、___我长相还可以。
___我的外表有些变化，使我变得不太好看。
___我长得不好看。
- 14、___我总是强迫自己去做功课。
___我经常强迫自己去做功课。
___做功课对我来说不是个大问题。
- 15、___我每天晚上都睡不好觉。
___我经常晚上睡不好觉。
___我睡觉很好。
- 16、___我偶尔会感到累。
___我经常感到累。
___我总是感到累。
- 17、___我总是不想吃饭。
___我经常不想吃饭。
___我胃口一直很好。
- 18、___我不担心身上会疼。

- ____我经常担心身上会疼。
____我总是担心身上会疼。
- 19、____我不感到孤独。
____我经常感到孤独。
____我一直感到孤独。
- 20、____我觉得上学一点劲都没有。
____我有时觉得上学有劲，有时觉得没劲。
____我经常觉得上学很有劲。
- 21、____我有很多朋友。
____我有一些朋友。
____我没有任何朋友。
- 22、____我的学习成绩还不错。
____我的学习成绩不如以前。
____我的学习成绩比以前差多了。
- 23、____我一直没有其他孩子好。
____如果我想好，我可以和其他孩子一样好。
____我本来就和其他孩子一样好。
- 24、____没有人真正喜欢我。
____我不知道有没有人喜欢我。
____我肯定有人喜欢我。
- 25、____老师和家长叫我做的事，我一般都去做。
____老师和家长叫我做的事，我经常不去做。
____老师和家长叫我做的事，我从来不去做。
- 26、____我和别人合得来。
____我经常和人打架。
____我总是和别人打架。
- 27、____我的生活很有意义。
____我的生活没有多大意义。
____我简直不想活下去了。

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