Early Adolescent Peer Foundations of Late Adolescent and Young Adult Psychological Adjustment

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Abstract

The long-term impacts of failing to establish autonomy and relatedness within close friendships are poorly understood. Adolescent behaviors undermining autonomy and relatedness in friendships at 13 were examined as predictors of friendship competence at 18 and depressive symptoms and social withdrawal at 21. A diverse community sample of 184 adolescents participated in self, peer, and observational assessments. Teens' inability to establish autonomy and connection with friends at 13 predicted decreases in friendship competence at 18 (ß=-.20, *p*=.02). Direct links to increases in depressive symptoms (ß=.34, *p*<.001) and social withdrawal (ß=.18, *p*=.03) were observed, with friendship competence partially mediating these relations. Results highlight the importance of problematic adolescent peer relationships as risk factors for the development of young adult internalizing symptoms.

Keywords

depression; social withdrawal; adolescence; peer relationships; autonomy

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Self-Determination Theory (SDT) suggests three basic human psychological needs that provide the foundation for positive self-motivation and personality development— relatedness, autonomy, and competence (e.g., Ryan & Deci, 2000). According to SDT, social contexts that inhibit satisfaction of relatedness, autonomy, and competence needs tend to discourage individuals' inherent motivations and produce negative developmental and psychological outcomes (Deci & Ryan, 2000; Ryan & Deci, 2000). Furthermore, developmental theorists are increasingly recognizing that the greatest long-term risk for

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psychosocial problems occurs when interpersonal difficulties interfere with fundamental developmental tasks at critical points in the lifespan (Cicchetti & Toth, 1998; Sroufe, 1997). This study examines a set of micro-processes in early adolescent friendship disagreements, believed to reflect struggles in the fundamental task of establishing autonomy while maintaining positive relationships (Kobak & Ferenz-Gillies, 1995; Kobak, Sudler, & Gamble, 1991), as predictors of three psychosocial difficulties—a lack of competency in close friendships, depressive symptoms, and social withdrawal.

Adolescent autonomy may be established by asserting one's opinions in a confident, reasoned manner, while relatedness is maintained by expressing warmth, validation, and a collaborative approach to handling disagreements. In line with SDT, establishing autonomy during observed disagreements while also maintaining a sense of relatedness predicts a range of positive adolescent psychosocial outcomes including higher self-esteem, ego development, attachment security, and lack of depressive symptoms (Allen, Hauser, Bell, & O'Conner, 1994a; Allen et al., 2006). Additionally, at least in some contexts, adolescents who display high levels of autonomy in family disagreements also tend to have closer friendships and higher levels of social acceptance (McElhaney & Allen, 2001). In adolescence, the nature of attachment (i.e., parent-adolescent) relationships requires both parent and teen to maintain the relationship at the same time that the adolescent is beginning to assert his or her autonomy (Allen & Land, 1999; Bowlby, 1973). Thus, studies typically find that autonomy and relatedness are highly positively correlated and that it is the *combination* of the capacity to establish autonomy while maintaining relatedness that has shown the strongest relation to positive psychosocial functioning in adolescence (Allen et al., 2006; Bowlby, 1963; Steinberg & Silverberg, 1986).

One likely outcome of failure to manage this conflict-related developmental task appropriately is a heightened risk of depressive symptoms. In adulthood, failures of assertiveness and withdrawal in the face of conflict have been consistently associated with depression (Joiner, 2000). Indeed, the inability to autonomously express and pursue one's needs is considered a fundamental aspect of the interpersonal bases of depression and a central target of interpersonal therapies for depression (Mufson, Lewis, Gunlicks-Stoessel, & Young, 2012). In family relationships, cross-sectional and prospective associations between high levels of parental psychological control (vs. parental autonomy granting) and adolescent depression have already been established (Barber, Olsen, & Shagle, 1994; Gray & Steinberg, 1999; Silk, Morris, Kanaya, & Steinberg, 2003). More directly, a specific link between observed adolescent difficulties establishing autonomy during conflict with parents and future depressed affect has also been documented (Allen et al., 2006). Conversely, a lack of positive connection within families, as evidenced by dysfunctional parenting styles, lack of parental warmth, and a general lack of family support have also been linked to adolescent depressive symptoms (Bender et al., 2007; Nelson, Hammen, Brennan, & Ullman, 2003; Sheeber, Hops, Alpert, Davis, & Andrews, 1997).

Family relationships are consistently recognized as providing a prototype for future social interactions, and it is likely that the parent-teen relationship provides an important milieu in which autonomy and relatedness skills are fostered and then transferred to peer relationships (Collins & Repinski, 1994; Sroufe, Egeland, & Carlson, 1999). It is possible then that as

development progresses into adolescence, teens' ability to establish autonomy and relatedness skills not just with parents, but within *peer relationships,* becomes an equally important developmental task. Along these lines, substantial indirect evidence suggests that, at least in the short-term, establishing autonomy while maintaining a sense of relatedness with peers has important implications for adolescent psychosocial functioning. Adolescent depression has been repeatedly linked to broad markers of problematic peer relationships, whether problems are assessed as rejection, lack of popularity, or lack of interpersonal support (Nolan, Flynn, & Garber, 2003; Prinstein & Aikins, 2004). Relatively little is known, however, about what exactly is going wrong within adolescent close friendships that portends a risk for future psychosocial difficulties. In fact, very little research has explored the specific link between a lack of autonomy and connection with close friends in adolescence and psychosocial difficulties. One exception is the finding that teen behaviors undermining relatedness with peers during conflict were found to independently account for relative short-term increases in depressive symptoms from age 13 to age 14 (Allen et al., 2006). Therefore, the current study addresses an important gap in the literature by focusing on observed difficulties establishing autonomy and connection during conflict *with peers* as the main predictor variable of future difficulties. Moreover, little research has studied this phenomenon in terms of long-term adjustment, particularly in the context of the critical transition to young adulthood (Schulenberg, Sameroff, & Cicchetti, 2004). Given that depressive symptoms tend to increase sharply from early adolescence into young adulthood, understanding the processes that may create risk of such developing symptoms during this period is essential, and is precisely the focus of the current study (Lewinsohn, Rohde, Seeley, Klein, & Gotlib, 2003; Schulenberg & Zarrett, 2006).

Given that the task of establishing autonomy and relatedness with peers likely reflects a broad developmental process in adolescence, then it is expected that an inability to handle autonomy and relatedness issues with peers would be related not just to teen depressive symptoms but also to other problematic outcomes such as social withdrawal. In fact, child and adolescent social withdrawal has been concurrently and prospectively associated with peer difficulties, including peer neglect and rejection, friendlessness, peer victimization, and low friendship quality (Oh et al., 2008; Rubin, Coplan, & Bowker, 2009). Several lines of research support the notion that depression and social withdrawal are unique constructs that may exhibit different long-term trajectories and may be worth investigating independently of each other. Although social withdrawal often co-occurs with a constellation of depressive symptoms, from a clinical perspective, social withdrawal is neither a necessary nor a sufficient criterion for the diagnosis of depression, suggesting that withdrawal should not be subsumed under the umbrella of depression (*DSM-IV-TR*, 2000). Even more importantly, social withdrawal and broader depressive symptoms have actually shown only very modest correlations both concurrently and at a one-year follow-up in late childhood (Boivin, Hymel, & Bukowski, 1995). Social withdrawal also appears to have *uniquely* powerful associations with later psychosocial difficulties and long-term health outcomes into adulthood, ranging from increased risk of loneliness to cardiovascular disease to an increased risk of early mortality (House, Landis, & Umberson, 1988; Lett et al., 2005; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Finally, given that one in four adults report that they have *no one* in whom to confide in order to discuss important life issues (McPherson, Brashears, & Smith-

Lovin, 2006), it is likely that, in adulthood at least, social withdrawal may represent a far broader phenomenon than depression.

Some evidence indirectly links social withdrawal and friendship difficulties to autonomy and relatedness struggles in adolescence. Adolescents who are unable to assert their autonomy while also maintaining connection with friends during disagreements may internalize the notion over time that avoiding social situations altogether is more satisfying than attempting to engage in them and failing. Given that socially withdrawn children and adolescents tend to fear negative evaluation from others, problematic social interactions with friends may serve to reinforce this fear and leave these teens wanting to withdraw completely from peers (Rubin & Stewart, 1996). At least in a sample of children and very early adolescents, loneliness has been cross-sectionally associated with avoidance of conflict with peers, especially when the disagreements are focused on autonomy issues (Johnson, LaVoie, Spenceri, & Mahoney-Wernli, 2001). This potentially suggests that an inability to assert autonomy with friends and thus, effectively negotiate conflict with them in early adolescence may leave teens at risk for feeling alone and secluded. However, very little empirical research has been conducted regarding this risk.

Although a micro-process model explaining the risk of future depressive symptoms and social withdrawal has obvious potential value, a developmental perspective suggests some consideration of the likely intervening experiences that might mediate associations between autonomy and relatedness struggles with peers and problematic psychosocial outcomes (Curtis & Cicchetti, 2003; Sroufe, 1997). An adolescent's social skill level and degree of support within same-sex friendships over time both seem particularly important to consider in this regard, particularly given the abundance of literature linking interpersonal stress and dysfunction with depression (e.g., Hammen, 2009; Shih, Eberhart, Hammen, & Brennan, 2006). Several lines of research outside of adolescence also support this perspective. The link between stress and depressive affect, for example, has been found to be mediated by perceived social support in a sample of college freshmen (Cohen, Sherrod, & Clark, 1986). In middle childhood, friendship quality and quantity has been found to mediate the link between peer acceptance and loneliness and depression (Nangle, Erdley, Newman, Mason, & Carpenter, 2003). Additional research, however, is needed to examine whether similar potential social relationship mediators of long-term associations between early peer difficulties and later internalizing symptoms exist in adolescence.

This longitudinal, multimethod study addressed these issues within a diverse community sample of adolescents and their closest friends, followed over an eight-year period from early adolescence to young adulthood. The study assessed the sequelae of a basic failure at age 13 to manage the challenges of establishing autonomy while maintaining relatedness in close friendship disagreements, specifically examining the following hypotheses:

1. Observed struggles with autonomy and relatedness in close friendships at age 13 will predict relative decreases in close friendship competence from age 13 to age 18.

2. Autonomy and relatedness struggles at age 13 will also predict relative increases in levels of depressive symptoms and social withdrawal from age 13 to age 21.

3. Close friendship competence at age 18 will mediate long-term links between autonomy and relatedness difficulties at age 13 and depressive symptoms and social withdrawal at age 21.

Method

Participants and Procedure

This sample was drawn from a longitudinal study of adolescent social and psychological development in familial and peer contexts. Participants included 184 adolescents (86 male and 98 female) and their closest friends. Participants were initially interviewed when the target adolescent was approximately 13 years old (age: $M = 13.35$, $SD = .64$), then re-interviewed five years later when the target adolescent was approximately 18 years old (age: $M = 18.33$, $SD = .99$). Participants were reassessed for the final time when the target adolescent was approximately 21 years old (age: $M = 20.84$, $SD = .99$). The sample was racially and socioeconomically diverse: 107 adolescents identified themselves as Caucasian, 53 as African American, 2 as Hispanic or Latino, 2 as Asian American, 1 as American Indian, 15 as mixed ethnicity, and 4 as "other" minority group. Parents of target adolescents reported a median family income at the first assessment in the $40,000-$59,999 range ($M = $43,618$, $SD = $22,420$).

Adolescents were initially recruited from the seventh and eighth grades of a public middle school drawing from suburban and urban populations in the Southeastern United States. Students were recruited via an initial mailing to all parents of students in the school along with follow-up contact efforts at school lunches. Families of adolescents who indicated they were interested in the study were contacted by telephone. Of all students eligible for participation, 63% agreed to participate either as target participants or as peers providing collateral information. This sample appeared generally comparable to the overall population of the school in terms of racial composition (42% non-white in sample vs. ~ 40% non-white in school) and socio-economic status (mean household income = $43,618 for sample vs. $48,000 for community at large). All interviews took place in private offices within a university academic building. Participating adolescents provided informed assent, and their parents provided informed consent until adolescents were 18 years of age, at which point they provided informed consent. The same assent and consent procedures were used for peers and their parents. All participants were compensated for their participation.

During all three waves of data collection, adolescents participated in two visits. During the first visit of each wave, adolescents were asked to nominate their closest friend to be included in the study, who then participated with the adolescent at the second visit. Closest friends were defined as "people you know well, spend time with, and whom you talk to about things that happen in your life." Closest friends reported that they had known the adolescents for an average of 4.04 years at age 13, 6.95 years at age 18, and 8.38 years at age 21, though there was substantial variation in the duration of the friendships at all three time points (SD = 2.9, SD = 4.78, SD = 5.38, respectively). The closest friends selected at age 18 and age 21 were different friends than those selected at age 13 for 87% and 94% of adolescents, respectively. The closest friends selected at age 21 were different friends from those selected at age 18 for 68% of adolescents.

Attrition Analyses

Of the original 184 target teens, 161 (88%) provided longitudinal data on depressive symptoms at age 21. Of the original 184 target teens, 145 target teens' closest friends (79%) provided longitudinal data on social withdrawal at age 21. No differences on any of the study variables were found between individuals who provided peer-rated data on social withdrawal at age 21 (n = 145) and those that did not (n = 16). Attrition analyses revealed that women were more likely than men to participate in the second visit at the final time point, making it more likely for women to have complete longitudinal data on social withdrawal at age 21 (x^2 (1) = 7.89, p = .005). Of the 145 target teens who had complete longitudinal data on social withdrawal at age 21, 60 were male (41%) and 85 were female (59%). There were no other significant differences on any study variables between those adolescents who did versus did not have complete data for depressive symptoms or social withdrawal data at the final time point.

To best address any potential biases due to attrition and missing data in longitudinal analyses, full information maximum likelihood methods were used, with analyses including all variables that were linked to future missing data (i.e., where data were not missing completely at random). Because these procedures have been found to yield the least biased estimates when all available data are used for longitudinal analyses (vs. listwise deletion of missing data) (Arbuckle, 1996), the entire original sample of 184 was used for these analyses. This full sample thus provides the best possible estimates of variances and covariances in measures of interest and was least likely to be biased by missing data. On average, overall data coverage was 82% for variables in models predicting depressive symptoms and 81% for variables in models predicting social withdrawal. Alternative longitudinal analyses using just those adolescents without missing data (i.e., listwise deletion) yielded results that were substantially identical to those reported below.

Measures

Depressive symptoms (Age 13 and 21)—At age 13, adolescents reported the degree of their depressive symptoms using the *Childhood Depression Inventory* (CDI; Kovacs & Beck, 1977). Based on the Beck Depression Inventory, this inventory contains 27 items, each of which are rated on a 0 to 2 scale. Item scores are then summed to yield a total score for depressive symptoms. The CDI has been well-validated as a measure of depressive symptomatology and has previously been linked with poor self-esteem, hopelessness, and negative cognitive attributions (Kazdin, 1990). Internal consistency for this measure was excellent (Cronbach's α = 0.86). At age 21, adolescents completed the *Beck Depression Inventory*, a 21-item inventory designed to assess the degree of depressive symptoms in adolescents and adults (BDI; Beck & Steer, 1987). Items were rated on a 0-3 scale and summed to yield a total depression score, with higher scores indicating more severe depressive symptoms. The BDI is a well-validated and widely accepted self-report measure of depressive symptomatology (Kazdin, 1990). The BDI showed excellent internal consistency at age 21 (Cronbach's α = 0.84).

Observed adolescent autonomy and relatedness with close peers during conflict (Age 13)—Adolescents and their closest friends participated in an 8-minute

videotaped interaction at age 13 in which they were presented with a revealed differences task (Strodtbeck, 1951). This task involved a hypothetical dilemma requiring them each to decide which 7 out of possible 12 fictional characters who are stuck on the planet Mars should be eligible for a place in the one spaceship returning to Earth (Pfieffer & Jones, 1974). After making their decisions separately, adolescents and their closest friends were then brought together to compare their answers, and were asked to come up with a consensus list of seven characters to take back to Earth.

The Autonomy-Relatedness Coding System for Peer Interactions was used to code these interactions (Allen, Porter, & McFarland, 2001), and yields ratings for adolescents' overall behavior toward their closest friend during the conflict interaction. Scores for each coded scale were derived from an anchored coding system that considers both the frequency and intensity of each speech relevant to that behavior during the interaction in assigning the overall score. Based on theoretical and empirical reasons, specifically the long research history suggesting that it is the *combination* of the capacity to establish autonomy while maintaining relatedness during disagreements that has the strongest relation to psychosocial functioning, and the strong correlation between the constructs in the current study ($r = .49$, $p < .001$), a combined scale for adolescent behaviors undermining autonomy and relatedness with peers is used (e.g., Allen et al., 2006; Bowlby, 1963; Steinberg & Silverberg, 1986). The overall composite score for adolescent behaviors undermining autonomy and relatedness with close peers sums adolescents' behaviors that undermine the ability to express autonomy during the disagreement task—for example, by avoiding conflict entirely, appearing hesitant to disagree, overpersonalizing the disagreement, or pressuring the other person to agree—and behaviors that undermine relatedness with the other person by interrupting or ignoring them, or expressing hostility. Scores were rated on a 0 to 4 scale, with higher scores indicating greater frequency and intensity of behaviors that undermine autonomy and relatedness. Interrater reliability, based on double coding of all interactions by trained graduate students, was calculated using intraclass correlation coefficients, and was in the excellent range ($r = .82$) for this coefficient (Cicchetti & Sparrow, 1981).

Peer-rated friendship competence (Age 13, 18, and 21)—Closest friends reported on the target adolescents' competence in close friendships at ages 13, 18, and 21 using the friendship competence subscale of a version of the *Harter Self-Perception Profile for Adolescents,* modified to be used as a peer-report instrument (Harter, 1988; McElhaney & Allen, 2001). The format for this measure asks the teen's closest friend to choose between two contrasting descriptors and then rate the extent to which their choice is *sort of true* or *really true* about the target teen. Item responses are scored on a 4-point scale and then summed, with higher scores indicating higher levels of peer-rated close friendship competence. The close friendship competence scale included five items at age 18 and 21, but due to time constraints in the initial wave of data collection, the friendship competence scale was shortened from five items to four items at age 13. A sample item includes "Some people don't have a friend that is close enough to share really personal thoughts and feelings with vs. some people do have a friend that is close enough to share personal thoughts and feelings with." The friendship competence subscale showed good internal consistency (Cronbach's α = .68 at age 13, .77 at age 18, and .78 at age 21).

Peer-rated social withdrawal (Age 13 and 21)—The withdrawal scale from the *Pupil Evaluation Inventory* (PEI; Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976) sums closest friend ratings (on a scale ranging from 0 = *not true* to 2 = *very often or often true*) of the target adolescent on nine different items tapping socially withdrawn behavior, such as "She often doesn't want to hang out or do things with other kids." The scale has been shown to be a reliable and valid indicator of childhood vulnerability to psychopathology (Pekarik et al., 1976; Weintraub, Prinz, & Neale, 1978) and internal consistency in the current study was good (Cronbach's α = .72). Because the PEI is used to measure early adolescent social withdrawal (e.g., Johnston, Pelham, Crawford & Atkins, 1988; Wright, Pillard & Wiese, 1992), age 21 social withdrawal was assessed using closest friend ratings on the social withdrawal scale of the *Adult Behavior Checklist* (ABCL; Achenbach & Rescorla, 2003). This scale sums closest friend ratings regarding how often nine behavioral descriptions apply to the target participant in the past six months, on a scale of 0 = *not true* to 2= *very or often true*. A sample item includes "She would rather be alone than with other others." Internal consistency for the scale was good (Cronbach's α = .75).

Results

Preliminary and Correlational Analyses

Means and standard deviations for all substantive variables are presented in Table 1. Examination of change over time in adolescents' close friendship competence between age 13 and 18, and between age 18 and 21 indicate no change in the overall level of friendship competence in items that were consistent across waves of data collection. Changes over time in adolescents' depressive symptoms and social withdrawal between age 13 and 21 could not be examined because different measures were used at ages 13 and 21, as previously noted. Initial analyses also examined the role of gender and family income on all primary variables, and neither factor was related to depressive symptoms, social withdrawal, or close friendship competence at any time point. Both variables, however, were retained as covariates in analyses to account for any possible effects that may not have reached conventional levels of statistical significance and to provide maximal information to Full Information Maximum Likelihood analyses. Additionally, moderation effects of gender and household income on the relation between adolescent behaviors undermining autonomy and relatedness at age 13 and later close friendship competence, depressive symptoms or social withdrawal, as well as the relation between close friendship competence at age 18 and later depressive symptoms or social withdrawal were examined in the final step of each respective model and no such effects were found.

For descriptive purposes, simple correlations were examined between all key variables and are presented in Table 1. These analyses indicate numerous significant correlations, which are explored further below. Notably, depressive symptoms were not significantly related to social withdrawal at either time point, suggesting that these two constructs are relatively independent of one another and may be tapping distinct aspects of internalization in young adults.

Primary Analyses

Hypothesis 1. Observed struggles with autonomy and relatedness in close friendships at age 13 will predict relative decreases in close friendship competence from age 13 to age 18—All primary analyses were examined using the Full Information Maximum Likelihood option in MPlus version 6 (Muthen & Muthen, 2010). A series of hierarchical linear regressions were performed to examine the link between directly observed adolescent behaviors undermining autonomy and relatedness in discussions of disagreements with closest friends at age 13 and *relative changes* in teens' close friendship competence from age 13 to age 18. Gender and income were entered first in all models, followed by peer-rated close friendship competence at age 13, followed by observed adolescent behaviors undermining autonomy and relatedness with friends during teen-peer conflict interactions at age 13. This approach of predicting the future level of a variable (e.g., close friendship competence at age 18) while accounting for predictions from initial levels (e.g., close friendship competence at age 13) yields one marker of change in that variable, such that increases or decreases in its final state are relative to predictions based upon initial levels (Cohen & Cohen, 1983). Table 2 presents results of regression equations predicting peer-rated close friendship competence at age 18 from adolescent behaviors undermining autonomy and relatedness with closest friends at age 13, after controlling for gender, income, and close friendship competence at age 13. A significant main effect was found, such that higher levels of directly observed teen behaviors undermining autonomy and relatedness with closest friends at age 13 predicted *relative decreases* in close friendship competence at age 18.

Depressive symptoms

Hypothesis 2a. Autonomy and relatedness struggles at age 13 will predict relative increases in levels of depressive symptoms from age 13 to age 21—Next, analyses considered the long-term relationship between teen behaviors undermining autonomy and relatedness with closest friends at age 13 and relative changes in depressive symptoms from age 13 to age 21. Table 2 presents results of regression equations predicting depressive symptoms at age 21 from observed teen behaviors undermining autonomy and relatedness during teen-peer conflict interactions at age 13, after controlling for gender, income, depressive symptoms and social withdrawal at age 13. A significant main effect was found for observed adolescent behaviors undermining autonomy and relatedness with their closest friends, such that higher levels of these observed behaviors at age 13 predicted *relative increases* in young adults' self-reported depressive symptoms 8 years later. Additionally, due to the presence of three outliers (e.g., scores of more than 3.5 standard deviations above the mean of depressive symptoms at age 13 and age 21) and the mild skewness of the distribution of teens' reports of depressive symptoms at age 13 and 21, additional analyses were conducted to examine whether outliers affected the results and there was no evidence that they did.

Hypothesis 3a. The long-term relationship between adolescent behaviors undermining autonomy and relatedness at age 13 and depressive symptoms at 21will be mediated via lower levels of close friendship competence at age 18—Following Baron and Kenny's (1986) mediation guidelines, mediational path analyses

were conducted in order to examine whether the long-term prediction from adolescent behaviors undermining autonomy and relatedness with friends at age 13 to depressive symptoms at age 21 was mediated via close friendship competence at age 18. Results revealed that the relationship between observed teen behaviors undermining autonomy and relatedness with friends at age 13 and self-reported depressive symptoms at age 21 was partially mediated through peer-rated close friendship competence at age 18, as evidenced by the slight reduction in the strength of the long-term association between behaviors undermining autonomy and relatedness at age 13 and depressive symptoms at age 21 after accounting for friendship competence at age 18 (Baron & Kenny, 1986; before the mediator was entered: $\beta = .34$, $p < .001$, after controlling for the mediator: $\beta = .30$, $p < .001$). The significance of the indirect path using the MODEL INDIRECT option in MPlus was also tested. The total indirect effect of behaviors undermining autonomy and relatedness with closest friends on depressive symptoms via close friendship competence was marginally significant ($\beta = .06$, $p = .05$). The partial mediation model is depicted in Figure 1. Stability coefficients for close friendship competence are also provided in Figure 1. Specifically, close friendship competence exhibited significant stability from age 18 to age 21 ($\beta = .38$, $p < .001$), but not from age 13 to age 18 or from age 13 to age 21.

Social withdrawal

Hypothesis 2b. Autonomy and relatedness struggles at age 13 will predict relative increases in levels of social withdrawal from age 13 to age 21—Long-term relative changes in social withdrawal at age 21 as predicted by adolescent behaviors undermining autonomy and relatedness at age 13 were also examined. Table 2 presents results of regression equations predicting closest friend-reported social withdrawal at age 21 from directly observed teen behaviors undermining autonomy and relatedness with friends at age 13, after controlling for gender, income, social withdrawal and depressive symptoms at age 13. A significant main effect was found for teen behaviors undermining autonomy and relatedness with their closest friends, such that higher levels of these observed behaviors at age 13 predicted *relative increases* in young adults' social withdrawal, as reported by closest friends, over an 8-year period.

Hypothesis 3b. The long-term relationship between adolescent behaviors undermining autonomy and relatedness at age 13 and social withdrawal at age 21 will be mediated via lower levels of close friendship competence at age 18—Using mediational path analyses, results revealed that the relationship between observed adolescent behaviors undermining autonomy and relatedness with closest friends at age 13 and friend-reported social withdrawal at age 21 was partially mediated through peer-rated close friendship competence at age 18, according to Baron and Kenny's (1986) guidelines for mediation. Specifically, the long-term association between behaviors undermining autonomy and relatedness at age 13 and social withdrawal at age 21 dropped below significance after controlling for friendship competence at age 18 (before the mediator was entered: $\beta = .18$, $p = .03$, after controlling for the mediator: $\beta = .14$, ns). However, the total indirect effect of teen behaviors undermining autonomy and relatedness with closet friends at 13 on social withdrawal at 21 via close friendship competence at 18 was not significant (though showed a trend towards significance; $\beta = .06$, $p = .06$), thus

suggesting only equivocal evidence for partial mediation. This model is depicted in Figure 2. Close friendship competence exhibited significant stability from age 18 to age 21 ($\beta = .42$, $p < .001$), but not from age 13 to age 18 or from age 13 to age 21, as also indicated in Figure 2.

Discussion

This study is one of the first to provide support for a developmental model that utilizes an understanding of early adolescent micro-processes in handling conflict in friendships to predict both late adolescents' ability to competently form close friendships and the development of depressive symptoms and social withdrawal in young adulthood. Although previous literature has established associations between psychosocial difficulties and problematic family interactions, this study fills an important gap in the literature by demonstrating novel and important psychosocial implications of ineffectively negotiating disagreements within *peer relationships* by failing to establish autonomy while also maintaining connection (e.g., Kobak & Ferenz-Gillies, 1995; Ryan & Deci, 2000). As hypothesized, lower levels of close friendship competence at age 18 were predicted by early adolescent struggles to assert autonomy while maintaining connection with closest friends during conflict at age 13. Furthermore, as hypothesized, teens displaying high levels of these problematic conflict negotiation behaviors with their closest friends at age 13 developed increasing levels of both depressive symptoms and social withdrawal in young adulthood. It should be emphasized that the long-term predictions to young adult depressive symptoms and social withdrawal were made from one, relatively brief observation of teen-peer interactions *eight years earlier*, highlighting just how impactful critical developmental processes may be for later functioning. Results also suggested that higher levels of close friendship competence at age 18 partly mediated this long-term relationship for both depressive symptoms and, less clearly, for social withdrawal. Each of these findings is considered in turn below, followed by a discussion of study implications and limitations.

Consistent with developmental literature noting the significance of establishing autonomy and relatedness with close others during adolescence, this study found an association between high levels of behaviors that undermined teens' autonomy and connection with their closest friends in an observed revealed differences task at age 13 and later close friendship competence at age 18. Specifically, teens who handle disagreements with closest friends ineffectively early on, for example, by pressuring their friends, overpersonalizing the argument, interrupting their friends, or expressing hostility during conflict may struggle to forge supportive, connected, and trusting friendships five years later. This finding suggests the importance of developing autonomy and relatedness skills, even during very minor conflicts, as critical markers of progress toward the development of friendship competence in adolescence. It also suggests there may be some continuity in teens' early interactions with closest friends that may subsequently prevent them from forming positive, strong relationships with peers in late adolescence.

Of note, it seems likely that the skills underlying friendship competence in early adolescence are quite different from the skills that underlie friendship competence at age 18 and 21, which may account for the lack of correlations found between age 13 friendship competence

and age 18 and 21 friendship competence. Adolescents at age 13 are likely to have greater, naturally occurring proximity to and connection with similar aged peers than adolescents post high school at age 18 or 21 (particularly for the majority not attending a residential college), and researchers have long noted a positive relationship between proximity and interpersonal attraction (e.g., Byrne & Griffitt, 1969). Thus, it may be a bit easier to establish close and supportive friendships in early adolescence when proximity to and kinship with similar others is high, even if friendship formation and maintenance skills are somewhat lacking. In contrast, developmental changes such as graduation from high school, beginning college, and moving out of the home where naturally occurring propinquity with similar others typically decreases might make it harder for less skilled adolescents who may have only slightly struggled at age 13 to make close friends at age 18.

When teens exhibited behaviors that undermined their ability to express autonomy and connection with their closest friends at age 13, they also reported relative increases in depressive symptoms at age 21. This finding is consistent with previous research that highlights the importance of a combination of difficulties with both autonomy and relatedness tasks in adolescence and short-term changes in depressive symptoms (Allen et al., 2006). The current finding, however, now extends this connection beyond parent relationships, and well beyond early adolescence, to include difficulties negotiating conflict by asserting autonomy while also remaining connected with peers as a long-term risk factor for depressive symptoms. Teens who learn maladaptive ways of handling early conflict negotiations may be continually aggravated and stressed within interpersonal relationships, making them prone to later psychosocial difficulties, consistent with a stress-generation perspective on depression (Hammen, 1991). Because the observation task used in this study is hypothetical and likely to be of low-stress, the occurrence of negative behaviors toward peers even in such a task suggests that, at least for some adolescents, managing conflict with peers is likely quite challenging and quite meaningful at this stage of development.

Displays of behavior undermining autonomy and relatedness with closest friends at age 13 also predicted relative increases in social withdrawal at age 21. This finding provides confirmation that peer difficulties (and in this case distinct behaviors exhibited during peer disagreements) are associated with social withdrawal, not only in childhood and early adolescence, but also prospectively, across the transition into young adulthood (e.g., Deater-Deckard, 2001; Oh et al., 2008). It may be that problematic conflict negotiation strategies are of primary importance in predicting young adult social withdrawal because they represent an immature and ineffective way of negotiating disagreements within complex relationships—a skill that seems necessary to maintain social connections over time. When these skills are lacking, peers may potentially become frustrated and avoid further social interaction with teens both in late adolescence and early adulthood. Another possibility previously mentioned is that negative self-appraisals and fear of negative evaluation in social situations, which are common features of socially withdrawn individuals, become heightened during disagreements with peers, which serves to reinforce withdrawal from social relationships in order to avoid being negatively evaluated (Rubin & Stewart, 1996).

Close friendship competence at age 18 was also found to partially mediate the relationship between adolescent inabilities to establish autonomy and relatedness with closest friends at

age 13 and both depressive symptoms and, less clearly, social withdrawal at age 21. One possible implication of these findings is that if teens who display early conflict negotiation difficulties with friends in the form of failing to assert their autonomy while keeping the relationship intact can learn to be more socially adept in forming close and supportive relationships with peers, they may be able to potentially counteract their risk of developing later psychosocial difficulties.

Findings indicated that teens who lacked the ability to form friendships in late adolescence that are characterized by trust, intimacy, and connection were more at risk for developing depressive symptoms in young adulthood. At the critical age of 18, when teens may be more vulnerable to developing depressive symptoms and are potentially making new, important life decisions, it may be particularly important for them to have close friends with whom they can share personal thoughts and feelings. Without close confidants with whom teens can easily relate and connect, adolescents are potentially more at risk for turning their negativity and stress inward over time. Additionally, it seems that close friendship competence appears to take on a different role at age 21 in which it shares minimal variance with depressive symptoms, and in models accounting for effects of prior close friendship competence, actually is slightly positively, though only marginally, linked to depressive symptoms. One possible explanation for this slightly positive association between friendship competence and depression at age 21 is that young adults who experience depressive symptoms may be more likely to self-disclose to close friends at this age (Teachman & Allen, 2007), which could account for higher peer ratings on a friendship competence measure.

Furthermore, teens with lower levels of close friendship competence at age 18 also showed relative increases in social withdrawal at age 21. Though the extent to which friendship competence mediated prior effects of autonomy and relatedness struggles was somewhat unclear from analyses, what was clear was that the inability to establish trusting and supportive best friendships by age 18 implied risk for increases in social withdrawal in young adulthood as well, independent from depressive symptoms. This finding is consistent with and now extends findings from child and early adolescent research suggesting that a lack of a best friendship is associated with several social risks, including loneliness (Brendgen, Vitaro, & Bukowski, 2000; Parker & Asher, 1993). One possible explanation is that late adolescents who, at the age of 18, lack critical friendship competencies may simply continue down a negative social trajectory and eventually begin to shy away altogether from meaningful interactions with others. This explanation is partly supported by the notion that important developmental transitions such as marriage and parenthood tend to be delayed for shy individuals because of their general passive or avoidant interactional style (Caspi, Elder, & Bem, 1988). Future experimental research would be needed to confirm this possibility.

Overall, the importance of the combination of adequate autonomy and relatedness skills during conflict in early adolescence, and friendship competencies in late adolescence suggests the beginnings of a developmental model explaining long-term psychosocial outcomes from critical processes observed earlier in the lifespan. Given that the intervening role of friendship competence was at most a partial mediator of long-term predictions, future

research should also examine other social and coping resources as mediating variables, such as levels of social support, self-esteem, and social status.

If future research supports the existence of causal links between the constructs examined, then psychological interventions might profitably target dysfunctional conflict negotiation skills and behavioral patterns in early adolescence, as well as social competencies in late adolescence as an approach toward preventing young adult psychosocial difficulties. Helping teens acquire more effective and mature ways of interacting with peers in early and late adolescence, especially during disagreements, and teaching teens helpful skills in developing close, social connections may reduce the possibility of these individuals becoming more depressed and socially withdrawn in young adulthood.

The current study successfully utilized multiple methods, including observations of social interactions between adolescents and their closest friends, as well as peer reports of adolescents' social competence and withdrawal. These methods serve to reduce potential confounds from the negative perceptual biases of depressed or withdrawn adolescents (Gotlib, 1983). Furthermore, each of the demonstrated findings in the current study shows relative change in longitudinal predictions of close friendship competence, depressive symptoms and social withdrawal, after accounting for respective baseline levels of each construct. This statistical approach eliminates the possibility that initially high levels of depressive symptoms or social withdrawal are accounting for later psychological difficulties (e.g., Lewinsohn & Essau, 2002). However, longitudinal analyses predicting relative change over time are not sufficient to establish causal pathways between negative behavioral and social patterns and later internalizing symptoms. Moreover, this approach utilizes only one possible measure of change over time, and future research could benefit by employing other methods, such as growth curve modeling, in order to examine trajectories of change over longer time periods.

It is important to also emphasize that the present study highlighted relational patterns relevant to those teens who struggle with depressive symptoms, but not necessarily with Major Depressive Disorder. Although 48% of the participants showed depressive symptoms in the mild to moderate range at some point during the study, the current sample of adolescents is a community-based sample and was not selected to be particularly at-risk for psychopathology. Therefore, the current results cannot be generalized to major depression as a clinical phenomenon, nor can they be generalized to populations with higher rates of clinically diagnosed difficulties. Additionally, while the current study is longitudinal in nature, data were only collected through age 21 and may fail to capture those who develop depressive symptoms or social withdrawal later in adulthood. Further research is needed in order to examine if and how early conflict negotiation patterns and later adolescent social functioning difficulties relate to adult depressive symptoms and social withdrawal. In addition, the relatively modest sample size in this study may have limited power to detect potentially meaningful effects, such as moderating effects of individual and social factors (e.g., gender, income, and ethnicity). Finally, it is important to consider the possibility that close friendship competence is confounded with social withdrawal and depressive symptoms in the current study. In fact, because an unacceptably high degree of confound between the measures was expected and because the current study was particularly interested in long-

term predictions of social withdrawal and depressive symptoms, measures of social withdrawal and depressive symptoms at age 18 were not considered.

Even given these limitations, the current study identified important peer risk factors that account for significant relative increases in depressive symptoms and social withdrawal over an eight-year time period, beginning in early adolescence and continuing through the transition to adulthood. Moving beyond concurrent markers of these internalizing symptoms, results begin to fill out one piece of a more comprehensive picture of social relationship precursors on young adult adjustment and dysfunction.

Acknowledgments

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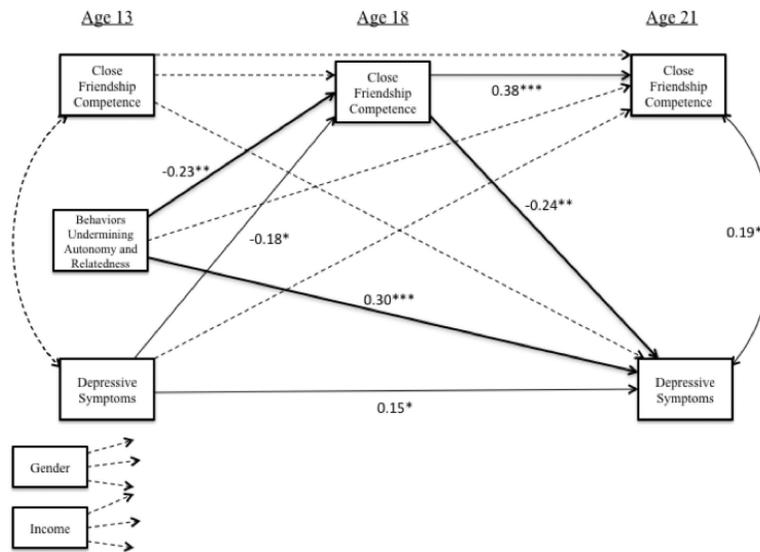
Figure 1.
The relationship between teen behaviors undermining autonomy and relatedness and depressive symptoms partially mediated through close friendship competence.
Note. Primary hypotheses are bolded. Gender and income are not significantly related to any primary variables.
Total R^2 = 0.22***; Adjusted R^2 =.20; RCFI = 1.00; RMSEA = 0.00 * p .05, ** $p < .01$, *** $p < .001$
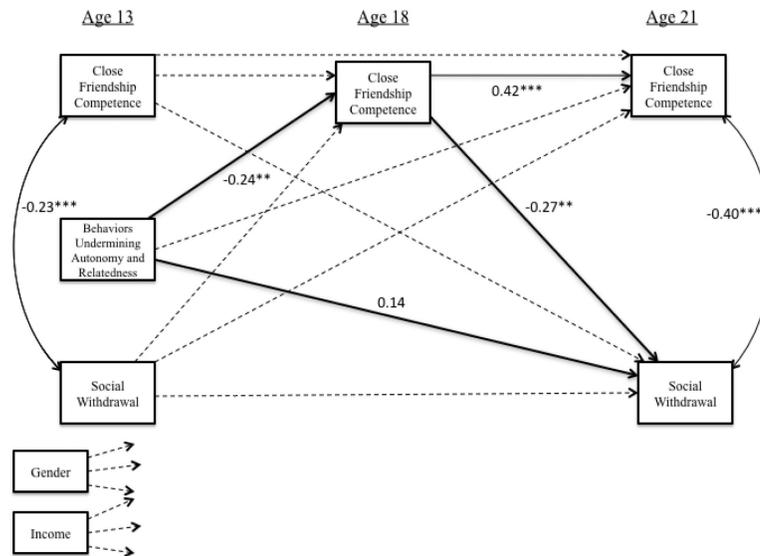
Figure 2.
The relationship between teen behaviors undermining autonomy and relatedness and social withdrawal partially mediated through close friendship competence.

Note. Primary hypotheses are bolded. Gender and income are not significantly related to any primary variables.

Total $R^2 = 0.12$*; Adjusted $R^2 = .10$; CFI = 1.00; RMSEA = 0.00 * p .05, ** $p < .01$, *** p .001

Table 1

Means, Standard Deviations, and Correlations among Primary Variables

Variable	1	2	3	4	5	6	7	8	9	10
M	---	$43,618	5.07	5.22	0.78	2.03	1.78	13.32	17.05	16.69
SD	---	$22,420	4.30	5.99	0.53	2.38	2.39	2.54	3.00	2.72
1. Gender	---									
2. Income (SR)	-.11	---								
3. Depression, Age 13 (SR)	.06	-.11	---							
4. Depression, Age 21 (SR)	.03	-.01	.20**	---						
5. Behaviors Undermining Autonomy and Relatedness, Age 13 (O)	-.06	-.04	.05	.36***	---					
6. Social Withdrawal, Age 13 (CP)	.08	-.07	.06	.14	.12	---				
7. Social Withdrawal, Age 21 (CP)	.04	.01	.05	.05	.18*	.10	---			
8. Close Friendship Competence, Age 13 (CP)	.07	.10	.09	.02	-.01	-.24**	-.03	---		
9. Close Friendship Competence, Age 18 (CP)	.15	-.05	-.19*	-.31***	-.21*	-.08	-.26**	-.05	***	
10. Close Friendship Competence, Age 21 (CP)	.12	-.05	-.02	.05	-.11	.03	-.46***	.00	.40***	---

Note. SR = self report, CP= closest peer report, O = observed

Note.

*
  $p < .05$

**
  $p < .01$

***
  $p < .000$

Table 2

Adolescent Behaviors Undermining Autonomy and Relatedness with Friends Predicting Relative Changes in Close Friendship Competence at age 18, Depressive Symptoms at age 21, and Social Withdrawal at age 21

	Close Friendship Competence (Age 18)			Depressive Symptoms (Age 21)			Social Withdrawal (Age 21)		
	β	R²	Total R²	β	R²	Total R²	β	R²	Total R²
Step I.									
Gender (1=M; 2=F)	.14			.02			.06		
Total Family Income (Age 13)	−.04			.04			.04		
Statistics for Step I.			.03			.00			.00
Step II.									
Close Friendship Competence (Age 13) [CFC] / Depressive Symptoms (Age 13) [DS, SW]	−.05	.00	.03	.18* (.02)	.04** (.008)	.04	.04	.00	.00
Step III.									
Social Withdrawal (Age 13)				.08	.02	.06	.07	.01	.01
Step IV. [CFC Step III: Adolescent behaviors undermining autonomy and relatedness (Age 13)]									
Adolescent behaviors undermining autonomy and relatedness (Age 13)	−.20* (.02)	.04* (.02)	.07	.34*** (.000)	.11*** (.000)	.17** (.002)	.18* (.03)	.04* (.03)	.05

Note.

*
p < .05

**
p < .01

***
p < .001. Exact p-values are indicted in parentheses.