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Preference-for-solitude and Adjustment Difficulties in Early and Late Adolescence

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Abstract

Objective—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 its relations with adjustment across different periods of adolescence. We examined whether preference-for-solitude might be differentially associated with adjustment difficulties in early and late adolescence.

Method—Self and parent-reports of withdrawal motivations and adjustment were collected from 234 8th graders (113 boys; *M* age = 13.43) and 204 12th graders (91 boys; *M* age = 17.25).

Results—Results from structural equation modeling demonstrated that above and beyond the effects of shyness, preference-for-solitude was more strongly associated with adjustment difficulties in 8th grade than in 12th grade. Preference-for-solitude was associated with greater anxiety/depression, emotion dysregulation, and lower self-esteem in 8th grade; these relations were not found in 12th grade. Although preference-for-solitude was associated with lower social competence in both 8th and 12th grades, this relation was significantly stronger in 8th grade than in 12th grade.

Conclusion—Findings suggest preference-for-solitude has closer ties to maladjustment in early adolescence than in late adolescence. Interventions targeting preferred-solitary youth in early adolescence may be particularly fruitful.

A significant number of adolescents struggle with psychoemotional difficulties; these difficulties come with considerable personal and societal costs (Wolfe & Mash, 2008). 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, 2010, 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 & Raja, 2011; Bowker, Markovic, Cogswell, & Raja, 2012; Thijs, Koomen, de Jong, van der Leij, & van Leeuwen, 2004). *Shyness* consists of high approach and high avoidance motivations (Asendorpf, 1990;

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1993); shy youth are interested in interacting with others but withdraw because they are socially anxious. *Unsociability* consists of low approach and low-to-average avoidance motivations; though they do not actively avoid interacting with others, unsociable youth withdraw due to a preference for solitary activities. *Avoidance* consists of low approach and high avoidance motivations; in addition to a preference for solitary activities, avoidant youth also actively avoid others. Thus, in regards to approach motivation, both unsociability and avoidance are marked by low approach motivation or a preference for solitary activities. From this view, unsociability and avoidance fall under the broader construct of preference-for-solitude (see Figure 1).

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 during 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 and fewer intimate friends in early adolescence. Coplan et al. (2012) found that low approach motivation was associated with socially withdrawn behaviors in young adolescents, which in turn predicted peer difficulties. Bowker and colleagues (2011; 2012) found that both unsociability and avoidance were associated with peer rejection in young adolescents. Because researchers have yet to examine preference-for-solitude beyond early adolescence, however, it is not known whether preference-for-solitude is maladaptive *across* adolescence. Given there are considerable developmental differences between early and late adolescence (Laursen & Collins, 2009), preference-for-solitude may be differentially associated with adjustment at these different time points.

Younger and older adolescents differ in the importance they place on solitude. In particular, solitude is viewed negatively in early adolescence— young adolescents find time alone aversive and hold negative views toward solitude and withdrawn behaviors (Larson, 1990; Rubin & Coplan, 2010). In contrast, solitude becomes more acceptable in late adolescence (Coplan & Weeks, 2010)— older adolescents not only spend more time alone compared with younger adolescents, they also report such solitude as more positive and more important (Goossens & Marcoen, 1999; Larson, 1990).

These developmental differences may affect how preference-for-solitude relates to adjustment between early and late adolescence. Given the negative views of solitude in early adolescence, preferred-solitary youth may feel less self-assured when comparing themselves with their more sociable peers. Indeed, although little is known about the self-perceptions of preferred-solitary youth, shy youth have been found to report lower self-perceptions than non-shy youth during early adolescence (Rubin, Bowker, & Gazelle, 2010). As well, given the negative perceptions of solitude in early adolescence, young adolescents who prefer solitude may also be at risk for peer maltreatment and subsequent maladjustment (Rubin et al., 2009). Indeed, preference-for-solitude has been associated with peer difficulties in early adolescence (Bowker & Raja, 2011; Coplan et al., 2012).

In contrast, because solitude becomes more salient and normative in late adolescence (Coplan & Weeks, 2010), preference-for-solitude may be less associated with peer maltreatment and subsequent maladjustment during this period. Indeed, Freeman, Csikszentmihalyi, and Larson (1986) asked adolescents to rate changes in their affective states over the previous years. They found that older adolescents not only reported an increased need and desire to be alone, they also reported solitude as less socially stigmatizing and less alienating than they had before. Similar results have been found in other studies (Goossens & Marcoen, 1999; Larson, 1990). Although these developmental

possibilities provide important insights for understanding adolescent psychopathology, they remain to be empirically substantiated.

Given the aforementioned gaps in research, the overall goal of this study was to examine the unique relations between preference-for-solitude and psychoemotional adjustment in early and late adolescence. Specifically, because shyness has been strongly associated with internalizing difficulties across development (Rubin & Coplan, 2010), we examined the unique contribution of preference-for-solitude to internalizing difficulties (anxiety/depression, emotion dysregulation, social competence, and self-esteem) across adolescence. We hypothesized that: 1) preference-for-solitude would emerge as a distinct construct from shyness across adolescence; and 2) preference-for-solitude would be more strongly associated with internalizing difficulties above and beyond the effects of shyness for younger adolescents (8th graders) than for older adolescents (12th graders). Given it is currently unknown whether all youth who prefer solitude across adolescence might benefit from or even require intervention, our results would provide much-needed knowledge on the heterogeneity of withdrawal.

Method

Participants

The sample consisted of 234 8th graders (113 boys; *M* age = 13.43) and 204 12th graders (91 boys; *M* age = 17.25) from public middle and high schools in the greater Washington, D.C. area. The sample was ethnically diverse, with 53.9% of the adolescents self-identifying as European-American, 15.9% as African American, 13.3% as Asian, 11.4% as Latino/a, and 5.5% as bi- or multi-racial.

Available demographic information classified the majority of the sample as middle to upper-middle class. Statistical comparisons (ANOVA) did not reveal significant grade differences in SES or gender.

Procedure

Across 8th and 12th grades, data were collected during the spring (April-June) of the school year. 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 = 84%).

Depending on participant preference, packets of questionnaires were mailed home (87% of the sample) or a link to a secure website was sent via email (13% of the sample). Statistical comparisons (ANOVA) did not reveal significant demographic differences or differences in any of the study variables among participants who completed the questionnaires in these different contexts.

Measures

Preference-for-solitude and shyness—Preference-for-solitude and shyness were measured using items on the *Social Withdrawal Scale* (*SWS*; Terrell-Deutsch, 1999) and the *Youth Self Report* (*YSR*; Achenbach & Rescorla, 2001). The *SWS* is a self-report of withdrawal on a scale 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"*). Items were standardized and subjected to exploratory factor analyses separately in the 8th and 12th grades (see Results).

Preference-for-solitude consisted of 4 item indicators (3 *SWS* and 1 *YSR* items; "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"). Internal reliability was acceptable ($\alpha = 0.72$, 8th grade; $\alpha = 0.79$, 12th grade).

Shyness consisted of a scale indicator (2 *SWS* and 1 *YSR* items; "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"). Internal reliability was acceptable ($\alpha = 0.76$, 8th grade; $\alpha = 0.75$, 12th grade).

Anxiety/depression—Anxiety/depression was measured using established subscales from the *YSR* (Achenbach & Rescorla, 2001) and the Child Behavioral Checklist (*CBCL*; Achenbach & Rescorla, 2001). The *CBCL* is a parent-report measure, similar to the *YSR*, that assesses youth adjustment on a scale that ranges from 0 ("*Not true*") to 2 ("*Very often true*").

The Anxiety/depression consisted of a self-report scale indicator (12 *YSR* items: e.g., "I cry a lot," "I feel worthless or inferior," "I am nervous or tense," "I worry a lot") with good internal reliability ($\alpha = 0.82$, 8th grade; $\alpha = 0.84$, 12th grade) and a parent-report scale indicator (12 *CBCL* items: e.g., "My child cries a lot," "My child feels worthless or inferior," "My child is nervous, high strung, or tense," "My child worries") with good internal reliability ($\alpha = 0.80$, 8th grade; $\alpha = 0.78$, 12th grade).

Emotion dysregulation—Emotion dysregulation consisted of 3 *CBCL* item indicators ("My child tends to be emotional," "My child reacts intensely when upset," and "My child gets upset easily"). Internal reliability was acceptable ($\alpha = 0.72$, 8th grade; $\alpha = 0.86$, 12th grade).

Social competence and self-esteem—Social competence and self-esteem were measured using the *Self-Perception Profile for Adolescents* (*SPPA*; Harter, 1988) in 8th grade and the *Self Perception Profile for College Students* (*SPPCS*; Neemann & Harter, 1986) in 12th grade. The *SPPA* and the *SPPCS* assess youth' self-perceptions self-esteem; only similarly worded items between *SPPA* and *SPPC* were used to ensure measurement invariance across grades.

Social competence consisted of two item indicators drawn from the Social Competence subscales of the *SPPA* and the *SPPCS* ("Able to make friends easily" and "Feel socially accepted by many"). Internal reliability was acceptable ($\alpha = 0.70$, 8th grade; $\alpha = 0.67$, 12th grade) for measures consisting of two items (Burisch, 1997).

Self-esteem consisted of five item indicators drawn from the Global Self-Worth subscales of the *SPPA* and the *SPPCS* ("Like the kind of person they are," "Like the way they are leading their lives," "Pleased with themselves," "Happy being the way they are," and "Usually satisfied with themselves"). Internal reliability was acceptable ($\alpha = 0.85$, 8th grade; $\alpha = 0.84$, 12th grade).

Plan of Analysis

To assess whether there were gender or ethnic group differences in the relations between preference-for-solitude and outcomes, several multi-group structural equation modeling (SEM) analyses were conducted within Mplus 7 (Muthén & Muthén, 1998–2010). Results did not differ as a function of gender or ethnicity, so each was omitted from the final model.

There were no statistically significant grade differences in variance across all latent constructs.

To address our research question of whether preference-for-solitude would be more strongly associated with outcomes in early than late adolescence, a measurement model of indicators to latent factors was first tested, followed by a structural model testing the relations of interest (with shyness as a control variable). This two-phase approach represents an optimal way to ensure data-model fit (Anderson & Gerbing, 1988; Hancock & Mueller, 2006). Comparative fit index (CFI), root-mean-square error of approximation (RMSEA), and standardized-root-mean-square (SRMR) were used for model-fit assessments. Model-fit comparisons were conducted using a chi-square difference test.

On average, 0.0%-7.1% of the data were missing across all variables; Little's MCAR test (Little & Rubin, 1987) revealed these data were missing completely at random. Full information maximum likelihood (FIML) was used to address missingness; this procedure is a robust and accurate estimator of results in small samples (Hancock & Mueller, 2006).

Results

Preliminary Factor Analyses

Descriptives are presented in Table 1. To examine whether preference-for-solitude could be distinguished from shyness in early and late adolescence, scores on the *SWS* and *YSR* items were first standardized and subjected to exploratory factor analyses using principal-axis factoring with oblique rotation (due to the anticipation of factor inter-correlations; Preacher & MacCallum, 2003) separately in the 8^{th} and 12^{th} grades. Table 2 shows that a two-factor solution was the most appropriate in both grades, providing evidence that shyness and preference-for-solitude were related but unique constructs.

Next, to examine the structural validity of this two-factor model, we conducted separate confirmatory factor analyses comparing the two-factor model with the one-factor model within each grade. The one-factor model exhibited significantly poorer fit compared with the two-factor model in both the 8^{th} ($\Delta\chi^2$ [1] = 74.32, $p < .001$) and 12^{th} grades ($\Delta\chi^2$ [1] = 90.53, $p < .001$), providing further evidence of shyness and preference-for-solitude as unique dimensions of withdrawal.

Finally, to examine the structural validity of the outcome model, we conducted separate confirmatory factor analyses comparing a one-factor model, in which items describing anxiety/depression, emotion dysregulation, self-esteem, and social competence all loaded onto one factor, with a four-factor model, in which items for each variable loaded onto separate factors. The one-factor model exhibited significantly poorer fit compared with the four-factor model in both the 8^{th} ($\Delta\chi^2$ [8] = 160.61, $p < .001$) and 12^{th} grades ($\Delta\chi^2$ [8] = 495.31, $p < .001$), providing support for the distinctiveness of these internalizing indices.

Measurement Models

To evaluate measurement equivalency between 8^{th} and 12^{th} grades, multiple-group confirmatory factor analyses were conducted. Freely estimated and constrained confirmatory factor analyses were compared using the chi-square difference criterion. The constrained measurement model exhibited adequate fit ($\chi^2 = 400.03$, df = 226, RMSEA = .06, CFI = .95); all loadings were significant and exhibited the same pattern across both groups, demonstrating evidence of measurement equivalence across the two grades.

Construct reliability was assessed with Hancock's *H* (Hancock & Mueller, 2001), an index of latent construct reliability that is psychometrically stronger than traditional reliability

indices (Hancock & Mueller, 2006). All latent constructs were reliable in both grades ($H >$ 0.75).

Structural Equation Models of Preference-for-solitude to Psychoemotional Adjustment Across Adolescence

Structural equation models tested whether preference-for-solitude would be more strongly associated with adjustment difficulties in 8th grade than in 12th grade. In all models, shyness was included as a control variable, with direct paths to preference-for-solitude and to all outcomes. In both grades, shyness was significantly associated with preference-for-solitude ($r = .52$, 8th grade; $r = .47$, 12th grade), anxiety/depression ($\beta = .59$, 8th grade; $\beta = .37$, 12th grade), emotion dysregulation ($\beta = .21$, 8th grade; $\beta = .11$, 12th grade), social competence ($\beta = -.62$, 8th grade; $\beta = -.53$, 12th grade), and self-esteem ($\beta = -.41$, 8th grade; $\beta = -.25$, 12th grade) at $p < 0.05$. There were no statistically significant grade differences in the magnitude of relations from shyness to any of the outcomes. Because the focus of this study was on the unique associations between preference-for-solitude and adjustment, over and above associations with shyness, shyness was included in all models as a control variable.

First, to examine the effects of preference-for-solitude, direct paths from preference-for-solitude to all outcomes were specified within each grade; this initial structural model exhibited adequate fit (Table 3).

Second, to test whether the relations between preference-for-solitude and outcomes differed between younger and older adolescents, all direct paths from preference-for-solitude to outcomes were constrained to be equal across grades. This constrained model exhibited significantly poorer fit compared with the initial unconstrained model, $\Delta\chi^2$ (5)= 17.21, $p < .01$, suggesting preference-for-solitude was differentially associated with adjustment in 8th and 12th grades.

Third, to identify path differences between the two grades, path constraints from preference-for-solitude to outcomes were released sequentially based on information from the modification indices. First, the preference-for-solitude to self-esteem constraint was released; this resulted in a statistically significant model improvement $\Delta\chi^2$ (1)= 5.24, $p < .05$, suggesting preference-for-solitude was differentially associated with self-esteem for younger versus older adolescents. Second, the preference-for-solitude to social competence constraint was released; this resulted in a statistically significant model improvement, $\Delta\chi^2$ (1)= 4.14, $p < .05$, suggesting preference-for-solitude was differentially associated with social competence for younger versus older adolescents. Third, the preference-for-solitude to anxiety/depression constraint was released; this resulted in a significant model improvement, $\Delta\chi^2 = 3.97$, $p < .05$, suggesting preference-for-solitude was differentially associated with anxiety/depression for younger versus older adolescents. Finally, the preference-for-solitude to emotion dysregulation constraint was released; this resulted in a significant model improvement, $\Delta\chi^2 = 3.86$, $p = < .05$, suggesting preference-for-solitude was differentially associated with emotion dysregulation for younger versus older adolescents.

To explore the possibility of peer rejection as a confounder, we controlled for peer rejection (as measured via peer nominations; see Wojslawowicz et al., 2006) in the 8th grade model. These additional analyses yielded results very similar to the original results for 8th graders: preference-for-solitude was still associated with all indices of maladjustment even after controlling for peer rejection. Given peer rejection was not the main research focus and because we did not have peer rejection data in 12th grade, these analyses were not included.

Summary of Results

The final structural model exhibited adequate fit (Table 3). Figure 2 demonstrates that, above and beyond the effects of shyness, preference-for-solitude was more strongly associated with adjustment difficulties for younger adolescents than for older adolescents. Whereas preference-for-solitude was significantly associated with greater anxiety/depression and emotion dysregulation and lower self-esteem in 8th grade, it was not associated with these outcomes in 12th grade. Additionally, although preference-for-solitude was significantly associated with lower social competence in both 8th and 12th grades, this relation was significantly stronger in 8th grade compared with 12th grade.

Discussion

Using a racially diverse sample, we examined whether preference-for-solitude would be differentially associated with psychoemotional adjustment above and beyond the effects of shyness in early and late adolescence. Several findings stand out. First, as hypothesized and consistent with previous research (Bowker & Raja, 2011; Coplan et al., 2012; Nelson, 2012), preference-for-solitude and shyness emerged as related but unique dimensions of withdrawal. These findings further demonstrate that there are several "faces" to withdrawal across development (Rubin & Mills, 1988) — whereas some youth spend time alone because they are conflicted about approaching others, others spend time alone because they desire to be alone.

Second, as hypothesized, we found that preference-for-solitude was more strongly associated with maladjustment for younger adolescents than for older adolescents, even after controlling for shyness. Specifically, although preference-for-solitude was associated with greater anxiety/depression and emotion dysregulation as well as lower self-esteem in 8th grade, it was not associated with these difficulties in 12th grade. Preference-for-solitude was also more strongly associated with lower social competence in 8th grade than in 12th grade. Indeed, the magnitude of relations between preference-for-solitude and all adjustment outcomes were significantly stronger in 8th grade relative to 12th grade, suggesting preference-for-solitude may be particularly maladaptive in early adolescence.

Several explanations exist for why the strength of associations between preference-for-solitude and adjustment difficulties might decrease with age. Because withdrawal is viewed negatively in early adolescence (Marcoen & Goossens, 1989; Rubin et al., 2009), preferred-solitary young adolescents may internalize peers' negative views of withdrawal and come to feel negatively about themselves, particularly if they are also victimized. Indeed, shy youth who are frequently victimized experience adjustment difficulties across development (Rubin & Coplan, 2010). Additionally, as cliques and crowds become prominent sources of influence in early adolescence (Veenstra & Dijkstra, 2012), the need to belong begins to take increased importance during this period. Given withdrawn youth are often not members of peer groups (Rubin & Coplan, 2010), preferred-solitary youth may feel particularly alienated in early adolescence. Indeed, withdrawn young adolescents report greater loneliness and lower self-perceptions compared with their non-withdrawn peers (Bowker & Raja, 2011; Marcoen & Goossens, 1989; Rubin & Coplan, 2010).

In contrast, given the need for solitude increases across adolescence (Larson, 1990), preference-for-solitude may be less associated with peer maltreatment and subsequent maladjustment in late adolescence. Indeed, youth view solitude as less socially stigmatizing and less aversive as they approach late adolescence (Freeman et al., 1986; Goossens & Marcoen, 1999). Additionally, given older adolescents are generally granted more independence and behavioral autonomy than younger adolescents (Laursen & Collins, 2009), preferred-solitary older adolescents may have more freedom to enjoy solitude (e.g.,

go to places alone without company), possibly contributing to greater well-being. Because this is the first study on preference-for-solitude in late adolescence, further studies are needed to explore these possibilities.

Despite these different age-related findings, preference-for-solitude was associated with lower perceived social competence in both 8th and 12th grades. This suggests that, regardless of age, preferred-solitary youth may feel negatively about their social competence across adolescence. By consistently withdrawing from social interactions, preferred-solitary adolescents may miss out on important opportunities to learn social skills. Indeed, scholars have long posited the significance of peer interaction for social skills development (Hartup & Laursen, 1999; Rubin et al., 2009). Future longitudinal research is needed to better understand the relations between preference-for-solitude, social skills, and adjustment across development. Although we found preference-for-solitude was less maladaptive in late adolescence than early adolescence, the relation between preference-for-solitude and adjustment may be non-linear over time. For instance, given the new social demands of adulthood (e.g., adjusting to college; establishing romantic relationships), preference-for-solitude may become increasingly maladaptive as adolescents enter adulthood. From this view, preference-for-solitude may be maladaptive in early adolescence, decreasingly maladaptive in late adolescence, and increasingly maladaptive once again in adulthood. These possibilities remain to explored.

Several limitations are worth noting. Due to the cross-sectional nature of our data and because our analyses tested only for associative (e.g., predictive) relations among constructs, results should be viewed as temporally descriptive rather than causal. Individual trajectories of social 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. Additionally, given the central focus of this study was on the broader construct of preference-for-solitude rather than the different motivations behind such preference (e.g., social avoidance motivations), unsociability and avoidance could not be differentiated. Indeed, some of our preference-for-solitude items overlap with some of the avoidance items in previous studies (Bowker & Raja, 2011). Future research is needed to distinguish between these different dimensions of preference-for-solitude across development. Unsociability has been shown to be less associated with maladjustment than has avoidance in early adolescence and adulthood (Bowker & Raja, 2011; Coplan et al., 2012; Nelson, 2012). Whether such relations also hold true in late adolescence and whether such relations differ between distinct development periods remain to be examined.

Moreover, given psychoemotional adjustment (e.g., internalizing difficulties) 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 adjustment across adolescence. Indeed, although we speculated preference-for-solitude may be differentially associated with peer difficulties in early and late adolescence, future research is needed to confirm these speculations. It remains to be seen whether preference-for-solitude is indeed less associated with peer difficulties in late adolescence compared with early adolescence, and whether such differences might moderate or mediate the relations between preference-for-solitude and adjustment. As well, given peer difficulties contribute to withdrawal (Rubin & Coplan, 2010), it also remains to be seen whether prior negative peer experiences might lead to later preference-for-solitude. Indeed, peer rejection and victimization may cause youth to voluntarily choose solitude. Similarly, although additional exploratory analyses in this study demonstrated that preference-for-solitude was still associated with all indices of maladjustment above and beyond the effects of peer rejection for 8th graders, future research that controls for such negative peer experiences in a longitudinal framework would provide

more clarity to the conceptualization of preference-for-solitude and its implications across development.

Limitations notwithstanding, this study provides several insights for youth intervention and prevention efforts. In light of our findings that preference-for-solitude was more maladaptive in early adolescence than in late adolescence, interpersonal and cognitive-behavioral interventions that focus on social skills and behavioral training (Kaslow, McClure, & Connell, 2002) may prove particularly helpful for preferred-solitary youth in early adolescence. Because decreased peer influence is thought to lessen the negative consequences of preference-for-solitude in late adolescence, techniques that address the level of regard youth place on peers may also prove fruitful. Indeed, Wang, McDonald, Rubin, and Laursen (2012) found that peer rejection was most associated with maladjustment for young adolescents who highly valued social acceptance. As well, because the increased salience of solitude is thought to lessen the negative consequences of preference-for-solitude in late adolescence, interventions that alter youths' attitudes about solitude and those that foster "solitude skills" (see Galanaki, 2005, for a review) may also prove fruitful for young adolescents who prefer solitude.

In light of our findings that preference-for-solitude was associated with lower social competence across adolescence, social skills interventions may prove fruitful for both younger and older adolescents who prefer solitude. Such interventions may be particularly warranted given social competence is significantly associated with a variety of adjustment outcomes across development (Rubin et al., 2009).

Taken together, our study suggests that a balance of solitude and social interactions might prove fruitful for adaptive development during adolescence. Caregivers and educators should encourage adolescents to balance both time alone and time spent with others so that youth do not place too much emphasis on one at the expense of the other. Given that the need for connectedness and the need for autonomy underlie what it means to be human, the sooner youth learn to balance such needs, the more likely they will be able to flourish across development.

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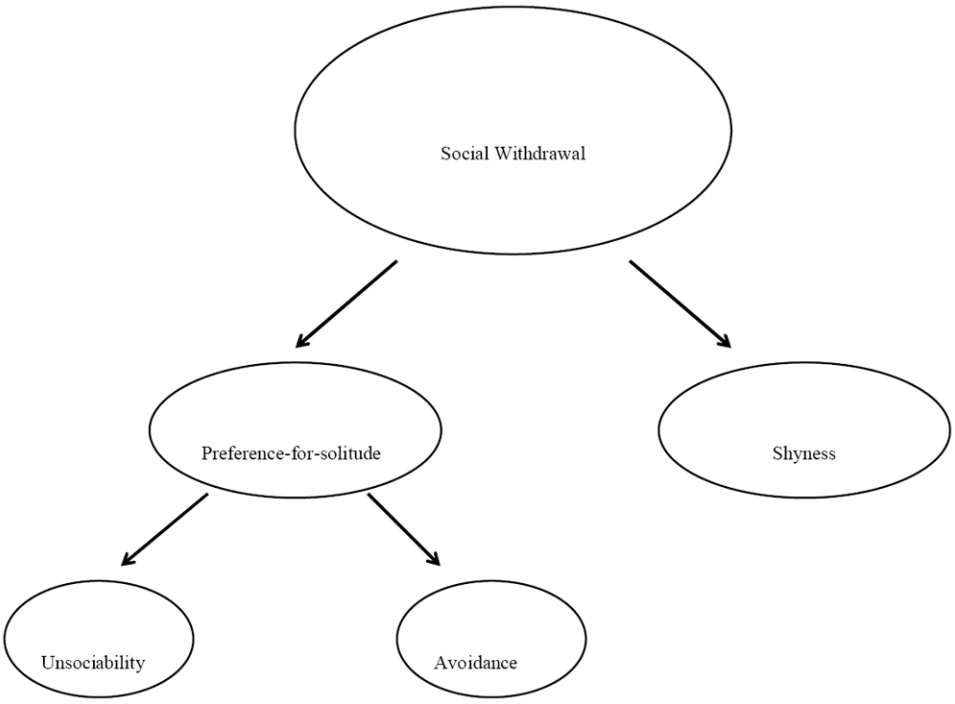

Figure 1.
Conceptual model of preference-for-solitude

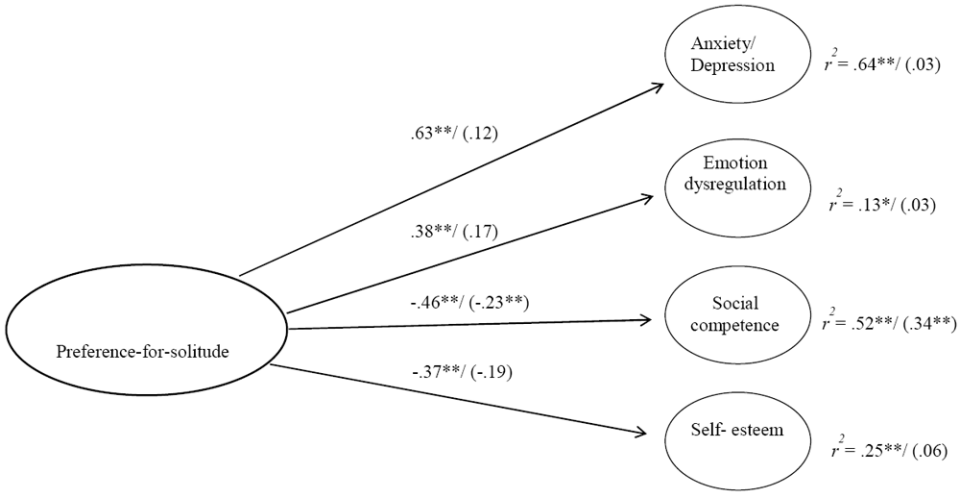

Figure 2.

Unique associations between preference-for-solitude and adjustment in 8th grade (N = 234) and 12th grade (N = 204). *Note*. Paths between shyness and preference-for-solitude and from shyness to anxiety/depression, emotion dysregulation, social competence, and self-esteem were included in the model but were omitted from the figure to improve clarity.*p < .05, **p < .01.

Table 1

Estimated Means, Variance, and Correlations for All Latent Constructs

	M	Variance	Preference- for-solitude	Shyness	Anxiety/depression	Emotion dysregulation	Social Competence
Preference-for-solitude	.12 (8^{th})	.24 (8^{th})					
	.28 (12^{th})	.53 (12^{th})					
Shyness	.18 (8^{th})	.36 (8^{th})	.52 (8^{th})				
	.41 (12^{th})	.57 (12^{th})	.47 (12^{th})				
Anxiety/depression	.85 (8^{th})	.35 (8^{th})	.76 (8^{th})	.59 (8^{th})			
	.88 (12^{th})	.41 (12^{th})	.14 (12^{th})	.37 (12^{th})			
Emotion dysregulation	.03 (8^{th})	.14 (8^{th})	.35 (8^{th})	.21 (8^{th})	.61 (8^{th})		
	.27 (12^{th})	.30 (12^{th})	.14 (12^{th})	.11 (12^{th})	.56 (12^{th})		
Social Competence	-.46 (8^{th})	.32 (8^{th})	-.63 (8^{th})	-.62 (8^{th})	-.43 (8^{th})	-.34 (8^{th})	
	-.59 (12^{th})	.29 (12^{th})	-.46 (12^{th})	-.53 (12^{th})	-.21 (12^{th})	-.17 (12^{th})	
Self-esteem	-.36 (8^{th})	.33 (8^{th})	-.43 (8^{th})	-.41 (8^{th})	-.46 (8^{th})	-.32 (8^{th})	.66 (8^{th})
	-.40 (12^{th})	.25 (12^{th})	-.24 (12^{th})	-.25 (12^{th})	-.16 (12^{th})	-.21 (12^{th})	.64 (12^{th})

Note. N = 234 8^{th} graders, 204 12^{th} graders. All correlations were significant at $p < .05$.

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Table 2

Results of Principal Axis Factor Analysis of the Preference-for-solitude and Shyness Items in 8th grade (N = *234*) and 12th grade (N = 204)

	Factor			
Items	**PFS (8th)**	**Shy (8th)**	**PFS (12th)**	**Shy (12th)**
Want to be alone more than with other kids	.67*	-.13	.79*	-.03
Like spending time alone more with other kids	.82*	-.09	.82*	-.11
Would rather be with other kids than alone (R)	.83*	.24	.77*	-.05
Would rather be alone than with others	.62*	-.20	.80*	-.04
Want to be with other kids but too shy/afraid	.20	-.72*	-.05	-.79*
I am very shy	-.08	-.89*	.01	-.89*
I am too shy or timid	.01	-.84*	.07	-.79*

Note. PFS = Preference-for-solitude; Shy = Shyness; R = reverse scored. Factor analysis was calculated using principal axis factor analysis with promax/oblique rotation.

*Primary loadings.

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Table 3

Summary of Data Model Fit Statistics

Model	χ^2	*df*	CFI	RMSEA	SRMR
Measurement model	400.03	226	.95	.056	.073
Initial structural model	405.71	230	.95	.056	.073
First structural model (with all paths constrained)	422.92	234	.94	.058	.088
Second structural model (with PFS-Self-esteem constraint released)	417.68	233	.94	.058	.085
Third structural model (with PFS-Social competence constraint released)	413.54	232	.95	.057	.081
Fourth structural model (with PFS-Anxiety/depression constraint released)	409.57	231	.95	.057	.078
Final structural model (with PFS-Emotion dysregulation constraint released)	405.71	230	.95	.056	.073

Note. N = 234 8^{th} graders, 204 12^{th} graders. PFS = Preference-for-solitude. CFI = comparative fit index; RMSEA = root-mean-square error of approximation; SRMR = standardized-root-mean-square.