

A Longitudinal Person-Centered Examination of Affinity for Aloneness Among Children and Adolescents

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Affinity for aloneness among youth often is viewed negatively. However, some youth may enjoy solitude for positive reasons, rather than because of social anxiety. The prevalence and adjustment over time of youth with high affinity for aloneness is unclear. Groups of children ($N = 605$, $M_{\text{age}} = 9.29$) and adolescents ($N = 596$, $M_{\text{age}} = 12.20$) were identified using affinity for aloneness and social anxiety scores, and group differences in adjustment were assessed. Latent class analyses revealed four groups at T1 and T2 for both samples. Among these were Normative (Low.affinity_for_aloneness-Low.social_anxiety) and Affinity for Aloneness (High.affinity_for_aloneness-LowMod.social_anxiety) groups. These groups did not differ longitudinally in adjustment. Having elevated levels of affinity for aloneness without high social anxiety is relatively benign.

Parents, educators, and researchers often are concerned when they observe a child or adolescent spending significant amounts of time on their own (Coplan & Armer, 2007). It is apparent, however, that some youth enjoy spending time alone (i.e., they have an affinity for aloneness). Moreover, this tendency to enjoy being alone is not always a result of fearing social interactions or experiencing anxiety in the presence of peers. Indeed, some individuals may enjoy time alone for nonfearful or anxiety-related reasons (e.g., because they see value in it; Asendorpf, 1990; Coplan, Ooi, & Nocita, 2015; Goossens, 2013). This knowledge has led to the emergence of research examining both the prevalence and well-being of youth who have an appreciation for solitude that is not driven by social fears or anxieties. This study aims to further build upon this research.

When it comes to research on solitude among youth, most authors have framed their work around the concept of *unsociability*. Unsociable youth are typically described as those who have a *preference* for solitude over being with others. Unsociability, therefore, is a narrower term than affinity for aloneness, as unsociability does not include individuals who enjoy solitude but do not prefer it over being with others. In contrast, affinity for aloneness is defined as *enjoyment of solitude* and therefore does not specify whether it is a preference over being with others (i.e., it includes both

individuals who enjoy solitude and prefer it over being with others, and individuals who enjoy solitude but do not necessarily prefer it over being with others). Researchers specifically examining unsociability have found that unsociable youth make up a modest portion of the early adolescent population (e.g., 15% of the sample, Coplan et al., 2013). Investigations into the psychosocial well-being of these individuals have produced somewhat mixed results, with some work suggesting that unsociability is relatively benign (e.g., Coplan, Ooi, & Nocita, 2015; Coplan et al., 2013; Ladd, Kochenderfer-Ladd, Eggum, Kochel, & McConnell, 2011), and other work suggesting that it may be associated with impairments in adjustment (Barstead et al., 2018; Liu et al., 2015).

Coplan, Ooi, and Baldwin (2018) speculate that there might be developmental timing effects in the link between unsociability and impairments to psychosocial functioning. They suggest that children who spend a lot of time alone might miss out on opportunities to learn social skills and develop a sense of belonging, which could have negative implications particularly in late childhood and early adolescence when social norms and expectations for peer interactions increase. The idea that early adolescence might be a particularly sensitive time for peer interaction also is supported by recent research on adolescent brain development. Casey (2015) argues that there is asynchrony in the maturation of neural circuits within and between different

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brain systems, with circuitry within the subcortical limbic-striatal brain system (associated with socioemotional processing) maturing early in adolescence (likely due to puberty) but interconnections to the prefrontal executive system (associated with self-control and potential suppression of socioemotional impulses) maturing later in adolescence. This asynchrony in maturity is thought to lead to heightened activation of the limbic-striatal region during early to mid-adolescence, when neural connections to the prefrontal cortex that might dampen the activation (if appropriate) are not fully mature, thus making this age group more sensitive to peers. Any negative implications of unsociability, therefore, might be highest in early adolescence.

It is important to note, however, that while sensitivity to peers might be highest in early adolescence, making this age period a critical time for learning social skills and developing social ties, it is not clear that it is youth's *enjoyment of solitude* that is related to negative psychosocial functioning. The purpose of this study, therefore, was to specifically assess how enjoyment of solitude is related to negative psychosocial functioning. Here we assess the broader term, having an affinity for aloneness, to investigate solitude; thus, not excluding youth who enjoy solitude but who don't necessarily prefer it over being with others.

Studies of affinity for aloneness (operationalized as enjoyment of solitude) are scarce, and the few studies that have been conducted have focused on adolescents, with the exception of some work examining the measurement of this construct in childhood (see Goossens & Beyers, 2002; Maes, Van Den Noortgate, & Goossens, 2015), and how this enjoyment of solitude is related to parenting behaviors and attachment styles during this stage of life. For instance, Richaud de Minzi (2006) found that greater affinity for aloneness scores were associated with children being less reliant on their parents, while also perceiving them as less available or responsive. Nonetheless, the overall lack of research on affinity for aloneness among children is due perhaps to the belief that compared to children, adolescents may be particularly likely to enjoy time spent alone. Indeed, time spent alone during adolescence may provide individuals with opportunities to pursue their own interests, engage in identity exploration or self-reflection, and develop independence from their parents. As such, it is believed that individuals with elevated levels of affinity for aloneness choose to spend time alone for positive reasons, rather than negative ones (e.g., because they're socially anxious; Goossens, 2013; Goossens & Marcoen, 1999; Larson, 1990).

Research on affinity for aloneness generally has focused on how common this tendency to enjoy solitude is across different periods of adolescence. Overall, affinity for aloneness scores appear to be highest in the latter parts of adolescence. Indeed, two cross-sectional studies have indicated that adolescents aged 17 and older score significantly higher on measures of affinity for aloneness than individuals in early or mid-adolescence (note that affinity for aloneness levels did not differ significantly between early and mid-adolescents; Corsano, Majorano, & Champretavy, 2006; Marcoen & Goossens, 1993). Similarly, a recent longitudinal study found that in two large samples of adolescents, affinity for aloneness scores increased significantly from mid (i.e., ≈ 15 years old) to late-adolescence (i.e., ≈ 18 years old; Danneel, Maes, Vanhalst, Bijttebier, & Goossens, 2018). While no claims can be made regarding the amount of time these individuals are actually spending alone, these findings coincide with results from an experience sampling study that indicated an increase in the average daily amount of time spent alone between early and late adolescence (Larson, 1990). Nonetheless, these studies examining affinity for aloneness are limited in that they did not include assessments of this construct in children, therefore preventing the ability to examine whether the prevalence of affinity for aloneness is greater in early adolescence relative to childhood. Thus, one goal of this study was to address this limitation.

Research in this area also has assessed the well-being or psychosocial functioning of adolescents with elevated levels of affinity for aloneness. Two cross-sectional studies found that affinity for aloneness was positively associated with potentially valuable behaviors (e.g., self-reflection, exploration of political or religious beliefs; Goossens & Marcoen, 1999) or personality traits (e.g., conscientiousness, openness to experience; Teppers et al., 2013), whereas other cross-sectional studies found that affinity for aloneness was negatively associated with psychosocial functioning. For instance, Corsano et al. (2006) and Marcoen, Goossens, and Caes (1987) found that greater affinity for aloneness was linked to more difficulties with peer relationships (e.g., lower friendship quality and quantity, more problems getting along with others), and impairments to psychological functioning (e.g., negative outlooks on the future, lower emotional stability; see also Teppers et al., 2013). Similar results have been found in two recent cross-sectional studies that used cluster analyses to identify a group of adolescents who scored high on a measure of

affinity for aloneness and low or moderate on a measure of aversion to aloneness (defined as the experience of boredom, unhappiness or uneasiness when alone). In both studies, individuals characterized by high affinity for aloneness and low aversion to aloneness reported significantly lower self-esteem than those who were characterized by low affinity for aloneness and low aversion to aloneness (Maes, Vanhalst, Spithoven, Van den Noortgate, & Goossens, 2016; Teppers, Luyckx, Vanhalst, Klimstra, & Goossens, 2014). Additionally, Maes et al. found significant differences between these two groups such that compared to those with high affinity for aloneness and low aversion to aloneness, those with low affinity for aloneness and low aversion to aloneness scored higher on measures of friendship quality and quantity, social competence, and the extent to which they were liked by their peers.

While this previous research on affinity for aloneness is informative, it is limited by the fact that researchers did not simultaneously examine the effects of varying levels of social anxiety. Individuals with elevated levels of affinity for aloneness are believed to enjoy time spent alone for positive, rather than negative (e.g., social anxiety) reasons. Indeed, researchers examining affinity for aloneness often emphasize the idea that social anxiety should not play a role in the enjoyment of time spent alone (Goossens, 2013). However, without actually controlling for social anxiety in these analyses, any affinity for aloneness group could include individuals who spend time alone because they're socially anxious (perhaps because of peer victimization) *and* individuals who spend time alone for more positive reasons. As extensive research has demonstrated that social anxiety is negatively associated with psychosocial functioning among youth (e.g., greater victimization by peers, greater depressive symptoms; Siegel, la Greca, & Harrison, 2009; van Zalk & van Zalk, 2019), associations found between affinity for aloneness and negative functioning in previous research could be because affinity for aloneness groups included individuals with high social anxiety.

Another limitation of previous research on affinity for aloneness is the over-reliance on variable-centered, as opposed to person-centered analyses. Variable-centered analyses are not as effective as person-centered analyses when it comes to accounting for small subgroups within a sample (Howard & Hoffman, 2018). Given that individuals with elevated levels of affinity for aloneness may represent a small portion of the adolescent population, the use of variable-centered approaches could lead to

these individuals being overshadowed by the rest of the population. This has implications for studies of both the prevalence and psychosocial functioning of individuals with high affinity for aloneness as it may become difficult to obtain accurate assessments of these individuals if they are buried within the overall sample. Moreover, person-centered analyses may be particularly useful for studies of affinity for aloneness as they allow researchers to separate individuals into different groups based on affinity for aloneness and social anxiety scores (e.g., a high affinity for aloneness with low social anxiety group, or a high affinity for aloneness with high social anxiety group). Social anxiety appears to be a particularly relevant grouping variable here given the suggestion that individuals with elevated levels of affinity for aloneness are believed to enjoy time spent alone for positive, rather than negative (e.g., social anxiety) reasons (Goossens, 2013; Goossens & Marcoen, 1999; Larson, 1990). As such, this study used latent class analysis (LCA; i.e., a type of person-centered analysis) to identify distinct subgroups of children and early adolescents based on measures of affinity for aloneness and social anxiety. Doing so provided an opportunity to address two research questions: Is there evidence of a group, in both late childhood and early adolescence, who enjoy solitude but are not socially anxious (i.e., high affinity for aloneness with low social anxiety scores), and if there is evidence for an affinity for aloneness group, how prevalent is affinity for aloneness in early adolescence compared to late childhood? We elected to split the sample between late childhood and early adolescence given the previously noted idea that adolescents may be more likely than children to enjoy spending time alone (Goossens, 2013; Goossens & Marcoen, 1999; Larson, 1990).

We also addressed another limitation in research examining affinity for aloneness; that is, the lack of longitudinal data. We used data collected at two time points (1 year apart) for both a late childhood and an early adolescent sample. Doing so also allowed us to examine the possibility of a high affinity for aloneness with low social anxiety group becoming more common across time in both late childhood and early adolescence.

To further develop our knowledge of how affinity for aloneness develops among youth, we used latent transition analyses (LTAs) to examine the stability of membership in any of the distinct groups we found in the latent class analyses (e.g., if a high affinity for aloneness group is found, do youth who belong to this group at Time 1 also belong to the

same group at Time 2?). Moreover, we were interested in examining patterns of movement into this potential high affinity for aloneness group at Time 2 from other groups found at Time 1, in order to see whether certain individuals were more or less likely than others to become a member of the high affinity for aloneness group. Following this, we examined our final research question concerning the psychosocial functioning of youth who enjoy time spent alone. Given that previous research has relied predominantly on concurrent and cross-sectional designs, researchers have been unable to assess change over time among these individuals. Thus, we asked: how do the groups found from our latent class analyses at Time 1 differ in psychosocial functioning at Time 2 (1 year later)? In this analysis, we controlled for Time 1 scores on these functioning indicators, along with age, sex, and parental education (used as a proxy for socioeconomic status). As was the case for the LCAs, these LTAs and psychosocial functioning analyses were carried out separately for the late childhood and early adolescent samples. We considered these age groups particularly important to study given Coplan et al.'s (2018) suggestion that the negative consequences of time spent alone might increase at these ages (see above). Given that parents, teachers, and educators may be concerned for the well-being of youth who appear to want to be on their own (Coplan & Armer, 2007), it is important to determine whether such concerns are warranted, or if they risk pathologizing normal behavior. A greater understanding of how common affinity for aloneness is during these life stages, along with the psychosocial functioning of these youth, will aid in doing so.

In summary, the current 2-year longitudinal exploratory study addressed three questions, with analyses conducted separately for children and early adolescents: (a) Using a person-centered latent-class approach, are there distinct groups of individuals who vary in affinity for aloneness and social anxiety at Time 1 and Time 2? (b) If there are distinct groups, how stable is the membership in these groups from Time 1 to Time 2? and (c) Do groups at Time 1 differ in psychosocial functioning at Time 2, controlling for Time 1 scores? We hypothesized that we would find groups with high levels of affinity for aloneness but potentially varying degrees of social anxiety (e.g., some with high social anxiety, some with low social anxiety). We also predicted that individuals with higher levels of social anxiety would show signs of more negative psychosocial functioning relative to individuals

with lower levels of social anxiety. Further analyses were exploratory given the lack of research on affinity for aloneness, on affinity for aloneness comparisons between children and early adolescents, and on using a person-centered approach to studying affinity for aloneness.

Method

Participants

The present sample was drawn from a larger longitudinal study examining health-risk behaviors. The participants were 1,201 students (49.62% female) from several elementary schools in Ontario, Canada, who were surveyed annually for 2 years, beginning in 2017. All schools that were approached agreed to participate. Sixty-three percent of the children received parental consent to participate in the study. The late childhood sample was composed of participants in Grades 3–5 at Time 1 ($N = 605$, 47.76% female, $M_{\text{age}} = 9.29$ years, $SD = 0.93$ years), whereas the early adolescent sample was composed of participants in Grades 6–8 at Time 1 ($N = 596$, 51.51% female, $M_{\text{age}} = 12.20$ years, $SD = 0.92$ years). The sample was composed of primarily Canadian-born students (96.90%). Parent report indicated that 83.6% of the children and adolescents were White, 2.7% were Hispanic, 2.2% were Asian, 1.9% were Black, 1.8% were Indigenous, and 6.8% were Mixed (1% preferred not to answer). Parental education level (used as a proxy for socioeconomic status) was 9% for a professional or advanced degree, 17% for an undergraduate degree, 55% for some college or university, or technical diploma, 15% for a high school diploma, and 4% for less than high school.

Procedure

Students were invited to participate in the study during visits to their schools. Each year, the survey was completed in two separate parts, both occurring within a 4-month period (January–April). Trained researchers and undergraduate volunteers administered the surveys to participants in their classrooms during regular school hours. Participants received gifts (e.g., backpacks, pencils) as compensation. All students who participated in the first year were invited to participate again in the second year. Participants provided informed assent while their parents provided informed consent. The study was approved by the university ethics board prior to survey administration at both assessments.

Missing Data Analysis

Missing data occurred because some students did not complete all the questions in the surveys (average missing data were 1.91% at Year 1, and 1.56% at Year 2), and because some students did not complete each part of the survey in Year 1 and Year 2 (as mentioned in the procedure, each year the survey was split into two parts that were completed at different time periods; missing data were primarily due to absenteeism but also occasionally due to time conflicts, students declining to participate in one part of the survey, and students moving from the school district). For the first part of the survey (containing the age, grade, sex, social anxiety, peer victimization, and friendship quality questions), 8.40% of students missed the survey in Year 1, and 18.23% missed the survey in Year 2. For the second part of the survey (containing the affinity for aloneness, self-esteem, and depressive symptoms measures), 9.74% of students missed the survey in Year 1, and 19.48% missed the survey in Year 2. Participants who did not complete Part 1 of the survey in Year 2 reported significantly higher peer victimization in Year 1 than participants who completed the survey in both Year 1 and 2 ($p = .001$). Missing data were not dependent on the values of any of the other study variables. The full information maximum likelihood (FIML) estimation method was used to estimate missing data for all variables. FIML retains cases that are missing data, thus avoiding the biased parameter estimates that can occur with pairwise or listwise deletion (Schafer & Graham, 2002).

Measures

All measures were assessed at both time points with the exception of the three demographic variables, which were measured at Time 1.

Demographics

Age, sex, and parental education (one item per parent, using a scale from 1 = *did not finish high school* to 6 = *completed a professional or graduate degree*, which was averaged across both parents) were assessed and used as covariates in the analyses.

Affinity for Aloneness

Affinity for aloneness was assessed using three items adapted from Burger (1995; i.e., "time spent alone is important to me," "I like to go off on my own," and "I enjoy being by myself"). These items

were chosen because they indicate enjoyment of solitude but are not restricted to enjoying solitude over being with others. Participants responded to these items on a 4-point Likert scale ranging from 1 = *almost never* to 4 = *almost always*, such that higher scores indicated higher levels of affinity for aloneness. Cronbach's alphas for this scale were .63 and .66 among children (at Times 1 and 2, respectively), and .77 and .78 among early adolescents (at Times 1 and 2, respectively).

Social Anxiety

Four items from the Social Anxiety Scale for Children-Revised (SASC-R; La Greca & Stone, 1993) were used to assess symptoms of social anxiety. These items (e.g., "I am afraid other students my age will not like me," "I am quiet when I am with a group of other students my age") were measured on a 4-point Likert scale ranging from 1 = *almost never* to 4 = *almost always*. Higher scores indicated higher levels of social anxiety. At Times 1 and 2, respectively, Cronbach's alphas for this scale were .68 and .65 for the children, and .79 and .76 for the early adolescents. Previous research has indicated that the SASC-R is both reliable and valid (La Greca & Stone, 1993; Reijntjes, Dekovic, & Telch, 2007).

Peer Victimization

Peer victimization was assessed by asking participants "since the beginning of this past summer, how many times have these things been done to you?". Participants were then provided with a list of 12 different examples of peer victimization (e.g., "been teased or made fun of," "been sworn at or called names") and asked to respond to each on a scale ranging from 1 = *almost never* to 5 = *almost every day*, with greater scores indicating more peer victimization (Marini, Spear, and Bombay (1999). Cronbach's alphas for this scale were .87 and .88 among children (at Times 1 and 2, respectively), and .87 and .89 among early adolescents (at Times 1 and 2, respectively).

Friendship Quality

This variable was assessed using 10 items from the Inventory of Parent and Peer Attachment-Revised (IPPA-R; Armsden & Greenberg, 1987; Gullone & Robinson, 2005). Participants responded to items (e.g., "my friends accept me as I am," "my friends care about my point of view") on a 4-point Likert scale ranging from 1 = *almost never* to 4 = *almost always*. Higher scores indicated greater

friendship quality. The IPPA-R has been found to be valid and reliable in previous research (Gullone & Robinson, 2005). At Times 1 and 2, respectively, Cronbach's alphas for this scale were .71 and .76 for the children, and .81 and .85 for the early adolescents.

Self-Esteem

Five items from the Rosenberg Self-Esteem (RSE; Rosenberg, 1979) scale were used to measure self-esteem. Example items included: "I feel that I have a number of good qualities," and "I take a positive attitude toward myself." These items were answered on a 4-point Likert scale ranging from 1 = *almost never* to 4 = *almost always*, such that higher scores represented higher self-esteem. The RSE has good reliability and validity (Bagley & Mallick, 2001). Cronbach's alphas for this scale were .68 and .77 among children (at Times 1 and 2, respectively), and .83 and .86 among early adolescents (at Times 1 and 2, respectively).

Depressive Symptoms

Depressive symptoms were measured using seven items from the Center for Epidemiologic Studies Depression Scale for Children (Weissman, Orvaschel, & Padian, 1980). Response options for these items (e.g., "I felt sad," "I was bothered by things that usually don't bother me") ranged from 1 = *not at all* to 4 = *a lot of the time*. Greater scores were indicative of higher levels of depression. At Times 1 and 2, respectively, Cronbach's alphas for this scale were .74 and .81 for the children, and .81 and .84 for the early adolescents. Past research has indicated that this scale is both reliable and valid (Fendrich, Weissman, & Warner, 1990).

Plan of Analysis

Latent class analyses were conducted separately for the children and early adolescents at both Time 1 and 2 using Mplus 7 (Muthén & Muthén, 2012). The three affinity for aloneness and four social anxiety items were used as latent class indicators in order to explore whether different groups of individuals could be identified based on their responses to these items. In order to determine the number of groups that were best represented by the data, four criteria were considered: (a) interpretability of the classes, (b) Bayesian information criterion (BIC), such that smaller values of BIC indicate a better fit model, (c) significance of the Lo-Mendell-Rubin

Adjusted Likelihood Ratio Test (LMR-LRT), such that once nonsignificance is reached, the number of classes prior to nonsignificance is defined as the appropriate number, and (d) average latent class posterior probabilities are close to 1.00 (Nylund, Asparouhov, & Muthén, 2007). Entropy (an index of confidence that individuals belong to the correct class and that adequate separation between latent classes exist) also was examined; scores > 0.80 are good but there is no set cut-off criterion for entropy (Jung & Wickrama, 2008). After establishing the existence of latent classes at Times 1 and 2 for both the late childhood and early adolescent samples, measurement invariance across time points was examined for each sample. This analysis tests whether the conditional probabilities of items are the same (i.e., invariant) across time points. In other words, it examines whether the same number and types of classes were found at each time point (examined separately for the younger and older sample; Nylund, 2007). Two LTAs were then ran (one for both the younger and older sample) in order to examine the probabilities of staying in, and moving to and from, each class from Time 1 to Time 2.

Class differences on the indicators of psychosocial functioning were then examined concurrently and longitudinally for both the child and early adolescent samples. The concurrent analyses included four multivariate analyses of covariance (i.e., one for each sample at each time point), with class as the independent variable, and the four indicators of psychosocial functioning as dependent variables. Age, sex, and parental education were included in these analyses as covariates (note that the uncertainty of class membership was not taken into account). For the longitudinal analyses, four analyses of covariance were run for each sample, with class at Time 1 as the independent variable and each indicator of psychosocial functioning at Time 2 as a dependent variable. Time 1 scores on the psychosocial functioning indicators, along with the measures of age, sex, and parental education, were included as covariates in these analyses. Multiple comparisons were controlled for using the Bonferroni-Holm method. This method was chosen due to its conservative but powerful nature, and its ability to handle unequal group sizes (Holm, 1979).

Results

Preliminary Analyses

Correlations among all of the study variables at Times 1 and 2 are shown in Table 1. Of note,

Table 1
Correlation Tables for Time 1 and Time 2

Time 1	1	2	3	4	5	6	7	8	9
1. Age	1.00	.14***	-.03	.17***	.12**	.06	.03	-.09*	.14***
2. Sex	.03	1.00	-.05	.10*	.19***	-.05	.15***	-.06	.17***
3. ParEduc	.04	-.03	1.00	-.09*	-.14***	-.19***	.14***	.24***	-.19***
4. AFA T1	-.01	-.03	.00	1.00	.30***	.17***	-.13**	-.24***	.32***
5. SA T1	-.01	.06	-.12**	.25***	1.00	.47***	-.29***	-.44***	.44***
6. Victim T1	-.08	-.18***	-.13**	.22***	.43***	1.00	-.27***	-.32***	.37***
7. Friends T1	.07	.20***	.10*	-.17***	-.23***	-.27***	1.00	.43***	-.33***
8. Esteem T1	.13**	.06	.20***	-.18***	-.31***	-.37***	.36***	1.00	-.62***
9. Depress T1	-.08*	-.04	-.20***	.28***	.40***	.46***	-.26***	-.49***	1.00

Time 2	1	2	3	4	5	6	7	8	9
1. Age	1.00	.14***	-.03	.14***	.11**	.04	.00	-.14***	.21***
2. Sex	.03	1.00	-.05	.14***	.23***	-.03	.16***	-.10*	.15***
3. ParEduc	.04	-.03	1.00	-.12**	-.20***	-.14***	.07	.28***	-.19***
4. AFA T2	.03	.00	-.01	1.00	.23***	.13**	-.06	-.23***	.30***
5. SA T2	-.09*	.08*	-.15***	.26***	1.00	.36***	-.42***	-.61***	.56***
6. Victim T2	-.03	-.12**	-.12**	.21***	.44***	1.00	-.36***	-.32***	.42***
7. Friends T2	.10*	.17***	.08	-.16***	-.31***	-.30***	1.00	.43***	-.35***
8. Esteem T2	.01	.03	.14***	-.21***	-.48***	-.40***	.37***	1.00	-.66***
9. Depress T2	-.06	-.06	-.16***	.31***	.44***	.51***	-.32***	-.46***	1.00

Note. Late childhood sample = below the diagonal; Early adolescent sample = above the diagonal; ParEduc = parent education level; AFA = affinity for aloneness; SA = social anxiety; Victim = peer victimization; Friends = friendship quality; Esteem = self-esteem; Depress = depressive symptoms; T1 = Time 1; T2 = Time 2.

*** $p < .001$, ** $p < .01$, * $p < .05$.

significant bivariate associations were found between higher scores on affinity for aloneness and negative psychosocial functioning (higher social anxiety, victimization, and depressive symptoms, and lower friendship quality and self-esteem) for both children and early adolescents, and at both Time 1 and Time 2. While these results might be seen as support for concern about children and adolescents who enjoy spending time alone, the results highlight the importance of assessing affinity for aloneness using person-centered latent class analyses that not only control for social anxiety, but also allow for assessment of small subgroups that might get buried in variable-centered analyses.

In addition, four separate multivariate analyses of variance (MANOVAs) were conducted to determine whether there were sex differences on any of the study variables for the late childhood and early adolescent samples at Times 1 and 2. A significant multivariate main effect of sex was found across all four MANOVAs (all Wilk's λ 's $< .001$). In the late childhood sample, significant main effects of sex on peer victimization and friendship quality were found at both time points ($ps < .005$), such that boys consistently reported greater peer

victimization and lower friendship quality than girls. In addition, a main effect of sex on social anxiety was found at Time 2 ($p = .045$), with girls reporting higher scores than boys. For the early adolescent sample, significant main effects of sex were found at both time points for friendship quality, depressive symptoms, affinity for aloneness, and social anxiety ($ps < .016$). Results were consistent at both time points, with boys reporting lower levels of friendship quality, depressive symptoms, affinity for aloneness, and social anxiety than girls. A main effect of sex on self-esteem was also found at Time 2 for this sample ($p = .011$), such that girls reported lower scores than boys.

Primary Analyses

Question 1: Using LCA, Are There Distinct Groups of Individuals Who Vary in Affinity for Aloneness and Social Anxiety at Time 1 and Time 2?

Both of the LCAs for the late childhood sample (i.e., Times 1 and 2) were conducted for 1–5 classes. In both instances, 4 classes were chosen as the best solution (see Table 2). Both LCAs produced the lowest

Table 2
 Latent Class Analysis Fit Indices for the Late Childhood Sample at Time 1 and Time 2

Number of classes	BIC	Entropy	Conditional probabilities	LMR-LRT	Loglikelihood <i>p</i> -value
Time 1					
2 Classes	9,797.300	0.910	.948–.981	–5,160.358	< .001
3 Classes	9,688.512	0.884	.925–.955	–4,828.339	.005
4 Classes	9,386.364	0.905	.925–.982	–4,627.382	.024
5 Classes	9,490.422	0.885	.834–.979	–4,653.143	.083
Time 2					
2 Classes	9,374.387	0.856	.911–.965	–4,887.916	< .001
3 Classes	9,115.800	0.915	.819–.928	–4,617.645	.005
4 Classes	9,039.328	0.878	.826–.986	–4,463.061	< .001
5 Classes	9,054.615	0.880	.819–.938	–4,399.535	.137

Note. BIC = Bayesian information criterion; LMR-LRT = Lo–Mendell–Rubin Adjusted Likelihood Ratio Test.

BIC values at 4 classes and the LMR-LRTs were significant at 4 classes but not at 5, indicating that the 4-class solution was a better fit than the 5-class solution (and also the 3-class solution). Moreover, for both LCAs, entropy values were > 0.80 and average latent class posterior probabilities were close to 1. The observed classes at Time 1 were strikingly similar to the observed classes at Time 2, and thus classes were labeled with the same names at both time points (see Figure 1). Each class was characterized as follows: High.affinity_for_aloneness-LowModerate.social_anxiety (4.66% of sample at Time 1, 10.22% of sample at Time 2)—hereafter called the Affinity for Aloneness group, Low.affinity_for_aloneness-Low-social_anxiety (56.51% of sample at Time 1, 42.99% of sample at Time 2)—that is, the *Normative* group, LowModerate.affinity_for_aloneness-LowModerate-social_anxiety (23.58% of sample at Time 1, 27.33% of sample at Time 2)—that is, the *Low-Moderate* group, and Moderate.affinity_for_aloneness-ModerateHigh.social_anxiety (15.25% of sample at Time 1, 19.46% of sample at Time 2)—that is, the *Moderate-High* group (see Table S1).

With regards to the early adolescents, both LCAs (Times 1 and 2) were conducted for 1–5 classes. Once again, the 4-class solution was chosen as the best fit at both time points (see Table 3). At Time 1 in this sample, the 4-class solution presented an entropy value > 0.80, average latent class posterior probabilities close to 1, and a significant LMR-LRT, which dropped to nonsignificance for the 5-class solution (indicating that the 4-class solution was a better fit than the 5- or 3-class solutions). With the exception of the 5-class solution, the BIC value was the lowest in the 4-class solution. Of note, the BIC only decreased by < 100 when moving from the 4- to 5-class solution, whereas the decrease in the BIC

from the 3- to 4-class solution was nearly twice this size. Together, these model fit statistics support the 4-class solution as the best fit. At Time 2, the BIC similarly dropped slightly (i.e., by < 7) from the 4- to 5-class solution, whereas the drop from the 3- to 4-class solution was much larger. Moreover, the average latent class posterior probabilities were close to 1. While the LMR-LRT was nonsignificant, the 4-class solution provided classes that were once again very similar to the Time 1 classes for this sample (see Figure 2). Given that there was some statistical support for the 4-class solution and given the striking similarity to the observed classes at Time 1, we chose to go with the 4-class solution at this second time point. The classes can be characterized as follows: High.affinity_for_aloneness-LowModerate.social_anxiety (21.38% of sample at Time 1, 26.87% of sample at Time 2)—hereafter called the Affinity for Aloneness group, Low.affinity_for_aloneness-Low.social_anxiety (55.74% of sample at Time 1, 45.06% of sample at Time 2)—that is, the *Normative* group, Low.affinity_for_aloneness-ModerateHigh.social_anxiety (15.69% of sample at Time 1, 18.95% of sample at Time 2)—that is, the *Conflicted* group, and High.affinity_for_aloneness-High.social_anxiety (7.19% of sample at Time 1, 9.12% of sample at Time 2)—that is, the *High* group (see Table S2).

Question 2: Using LTAs, How Stable is Group Membership From Time 1 to Time 2, and Do Psychosocial Functioning Indicators Measured at Time 1 Help Predict Stability Versus Movement?

After establishing the existence of four latent classes at each time point for both the late childhood and early adolescent samples, LTAs were used to

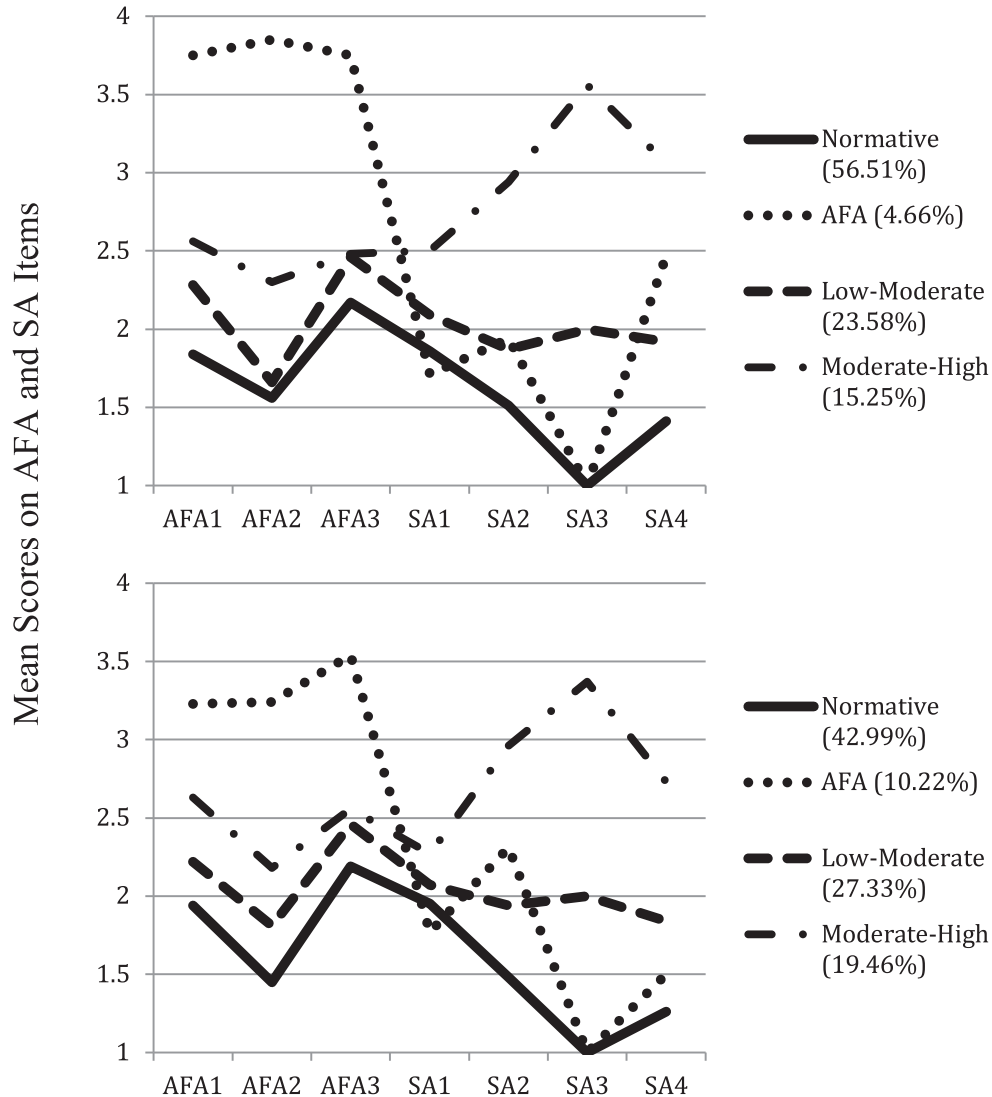


Figure 1. Results of latent class analyses for the late childhood sample at Time 1 (Grades 3-5; top chart) and Time 2 (Grades 4-6; bottom chart). AFA = affinity for aloneness; SA = social anxiety.

explore transitions between classes across the two time points. Measurement invariance was tested for each sample by comparing a model where the classes were constrained to be equal at both time points to a model where the classes were free to vary across time points. In the late childhood sample, a chi-square difference test indicated that the constrained and unconstrained models were significantly different, $\chi^2(28) = 90.39$, $p < .05$. However, we elected to proceed with the invariant model for the following reasons: First, there is a remarkable similarity between the structure of the classes at Times 1 and 2 (see Figure 1). Second, measurement invariance is often assumed in LTA, as a more accurate interpretation of transition probabilities is made

possible when the number and structure of classes are held constant across time. Indeed, Nylund, Muthén, Nishina, Bellmore, and Graham (2006) and Pan, Liu, Lau, and Luo (2017) both assumed measurement invariance despite finding significant differences between their constrained and unconstrained models. Of note, measurement invariance was found in our early adolescent sample as a chi-square difference test indicated that the constrained and unconstrained models did not significantly differ from one another, $\chi^2(28) = 39.58$, $p > .05$. Thus, measurement invariance was obtained for the early adolescent sample.

Transition probabilities, which indicate the probability of transitioning from one class to another

Table 3
Latent Class Analysis Fit Indices for the Early Adolescent Sample at Time 1 and Time 2

Number of classes	BIC	Entropy	Conditional probabilities	LMR-LRT	Loglikelihood <i>p</i> -value
Time 1					
2 Classes	9,778.454	0.885	.934-.974	-5,290.258	< .001
3 Classes	9,558.241	0.822	.844-.940	-4,819.046	.003
4 Classes	9,380.382	0.845	.858-.947	-4,683.419	< .001
5 Classes	9,289.064	0.830	.833-.955	-4,568.969	.116
Time 2					
2 Classes	8,316.668	0.842	.928-.965	-4,380.208	< .001
3 Classes	8,127.486	0.774	.870-.911	-4,089.864	< .001
4 Classes	8,056.484	0.776	.836-.880	-3,970.375	.461
5 Classes	8,050.258	0.770	.802-.873	-3,909.975	.244

Note. BIC = Bayesian information criterion; LMR-LRT = Lo-Mendell-Rubin Adjusted Likelihood Ratio Test.

over time (or staying in the same class over time), are displayed for both samples in Table 4. Results for the late childhood sample indicated that there was a substantial amount of movement between groups over time. Nonetheless, the probabilities for children staying in the same groups over time were higher, for the most part, than the probabilities for movement between groups. In terms of movement between groups among this younger sample, no distinct pattern appeared to emerge as the most common. The least likely transitions, however, were those that involved movement into the Moderate-High group.

Compared to the children, the transition probabilities for the early adolescents (see Table 4) indicated much higher stability in class membership across the two time points. For this sample, the greatest level of stability was found for the Affinity for Aloneness group. Moreover, these probabilities generally were much higher than the probabilities that indicated movement between classes over time. However, some specific movements between classes were notably more likely to occur than others. The greatest transition probabilities for movement between classes occurred for movement from the Normative group to the Affinity for Aloneness group, from the High group to the Conflicted group, and from the Conflicted group to the Normative group.

We were particularly interested in what psychosocial functioning indicators (i.e., victimization, friendship quality, self-esteem, depressive symptoms) measured at Time 1 might predict movement to the Affinity for Aloneness group from Time 1 to Time 2. Analyses only were conducted for movement from the Normative to the Affinity for Aloneness group, however, as *n*'s for moving from the

Conflicted and High groups to the Affinity for Aloneness group at Time 2 were too small for analyses. For both children and early adolescents, a multivariate analysis of covariance was conducted, comparing psychosocial functioning at Time 1 between those who stayed in the Normative group from Time 1 to Time 2 and those who moved from the Normative group to the Affinity for Aloneness group in Time 2. Stability versus movement was entered as the independent variable and the four psychosocial functioning indicators were entered as the dependent variables. Age, sex, and parental education were included in the analyses as covariates. Results were significant for children [$F(4,204) = 5.229, p < .001, \eta_p^2 = .093$], but not for the early adolescents ($p = .485$). Children in the Normative group at Time 1 who moved to the Affinity for Aloneness group at Time 2 ($n = 34$ or 16% of the Normative group at Time 1) reported higher victimization [$F(1,207) = 9.814, p = .002, \eta_p^2 = .045$] and depressive symptoms [$F(1,207) = 14.672, p < .001, \eta_p^2 = .066$] at Time 1 than children who remained in the Normative group at Time 2 ($n = 178$ or 84% of the Normative group at Time 1). These results indicate that for children only, movement from the Normative to the Affinity for Aloneness group, although not common, was related to negative psychosocial functioning.

Question 3: Do Groups at Time 1 Differ in Psychosocial Functioning at Time 2, Controlling for Time 1 Scores?

Concurrent relations between class membership and psychosocial functioning indicators were assessed. Children in the Moderate-High group, and early adolescents in the Conflicted and High groups, consistently reported significantly more

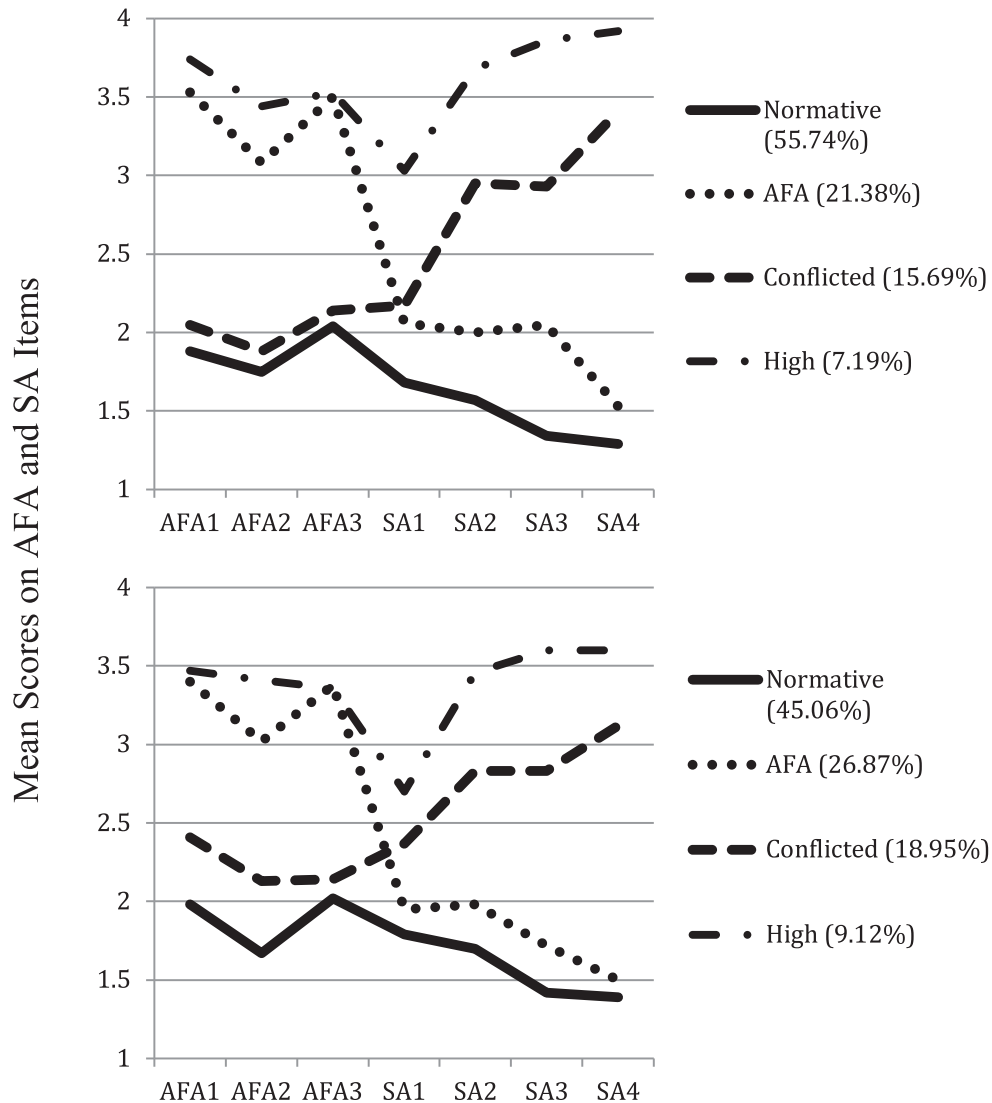


Figure 2. Results of latent class analyses for the early adolescent sample at Time 1 (Grades 6–8; top chart) and Time 2 (Grades 7–9; bottom chart). AFA = affinity for aloneness; SA = social anxiety.

negative psychosocial functioning than those in the respective normative groups ($ps < .05$). Children in the Moderate-High group, and early adolescents in the Conflicted and High groups, also reported significantly more negative psychosocial functioning than those in the respective Affinity for Aloneness groups ($ps < .05$). Tables 5 and 6 provide a more detailed presentation of results from these analyses.

Table 7 displays the results of the longitudinal analyses for both samples. For the late childhood sample, results indicated that there was a significant main effect of Time 1 class on friendship quality [$F(3,596) = 3.46$, $p = .016$, $\eta_p^2 = .017$] and depressive symptoms [$F(3,596) = 4.15$, $p = .006$, $\eta_p^2 = .021$] at Time 2, controlling for previous scores,

such that the Normative group reported significantly greater friendship quality ($p = .002$) and lower depressive symptoms ($p = .005$) than the Moderate-High group. There also was a main effect of Time 1 class on self-esteem at Time 2 [$F(3,596) = 4.43$, $p = .004$, $\eta_p^2 = .022$], with those in the Normative group reporting significantly greater self-esteem than the Low-Moderate group ($p = .003$) and the Moderate-High group ($p = .011$). There was no significant main effect of Time 1 class on Time 2 peer victimization in this sample [$F(3,596) = 0.921$, $p = .430$, $\eta_p^2 = .005$]. Of note, children in the Affinity for Aloneness group did not differ significantly from any of the other groups on any of the indicators of psychosocial functioning.

Table 4
Transition Probabilities From Latent Transition Analyses

Late childhood	Normative T2	AFA T2	Low-moderate T2	Moderate-high T2
Normative T1	0.548	0.103	0.250	0.099
AFA T1	0.220	0.363	0.273	0.144
Low-moderate T1	0.356	0.046	0.348	0.250
Moderate-high T1	0.168	0.116	0.243	0.473

Early adolescence	Normative T2	AFA T2	Conflicted T2	High T2
Normative T1	0.721	0.202	0.069	0.007
AFA T1	0.042	0.744	0.186	0.028
Conflicted T1	0.246	0.093	0.585	0.076
High T1	0.033	0.084	0.290	0.592

Note. Percentages indicate the proportion of the sample belonging to each mover or stayer group. T1 and T2 = Time 1 and 2, respectively. AFA = affinity for aloneness.

With regard to the early adolescents, a significant main effect of Time 1 class was found at Time 2 for peer victimization, $F(3,589) = 4.30, p = .005, \eta_p^2 = .022$; friendship quality, $F(3,589) = 5.58, p = .001, \eta_p^2 = .028$; depressive symptoms, $F(3,589) = 8.02, p < .001, \eta_p^2 = .040$; and self-esteem $F(3,589) = 12.38, p < .001, \eta_p^2 = .060$. Post hoc analyses indicated that the Normative group reported significantly lower peer victimization ($p = .004$), greater friendship quality ($p = .001$), lower depressive symptoms ($p < .001$), and greater self-esteem ($p < .001$) than the High group. The normative group also reported significantly greater friendship quality ($p = .004$), lower depressive symptoms

($p = .001$), and greater self-esteem ($p = .013$) than the Conflicted group. The Affinity for Aloneness group reported significantly lower depressive symptoms ($p = .007$) and greater self-esteem ($p < .001$) than the High group, and greater self-esteem ($p = .013$) than the Conflicted group. Finally, the Conflicted group reported greater self-esteem ($p = .022$) than the High group. Of note, individuals in the Affinity for Aloneness group did not differ significantly from the Normative group on any of the psychosocial functioning indicators. When taken together, results from these analyses indicate that the higher a group was in terms of their social anxiety, the more negatively adjusted they were relative to the other groups (see Table 7).

Discussion

This study sought to provide a detailed understanding of affinity for aloneness in both late childhood and early adolescence given that this construct has been largely unexamined in these populations. Indeed, researchers have not investigated how common affinity for aloneness is in childhood compared to early adolescence. There also has been no work examining whether some individuals are more likely than others to develop elevated levels of affinity for aloneness as they age. Furthermore, social anxiety has not been accounted for in previous studies of affinity for aloneness, and longitudinal work is needed in order to assess change over time in the psychosocial functioning of individuals with elevated levels of affinity for aloneness.

Table 5
Estimated Marginal Means and Standard Errors for Concurrent Psychosocial Functioning Analyses Across Groups (Late Childhood Sample)

	Normative	AFA	Low-moderate	Moderate-high
Time 1				
Peer victimization	1.53 _a (.03)	1.61 _{a,b} (.12)	1.75 _b (.05)	2.10 _c (.06)
Friendship quality	3.17 _a (.02)	3.09 _{a,b} (.11)	3.01 _b (.04)	2.93 _b (.05)
Self-esteem	3.19 _a (.02)	2.97 _{a,b} (.11)	3.06 _a (.04)	2.78 _b (.05)
Depressive symptoms	1.61 _a (.02)	1.92 _{b,c} (.11)	1.77 _b (.04)	2.06 _c (.05)
Time 2				
Peer victimization	1.31 _a (.03)	1.57 _b (.07)	1.57 _b (.04)	1.90 _c (.05)
Friendship quality	3.22 _a (.03)	3.07 _{a,b} (.06)	3.13 _{a,b} (.04)	2.98 _b (.04)
Self-esteem	3.41 _a (.03)	3.09 _b (.07)	3.06 _b (.04)	2.83 _c (.05)
Depressive symptoms	1.47 _a (.03)	1.83 _{b,c} (.07)	1.75 _b (.04)	2.00 _c (.05)

Note. Standard errors are presented in brackets. Means within the same row that share subscripts are not significantly different. Time 1 = Time 1 classes and Time 1 psychosocial functioning indicators; Time 2 = Time 2 classes and Time 2 adjustment indicators; AFA = affinity for aloneness.

Table 6

Estimated Marginal Means and Standard Errors for Concurrent Psychosocial Functioning Analyses Across Groups (Early Adolescent Sample)

	Normative	AFA	Conflicted	High
Time 1				
Peer victimization	1.46 _a (.02)	1.65 _b (.04)	2.04 _c (.05)	2.08 _c (.08)
Friendship quality	3.21 _a (.02)	3.06 _b (.04)	2.93 _{b,c} (.05)	2.82 _c (.08)
Self-esteem	3.29 _a (.03)	2.95 _b (.05)	2.87 _b (.06)	2.43 _c (.09)
Depressive symptoms	1.56 _a (.03)	1.88 _b (.04)	1.94 _b (.05)	2.31 _c (.08)
Time 2				
Peer victimization	1.48 _a (.03)	1.51 _a (.04)	1.84 _b (.05)	2.05 _b (.08)
Friendship quality	3.31 _a (.03)	3.23 _a (.04)	2.81 _b (.05)	2.75 _b (.08)
Self-esteem	3.28 _a (.03)	3.14 _a (.04)	2.65 _b (.06)	2.21 _c (.09)
Depressive symptoms	1.59 _a (.03)	1.77 _b (.04)	2.09 _c (.05)	2.48 _d (.08)

Note. Standard errors are presented in brackets. Means within the same row that share subscripts are not significantly different. Time 1 = Time 1 classes and Time 1 psychosocial functioning indicators; Time 2 = Time 2 classes and Time 2 psychosocial functioning indicators; AFA = affinity for aloneness.

Our results supported the existence of an Affinity for Aloneness group (i.e., High.affinity_for_aloneness-LowModerate.social_anxiety) among both children and early adolescents (found at both time points for each of these samples). This Affinity for Aloneness group best resembles the way researchers have thought of affinity for aloneness, as these individuals reported that they enjoyed being alone but they also had relatively low levels of social anxiety. The difference in the size of the Affinity for Aloneness groups between the child and early adolescent samples, however, was striking. At Time 1, this group constituted 4.66% of the late childhood sample, but 21.38% of the early adolescent sample. This difference in prevalence suggests that time spent alone may become more enjoyable and important in early adolescence. One

potential explanation for this is that adolescents may be granted more opportunities to spend time alone than children are, and therefore, may come to appreciate this time alone. Furthermore, time spent alone may provide adolescents with the opportunity to pursue their own interests (e.g., reading books, playing instruments or video games; Goossens, 2013). Nonetheless, future research is needed to further address the question of why some adolescents enjoy being alone.

The idea that affinity for aloneness may become more common as youth age was further supported by our finding that the Affinity for Aloneness group increased in size from Time 1 to Time 2 in both samples. Given that relatively little is known about which individuals are most (or least) likely to become a member of this group, we examined

Table 7

Estimated Marginal Means and Standard Errors Across Groups for Longitudinal Analyses

Late childhood	Normative T1	AFA T1	Low-moderate T1	Moderate-high T1
Peer victimization T2	1.50 _a (.02)	1.63 _a (.10)	1.57 _a (.04)	1.53 _a (.05)
Friendship quality T2	3.17 _a (.02)	3.05 _{a,b} (.10)	3.14 _{a,b} (.04)	3.01 _b (.04)
Self-esteem T2	3.22 _a (.02)	3.06 _{a,b} (.10)	3.08 _b (.04)	3.07 _b (.05)
Depressive symptoms T2	1.64 _a (.02)	1.84 _{a,b} (.11)	1.76 _{a,b} (.04)	1.82 _b (.05)
Early adolescence	Normative T1	AFA T1	Conflicted T1	High T1
Peer victimization T2	1.54 _a (.02)	1.66 _{a,b} (.04)	1.68 _{a,b} (.05)	1.78 _b (.07)
Friendship quality T2	3.21 _a (.02)	3.12 _{a,b} (.04)	3.05 _b (.04)	2.94 _b (.07)
Self-esteem T2	3.12 _a (.02)	3.05 _a (.04)	2.88 _b (.05)	2.67 _c (.08)
Depressive symptoms T2	1.73 _a (.02)	1.84 _{a,b} (.04)	1.93 _{b,c} (.05)	2.08 _c (.08)

Note. Standard errors are presented in brackets. Means within the same row that share subscripts are not significantly different. T1 and T2 = Time 1 and 2, respectively. AFA = affinity for aloneness.

transitions into this group across time. For the late childhood sample, there did not appear to be one clear pattern of movement into this group. However, for the early adolescents, the most common transition into this group at Time 2 was for those who were in the Normative group at Time 1. We chose to label this group as the “Normative” group because of the size of the group, as well as conceptually, as one might expect that typical youth would not necessarily enjoy spending time alone or exhibit high levels of social anxiety. Thus, our data suggest that it is more likely for a Normative early adolescent to move into the Affinity for Aloneness group than it is for a potentially at-risk (i.e., highly socially anxious) early adolescent. Moreover, negative psychosocial functioning was not predictive of early adolescents moving from the Normative to the Affinity for Aloneness group from Time 1 to Time 2. Together, these findings support the possibility that during early adolescence, not all enjoyment of solitude is pathological in nature. Indeed, those who develop an enjoyment of solitude that is not accompanied by social anxiety appear to be quite normative in nature.

Further evidence of the potentially nonpathological nature of this enjoyment of solitude was found in our longitudinal analyses concerning the psychosocial functioning of the Affinity for Aloneness group. Indeed, in both samples, individuals in the Affinity for Aloneness group did not differ from those in the Normative group on any of our longitudinal indicators of functioning. Furthermore, in the early adolescent sample, we found evidence of greater self-esteem and lower depressive symptoms in the Affinity for Aloneness group relative to the High group, and greater self-esteem than the Conflicted group. As previously noted, the psychosocial functioning of groups appears to be largely related to their social anxiety levels, with groups higher in social anxiety reporting more negative psychosocial functioning. This pattern of effects also was found for our concurrent analyses (note that in the concurrent analyses, however, the Affinity for Aloneness and Normative groups did differ significantly on some of the psychosocial functioning indicators, likely due to these analyses not controlling for previous psychosocial functioning scores, and the Affinity for Aloneness early adolescent group being significantly higher in social anxiety than the Normative group, although significantly lower in social anxiety than the other two groups).

Together, these findings suggest that during early adolescence, individuals who like to be alone but aren't particularly socially anxious generally are

as well-adjusted as the Normative group and often better adjusted than those with relatively high levels of social anxiety. These results are particularly noteworthy given that researchers have suggested that the negative implications of enjoying solitude may increase at these life stages (Coplan et al., 2018). However, our results indicate that social anxiety plays a large role in determining whether the implications of enjoying time spent alone are negative or not. Conceptually, this makes sense as social anxiety has been shown to be negatively related to well-being (Siegel et al., 2009; van Zalk & van Zalk, 2019). Thus, these findings emphasize the importance of taking social anxiety into account when studying individuals who enjoy being alone. Not doing so may lead to normal behavior being pathologized through the conflation of socially anxious individuals with those who are not socially anxious. By not recognizing that individuals who enjoy being alone are likely a heterogeneous group, researchers may obtain results that incorrectly paint a negative picture for all individuals who report elevated levels of affinity for aloneness. In turn, this could create potentially unnecessary concerns among parents, teachers, etc. when they observe a child or adolescent spending time on their own.

Our analyses revealed several other interesting findings that require further consideration. For one, we found the existence of a group characterized by High.affinity for aloneness-High.social_anxiety (i.e., the *High* group) only in the early adolescent sample. This finding supports the suggestion among developmental psychologists and neuroscientists that adolescents, compared to children, may be particularly sensitive to peers (Burnett, Sebastian, Cohen Kadosh, & Blakemore, 2011; Casey, 2015; Gardner & Steinberg, 2005). For some individuals, this may produce feelings of social anxiety. Furthermore, some of these individuals may then begin to enjoy spending time alone because it allows them to avoid anxiety-evoking social situations. Another potential explanation for this finding comes from research indicating that peer victimization peaks in early adolescence (Borg, 1999; Smetana, Campione-Barr, & Metzger, 2005). As such, individuals who are victimized may develop social anxiety (see Siegel et al., 2009) and begin to enjoy being alone given that their social experiences may have been negative in nature. Our finding that children (not adolescents) in the Normative group at Time 1 who moved to the Affinity for Aloneness group at Time 2 reported more victimization and depressive symptoms at Time 1 than children who remained

in the Normative group supports this suggestion. Given that affinity for aloneness was not prevalent in childhood, a separate class for the children in this group reporting the most negative functioning scores could not be established, but these children likely would be included in a High.affinity_for_aloneness-High.social_anxiety group in early adolescence when the peer group reporting affinity for aloneness would be larger.

Another noteworthy finding comes from our examination of the stabilities in the LTAs. In the late childhood sample, stability levels were relatively low, indicating that a substantial portion of children moved into a group at Time 2 that was different than their Time 1 group. However, stability levels were much higher among the early adolescents. Past research has indicated that personality typically becomes increasingly stable with age (Caspi, Roberts, & Shiner, 2005; Soto & Tackett, 2015), and this may help to explain this finding. The LTAs also revealed that transitions into high social anxiety groups from the Normative and Affinity for Aloneness groups were uncommon. While some individuals may experience large increases in social anxiety over the course of a year, we would not expect this to be normative. Thus, this finding is relatively unsurprising. Moreover, it appears to validate the idea that groups with high levels of social anxiety represent the less common, more at-risk youth.

While our study possesses a number of strengths, including a large sample size, the use of longitudinal data for both children and early adolescents, and the use of a person-centered analysis in order to account for social anxiety, some limitations are worth noting. First, our data were collected through the use of self-report measures, and therefore, participants' responses could have been impacted by personal biases or social desirability. Nonetheless, participants' perceptions play a large role in their behavior and experiences and thus, self-report data are important to examine. Ideally, however, the self-report affinity for aloneness and social anxiety measures would have yielded higher reliability coefficients in the childhood sample. Second, our measures did not include an assessment of the actual amount of time individuals spend alone, but rather their evaluations or attitudes toward spending time alone. Previous research has indicated that social withdrawal, or the actual behavior of removing oneself from social situations, may be associated with problems in the domain of peer relationships (Coplan, Ooi, & Rose-Krasnor, 2015; Coplan et al., 2013). Thus, it would be beneficial to

take this variable into consideration in future studies and examine whether the amount of time spent alone plays a role in predicting psychosocial functioning.

Third, given that this study focused on individuals who *enjoy* solitude, it is likely that this group also included those who *prefer* solitude over being with others. It would be of great value to separate those who enjoy, but do not prefer solitude from those who prefer solitude. Doing so would allow researchers to examine whether psychosocial functioning differs between the two groups. Given the potential value of social interactions during these life stages, it is plausible that those with a preference for solitude may show signs of more negative psychosocial functioning than those who just enjoy solitude. Future research is needed to examine these possibilities. Fourth, it is possible that there are some positive implications of having elevated levels of affinity for aloneness that were unexamined in this study [e.g., identity development, academic achievement, creativity, or development of hobbies and special interests (e.g., music, sports)]. Investigating these relations would likely provide a more detailed understanding of the implications of having elevated levels of affinity for aloneness during these early stages of life. Finally, given that our data were collected from a Western sample, it remains unclear whether our results would generalize to other cultures. For example, the implications of having elevated levels of affinity for aloneness on psychosocial functioning may be more negative in Eastern compared to Western cultures (see Liu et al., 2015, who found that a preference for solitude among Chinese youth was associated with negative adjustment; e.g., peer victimization).

Despite the noted limitations, this study provides a more thorough understanding of children and early adolescents who enjoy being alone. Through separating individuals into groups based on their varying levels of affinity for aloneness and social anxiety, examining both the prevalence as well as the movement and stability associated with these groups, and considering how these groups are adjusting relative to one another, the present work has provided valuable and novel insights regarding youth who enjoy being alone. Perhaps most notably, our results stress the importance of accounting for social anxiety both when forming theories about affinity for aloneness, and when investigating its relation to adjustment. Indeed, the findings from this study indicate that not only do levels of social anxiety vary across youth with elevated levels of affinity for aloneness, but also that it is social

anxiety that is strongly related to the psychosocial functioning of these individuals. Not accounting for social anxiety in previous studies of affinity for aloneness may have contributed to the discrepancy between positive conceptualizations of affinity for aloneness and results that indicated that it was negatively associated with psychosocial functioning (e.g., Corsano et al., 2006). By accounting for social anxiety in future studies of affinity for aloneness, researchers will be able to further expand our knowledge of this topic, and likewise, aid in the development of comprehensive theories surrounding the construct.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Table S1. Group Means and Standard Deviations for Latent Class Analysis Items (Late Childhood Sample at Time 1 and Time 2)

Table S2. Group Means and Standard Deviations for Latent Class Analysis Items (Early Adolescent Sample at Time 1 and Time 2)