

## Articles

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# Monthly Instability in Early Adolescent Friendship Networks and Depressive Symptoms

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### Abstract

*This study examined (1) the relation between perceived friendship instability and depressive symptoms, (2) the directionality of this link, and (3) whether the relation between friendship instability and depressive symptoms would differ according to specific friendship status (best and secondary friendships) and contexts (school, non-school, and multiple). Participants were 102 young adolescents (51 girls; *M* age = 12 years) who completed a series of five monthly telephone interviews and in-class questionnaires. Results suggested that friendship instability over a five-month period was significantly associated with an increase in depressed mood. Regarding the directionality of the influence, cross-lag analyses revealed that elevated depressive symptoms at one time point significantly predicted an increase in friendship instability by the following month, whereas friendship instability at one time point did not predict an increase in depressive symptoms the next month. Finally, participants' depressed mood appeared to be associated with instability in their best friendships (but not secondary friendships) and in their school friendships (but not non-school and multi-context friendships). The theoretical and practical implications of the results are discussed.*

*Keywords:* friendship stability; depression; adolescence; monthly assessments

### Introduction

Early adolescence is a period in which the incidence of depressive symptomatology rises substantially (Hankin & Abramson, 2001; Wichstrom, 1999). Although depressive symptoms are relatively common in adolescence, they are particularly important to study during this time because they are strongly associated with poor psychosocial functioning and represent a significant risk factor for the emergence of episodes of depression during adolescence or later in life (Birmaher et al., 1996; Lewinsohn, Roberts, Seeley, Rohde, Gotlib, & Hops, 1994). Following a wealth of research focusing on individual or family risk factors for depression, a number of studies has increasingly

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considered the role of peer relations in the development of depressive symptoms among children and adolescents (Bukowski, Brendgen, & Vitaro, 2007; Parker, Rubin, Erath, Wojslawowicz, & Buskirk, 2006). Firstly, at the peer group level, peer rejection (Boivin, Poulin, & Vitaro, 1994; Kiesner, 2002) and peer victimization (Hodges, Boivin, Vitaro, & Bukowski, 1999) have been widely linked to depressed mood. Secondly, different features of relationships have been shown to contribute significantly and independently to depressive feelings: the quantity or number of friendships (Nangle, Erdley, Newman, Mason, & Carpenter, 2003), the quality of friendships (Nangle et al., 2003), and the characteristics of friends, such as involvement with peers who exhibit high levels of deviancy (Brendgen, Vitaro, & Bukowski, 2000; Connell & Dishion, 2006) or internalizing symptoms (Hogue & Steinberg, 1995). Lastly, interaction processes, such as maladaptive co-rumination in friendships, have been related to elevated levels of depression among adolescents (Rose, 2002). The present study proposed to focus on a neglected aspect of peer relations in link with depressive symptoms in early adolescence: the level of temporal stability in friendship networks.

### *Friendship Instability Construct*

The notion of stability refers to the maintenance of a relationship over time, whereas instability, fluidity, and change are multiple terms used to define modifications observed in friendship bonds (Hardy, Bukowski, & Sippola, 2002). Research describing the stability and change in youths' friendship networks is very scarce in the literature. Prior studies (Berndt & Hoyle, 1985; Bowker, 2004; Degirmencioglu, Urberg, Tolson, & Richard, 1998) were largely based on yearly assessments which are prone to limitations in tracking the dynamic nature of adolescent friendships (Dishion & Medici Skaggs, 2000). A few studies using shorter temporal intervals have demonstrated that short-term instability in adolescent networks is fairly common. Cairns and his colleagues discovered that much fluidity was present in adolescents' friendships over a period as short as three weeks (Cairns, Leung, Buchanan, & Cairns, 1995). Parker and Seal (1996) tracked youths aged between 8 and 15 years during a 4-week summer camp program and identified different trajectories of stability and change in participants' friendships. Hardy et al. (2002) assessed adolescents' peer relationships using six time points and reported greater friendship instability during the transition to middle school. Finally, another study assessing friendship stability on a monthly basis revealed that approximately one-third of adolescents' nominated friendships changed over the course of five months, being either newly formed or lost from one month to another (Chan & Poulin, 2007). These studies thus confirm that important fluctuations can be observed in adolescent networks when exploiting short interval measurements.

Two types of temporal modifications or instability may be observed in friendships. The first aspect of friendship instability is the termination of relationships, which assumes a temporary or permanent withdrawal from peer interaction. Friendship withdrawal may be especially harmful in early adolescence because it interferes with the acquisition of new social skills required in handling increasingly complex and intense friendship relations (Allen et al., 2006). Moreover, it has been reported that inevitable distress and pain result from the breakup of a friendship (even if the loss is voluntary) because it involves a loss of social support (Cairns, Leung, & Cairns, 1995). The second aspect of instability is the formation of new friendships. Despite the typical view that friendship formation promotes emotional well-being, Berndt's work suggested that this may not necessarily be the case in early adolescence. One of his studies illustrated that

adolescents make fewer new friends than do children in elementary school for the reason that they may be more concerned to preserve the growing intimacy in their existing friendships (Berndt & Hoyle, 1985). Another study further established that youths who formed new friendships immediately after entry into a new school environment displayed more aggressive behavior (Berndt, 1989). Consequently, the rapid formation of friendships may not necessarily be adaptive in early adolescence. Instead, it can be a sign of social skills deficits reflecting the child's inability to maintain his old friendships (Berndt, 1989). As a result, it was reasonable to expect that friendship stability would be linked with positive outcomes and that both forms of instability would be stressful and foster depressed mood among young adolescents. Accordingly, in the present study, the two aspects of friendship instability (i.e., termination and formation) were considered together in examining the link with depressive symptoms.

### *Friendship Instability and Depressive Symptoms*

Cognitive-interpersonal approaches have received recent growing attention in conceptualizing the link between youths' relationships and depressive symptoms (Rudolph & Clark, 2001; Rudolph, Hammen, & Burge, 1997). Firstly, cognitive models of depression presume that individuals' perception of their relationships may influence their psychological adjustment, and that those who carry negative conceptions of their interpersonal context may be at risk for depressive symptoms. Brendgen, Vitaro, Turgeon, & Poulin (2002) have documented that, compared with well-adjusted children, depressed children maintain a negative biased view of their peer relationships, perceiving themselves as less accepted by their peer group and reporting a lower friendship quality with their best friends. Secondly, interpersonal models of depression (Coyne, 1976a, 1976b) underline the crucial role of peer interactions in the onset and maintenance of depressive behaviors. More explicitly, the model illustrates that when an individual displays depressive behaviors, partners initially respond positively by showing support. If the depressive affect persists, however, they find interactions with the depressed individual to be aversive and avoid future interaction with this person. Over time, rejection from others exacerbates the symptoms of the depressed person (Coyne, 1976a, 1976b). This model has been tested among a youth sample and findings have shown that depressive symptoms were associated with self-report measures of interpersonal problems such as loneliness and rejection (Joiner, 1999).

Accordingly, on the basis of the cognitive-interpersonal perspectives discussed above, the present investigation treated adolescents' perception of their friendship network in link with depressed mood. Clearly, self-reported friendships (i.e., acknowledged by the child, but not necessarily by the friend) are important in their own right because they reflect individuals' own perspective of their relationships which may be influential, even though it may not fully correspond with objective interactions (Furman & Buhrmester, 1985). In fact, given that friendships are affective bonds by definition, it has been argued that the subjective importance of these relationships may affect youths' attitudes as well as subsequent interactions with friends. Perceptions of relationships may therefore constitute the most valid indices of their quality (Furman, 1996). Incidentally, evidence supporting this view is provided by a study showing that, regardless of friendship reciprocation, feelings of identification with peers were found to influence adolescents' behavior and adjustment (Kiesner, Cadinu, Poulin, & Bucci, 2002). Further, another study demonstrated that, over a one-year interval, teens without any reciprocated friendships were more influenced by the actions of their self-reported friends than were

teens who had reciprocated friendships (Aloise-Young, Graham, & Hansen, 1994). Therefore, there is compelling evidence to suggest that the subjective importance of a friendship exerts a strong influence during adolescence. One can then presume that youths' own perception of difficulties in sustaining stable friendships may carry greater weight for psychosocial adjustment. As such, we hypothesized that self-reported friendship instability may be associated with depressive feelings in early adolescence.

Most longitudinal studies assessing developmental changes in adolescent adjustment outcomes are based on yearly assessments. However, Dishion and his research team have proposed that problem behavior in adolescence is actually 'sporadic' throughout the course of a year and often varies dramatically within shorter time intervals than one year (Dishion & Medici Skaggs, 2000). By means of monthly telephone interviews collected over nine months, their findings have shown that monthly changes in affiliation with deviant peers were associated with monthly changes in adolescents' depressive symptoms (Connell & Dishion, 2006). Moreover, Tram and Cole (2006) noted that depressive symptoms are in flux during early adolescence because this developmental period is marked by numerous transitions (e.g., biological, environmental, and social changes). These data clearly provide support that adolescent depressed mood is inclined to fluctuate over very short time frames. For these reasons, it is valuable to examine the relation between friendship instability and depressive symptoms over short monthly intervals. Such monthly analysis would allow us to explore the directionality of the link, thus providing a more informative picture of the concurrent link between variables as it unfolds over time. Thus, we hypothesized that self-reported friendship instability and depressed mood would covary over time on a monthly basis. In particular, we predicted that adolescents who perceive friendship instability from one month to another would experience elevated depressive symptoms the following month. The reverse was also projected to be true: adolescents who report being depressed at a given time point were expected to describe instability in their friendship network the next month.

One last aspect to consider when studying the link between friendship network instability and depressive symptoms is the composition of the network, which often comprises various components. Firstly, friendship networks consist of multiple friendship status (e.g., best and other 'secondary' friendships; Claes, 2003; Degirmencioglu et al., 1998). In studies using self-report measures of friendships, children are directly asked to rank their friends or to select their best friends from a list of nominated friends (Brendgen, Markiewicz, Doyle, & Bukowski, 2001; Chan & Poulin, 2007). It has been reported that, compared with secondary friendships, the perceived bond with best friendships is characterized with higher levels of friendship quality (Brendgen et al., 2001) and stability (Chan & Poulin, 2007). Thus, it may be the case that perceived instability in best friendships is more strongly related to depressive mood than perceived instability in secondary friendships. Second, it has been shown that youths' circle of friends often include significant relations in contexts other than school (e.g., neighborhood, leisure activities, etc.; Kiesner, Poulin, & Nicotra, 2003; Mahoney, 2000). Because the school context constitutes the primary environment in which youths evolve on a daily basis (Larson & Verma, 1999), one can therefore hypothesize that instability in friendships taking place within the school environment (i.e., school or multiple contexts friendships) may affect depressive symptoms more deeply than instability in non-school friendships. Altogether, the different components of friendship networks need to be taken into account given that each component appears to offer a differing social experience and may therefore play a distinctive role in the emergence of depressive symptoms.

### *The Present Study*

The overall purpose of this study was to examine the relation between perceived friendship network instability and depressive symptoms among young adolescents. Friendship stability was assessed over a five-month period by means of monthly telephone interviews. In addition, depressive symptoms were measured at the beginning and at the end of the study using a validated paper-pencil self-reported scale and also during each phone interview using a subset of depression items. With these data, three research questions were investigated. The first objective was to demonstrate the usefulness of the perceived friendship instability construct in our understanding of depressed mood in early adolescence. As such, we assessed the relation between perceived friendship instability and depressive symptoms and we expected to find a positive correlation between the two variables. Further, although gender differences were not the primary focus of the present investigation, there is consistent evidence in the literature that females show greater affiliative needs and view their friendships as more important than males (Furman & Buhrmester, 1985). Girls' relational orientation may thus lead them to report greater levels of negative affect and depression when they experience potential distress within their friendships (Benenson & Christakos, 2003). For these reasons, we tested whether gender would moderate the link between perceived friendship instability and depressed mood. This link was expected to be stronger for girls. The second objective was to describe monthly variations in friendship instability and depressive symptoms, and to explore the directionality of this relation by examining if perceived friendship instability impact depressed mood or the opposite. It was expected that the link between instability and depressive symptoms would be bidirectional. The final objective of this study pertained to examine friendship instability according to different components of adolescent networks in relation with depressive feelings: (1) friendship status (best and secondary friendships) and (2) friendship contexts (school, non-school, and multiple contexts). It was hypothesized that perceived instability in best friendships and perceived instability in school or multiple-contexts friendships would be related with higher levels of depressive symptoms.

## **Method**

### *Participants*

Participants in the current study were part of a larger longitudinal research project following 390 adolescents. Considering the resources available for the project, the authors predetermined to reach a subsample of approximately 100 participants who would be involved in more intensive measures (i.e., home visits and monthly telephone interviews). Thus, participants were randomly asked to take part in monthly telephone interviews until a hundred or so participants accepted and were included in the current report. Approximately 60 percent of adolescents who were contacted to take part in telephone interviews actually agreed to participate.

Accordingly, the telephone interview sample consisted of 109 adolescents (56 girls;  $M$  age = 12.6 years,  $SD = .39$ ) from various SES in the greater region of Montreal, Canada. They were in their first year of high school at the time of the study. Written parental consent was obtained for each student prior to participation. More than 90 percent of the children and their parents were born in Canada and 67 percent of the children lived with their biological parents. Of the 109 students, 102 (51 girls) provided

complete data on all measurement occasions and formed the final sample for analyses (seven students completed only three monthly interviews or less). Preliminary analyses indicated that participants from the analytic sample did not differ from adolescents who were part of the larger sample in terms of sociodemographic characteristics (adolescents' age, family income, first language, and family structure), depressive symptoms (self report), and behavior problems (teacher report), but they had higher school grades compared to the non-analytic sample ( $M$  grades = respectively 75.3 and 71.9 on a scale from 0 to 100,  $t(338) = 2.64, p < .01$ ).

### *Procedure*

Data were obtained from home telephone interviews and from questionnaires completed in class. Telephone interviews were conducted on weeknights from February to June 2002. A pilot study was conducted beforehand with 30 adolescents ( $M$  age = 12 years) who were not part of the sample in order to test the feasibility and course of the telephone interview as well as youths' understanding of the questions. At the beginning of each interview, interviewers ensured participants about the confidentiality of their responses and asked them to complete the interview in a room where they had privacy. Interviewers ended each interview by scheduling the subsequent phone call. Great logistical efforts were put to make sure that intervals between each interview were always one month or less ( $M = 28.9$  days,  $SD = 3.66$ ; minimum = 18.0, maximum = 42.3). At the end of the school year, a gift certificate for the purchase of a compact disc was offered to participants who completed all the interviews. Finally, in November and in June, students answered a paper questionnaire assessing depressive symptoms. Administration of this questionnaire was completed in the school setting and was supervised by graduate-level research assistants.

## **Measures**

### *Monthly Home Telephone Interviews*

Participants took part in telephone interviews in which data regarding friendship nominations and depressive symptoms were collected on a monthly basis. The interview lasted approximately 15 minutes. During the first phone interview, the interviewer told the adolescent that there was no right or wrong answer to the questions. This instruction was established to minimize participants' desirability (e.g., adolescents may want to prove that they have a large number of friends).

*Monthly Friendship Nominations.* Firstly, the interviewer asked the participant to nominate every friend he/she has in any context, whether it is at school, in the neighborhood, in activities outside of school, or any other contexts. Adolescents generated their friends' first and last names by free recall. In other words, they named their friends from memory and no cue or list of names was provided to them. This method was employed to encourage participants to designate only individuals whom they truly considered friends (Cairns, Leung, Buchanan, et al., 1995). Students were allowed to name as many friends as they wished. Once they finished naming their friends, they were asked to select their three best friends among the list of nominated friends. Indeed, most adolescents admit having a few best friends, not just one (Berndt, 1999). Next, participants were asked to specify the context(s) in which they see each friend: 'Is it a friend from (1) school; (2) your neighborhood; (3) your sport/leisure

**Table 1. Coding and Calculation of the Global Stability Index**

Nominated friends	February	March	April	May	June	Total number of renominations
Tom	1	1	1	1	1	4
Philip	1	1	0	0	0	1
Ellen	1	1	0	1	1	3
Jack	0	1	0	1	0	1
Martha	0	0	1	0	0	0
William	0	0	1	1	1	2
					$S_g =$	$11/6 = 1.83^a$ $1.83/4 = .46^b$

Notes: 0 = was not nominated in the network; 1 = was nominated in the network.  $S_g$  = global stability index varying on a continuum between 0 (no stability) and 1 (perfect stability).

<sup>a</sup> Sum of the total number of friendship renominations divided by the number of nominated friends, that is, stability index varying between 0 and 4.

<sup>b</sup> The 0–4 stability index is then transformed into a percentage score varying on a continuum between 0 (no stability in the network) and 1 (perfect stability in the network).

activity; (4) your family; (5) if none of the above, who is this person for you?' By requiring a yes/no answer to each context, participants were able to nominate friendships taking place in only one context or in multiple contexts. Among all the friendship contexts selected by participants, three categories of contexts were created for the current analyses: (1) school, (2) non-school, and (3) multi-context (school *and* non-school) friendships.

The same procedure was followed in subsequent interviews. But from the second interview onward, the interviewer had in his possession the complete list of nominated friends identified by the participant during the previous interview. As a result, the interviewer just had to check off the names of friends who were nominated again by the adolescent and added on the list new friends who were nominated for the very first time. For friends who were nominated in the previous interview, but were not nominated again in the present interview, the interviewer asked the participant to specify whether: (1) he/she forgot to nominate the friend in question or (2) they were not friends anymore. These prompts permitted us to clarify if a friendship relation was really over or simply forgotten. As such, prompts were used on average three to four times during each interview. Among the prompted names, 68.8 percent were classified as forgotten friends, whereas 31.2 percent were intentionally omitted. As for new friends nominated for the first time, specific questions about friendship contexts were asked for each of them.

*Global Friendship Stability Index.* Our aim was to develop an index that would allow us to quantify an individual's level of friendship network stability for the overall five-month period covered by the study. In this regard, each participant's list of nominated friends was compared across the five assessment waves. Calculation of the stability index for each participant was achieved in three steps. Table 1 illustrates an example of coding and calculation of the stability index for one participant. In the first step, a score was assigned to each friend nominated from February to June: 0 = the friend was not nominated; 1 = the friend was nominated in the network.

In the second step, we computed the *number of friendship renominations*, defined as the number of times each friend was 're-named' by the participant in subsequent waves. For instance, if a friend was nominated at one wave only, his score would be 0 (he was not re-named in other waves); if he was nominated at each of the five waves, his score would be 4 (he was named in February and re-named from March to June). Therefore, the total number of friendship renominations was calculated for each friend over the five months.

In the third step, the *global stability index* was obtained by summing the number of friendship renominations divided by the total number of friends nominated over the five months. This initial stability index varied on a continuum between 0 and 4. This index was then transformed into a proportion varying on a continuum from 0 (representing no stability in the network, i.e., the adolescent did not nominate any of the same friends from one wave to another) to 1 (representing perfect stability in the network, i.e., the adolescent nominated the exact same friends in all assessment occasions).

Subsequently, participants' overall friendship network was divided so that best and secondary friendships would be differentiated. Stability indexes for best friendships and secondary friendships were thus calculated separately. Following the first calculation step described above, a score was assigned to each nominated friend (0 = never nominated as best friend; 1 = nominated as best friend at least once over the 5 months). The stability index for best friendships was then obtained by averaging the number of times best friends were renominated in the network (either as best or secondary friend) over the five months. Likewise, the stability index for secondary friendships (i.e., those who were never nominated as best friend over the five months) was computed by averaging the number of times secondary friends were renominated in the network over the five months. Next, stability indexes for school, non-school, and multi-context friendships were derived following the same calculation steps.

*Monthly Friendship Stability Index.* The previous coding procedure was based on the computation of a single stability index that captured the global level of friendship stability over five months. Therefore, in addition to this global index, *monthly stability indexes* were derived. The calculation of monthly indexes was similar to the calculation of the global stability index except for the following: friendship renomination scores were computed by comparing *two consecutive waves* (instead of five waves). In other words, the number of renominations was divided by the total number of friends named in the two months under consideration. As a result, four monthly stability indexes were obtained: February–March ( $S_m$ -March), March–April ( $S_m$ -April), April–May ( $S_m$ -May), and May–June ( $S_m$ -June) (see Table 2 for an example of calculation of monthly stability indexes for one participant).

*Monthly Depressive Symptoms.* After nominating their friendship network, participants were asked if they experienced the following in the past week: (1) depression, sadness; (2) loss of interest or pleasure at school; (3) irritability; (4) feeling like crying; (5) loneliness; (6) appetite loss; (7) sleep problems; (8) worry. Following Connell and Dishion's work (2006), these items were drawn from the children's depression inventory (CDI; Kovacs, 1985) and asked in a manner that required a yes/no response in the effort to preserve youths' privacy during the phone interviews. Monthly depression scores were obtained by summing the number of 'yes' responses across the 8 items ( $\alpha_s = .54 - .69$ ). Validity of monthly depression scores is shown by significant correlation between the monthly depression score collected in June and the CDI

**Table 2. Coding and Calculation of the Monthly Stability Index**

Nominated friends	February	March	April	May	June	
Tom	1	1	1	1	1	
Philip	1	1	0	0	0	
Ellen	1	1	0	1	1	
Jack	0	1	0	1	0	
Martha	0	0	1	0	0	
William	0	0	1	1	1	
	S <sub>m</sub> -March		S <sub>m</sub> -April		S <sub>m</sub> -May	
	3		1		2	
Total number of renominations <sup>a</sup>	3		1		2	
Monthly stability indexes <sup>b</sup>	3/4 = .75		1/6 = .17		2/5 = .40	
					3/4 = .75	

Note: 0 = was not nominated in the network; 1 = was nominated in the network. S<sub>m</sub> = monthly stability index varying on a continuum between 0 (no stability) and 1 (perfect stability).

<sup>a</sup> Number of times each friend is ‘re-named’ by the participant by comparing two consecutive waves.

<sup>b</sup> The total number of renominations divided by the number of friends named in the two months under consideration.

questionnaire depression score (described below) also collected in June ( $r = .54$ ,  $p < .001$ ).

*Depression In-class Paper Questionnaire*

A French version of the children’s depression inventory (CDI; Kovacs, 1985) was employed. The CDI is a self-administered questionnaire assessing the severity of affective, behavioural, and cognitive symptoms of depression among youths. The questionnaire includes a total of 27 items. In the present study, the suicidal ideation item was eliminated for ethical reasons. For each item, participants are asked to choose from three statements the one which characterizes them the best (e.g., (1) I am tired sometimes; (2) I am tired often; (3) I am tired all the time). Individual item scores range from 0 to 2, with higher ratings indicating more severe symptoms. The total range of scores varies from 0 to 52, and scores higher than 19 are indicative of depression. The CDI has demonstrated good reliability and has been validated using normative and clinic-referred samples (Finch, Saylor, & Edwards, 1985; Fundulis et al., 1991). Internal consistency was high in this sample ( $\alpha = .83$ ).

**Results**

*Overview of the Statistical Analyses*

A regression analysis was conducted in order to address the broad link between friendship instability and depressive symptoms, according to gender. For this analysis,

the in-class depression measure was employed along with the global stability index. Next, cross-lag structural equation modeling (SEM) was performed in order to examine more specifically the relationship between monthly friendship instability and monthly depressive symptoms. For the SEM analyses, the monthly depression scores obtained from the telephone interviews were used along with the monthly stability indexes. A last series of regression analyses were conducted in order to investigate the relation between instability in friendship network components (i.e., friendship status and context) and depressive symptoms. For those analyses, the in-class depression measure and the global stability indexes were used.

*Relation between Friendship Instability and Depressive Symptoms, with Gender as Moderator*

Descriptive statistics including the means, the respective standard deviations along with the correlations among these variables are presented in Table 3. A hierarchical linear regression analysis was conducted to examine the relation between friendship instability over the five-month period and depressive symptoms at the end of this period, with participants' level of depression as dependent variable and with gender as a moderator. This analysis was performed with a reduced sample ( $N = 97$ ) because five participants did not complete the depression questionnaires. On the first step of the analysis, participants' initial level of depression was included as a control variable. On the second step, the global stability index and participants' gender were entered as predictors in the model. To facilitate interpretation, the friendship stability variable was z-standardized for the creation of the interaction term stability  $\times$  gender, which was added on the third step. As can be seen in Table 4, the results of the second step indicated that, after controlling for participants' initial level of depression in the fall, friendship stability and gender together explained 41 percent of the variance of depression in the spring ( $R^2_{\text{adj}} = .39$ ),  $F(2, 93) = 4.18, p < .05$ ). Inspection of the partial regression coefficients revealed a main effect of friendship stability on depression,  $b = -.23, p < .05$ , whereas the main effect of gender on depression was not significant,  $b = -3.87, \text{NS}$ . Further, the interaction term entered on the third step did not add to explain the overall variance of depression. Taken together, results indicated that perceived instability in friendships over five months was significantly related to an increase in participants' depressive symptoms, and this pattern applied for boys and girls.

*Monthly Examination of the Relation between Friendship Instability and Depressive Symptoms*

Next, we aimed to explore the relation between friendship stability and depressive symptoms on month-to-month basis. As illustrated in the correlation matrix in Table 5, the pattern of correlations between monthly stability indexes and respective monthly depression scores were all significant and in the expected directions ( $r_{\text{S-Mar D-Mar}} = -.21$ ,  $r_{\text{S-Apr D-Apr}} = -.30$ ,  $r_{\text{S-May D-May}} = -.19$ ,  $r_{\text{S-Jun D-Jun}} = -.29$ ). These correlations indicated that if a participant's friendship network was unstable from Time 1 to Time 2, he/she would report elevated depressive symptoms at Time 2.

Cross-lag structural equation modeling (SEM) was used to examine, at a microscopic level, the relationship between monthly friendship instability and monthly depressive symptoms. This statistical procedure provides numerous advantages compared to traditional covariance techniques (e.g., regression). SEM allows the examination of

**Table 3. Means, Standard Deviations, and Correlations among Friendship Stability Indexes and Depressive Symptoms Variables**

Variables	1	2	3	4	5	6	7	8	M	SD
S <sub>g</sub>	1	—	—	—	—	—	—	—	.66	.18
S <sub>g</sub> -best	.59***	1	—	—	—	—	—	—	.86	.17
S <sub>g</sub> -secondary	.86***	.32***	1	—	—	—	—	—	.55	.21
S <sub>g</sub> -school	.75***	.41***	.68***	1	—	—	—	—	.63	.22
S <sub>g</sub> -non-school	.57***	.22*	.54***	.26*	1	—	—	—	.62	.33
S <sub>g</sub> -multi-context	.72***	.45***	.61***	.40***	.18	1	—	—	.72	.24
D <sub>q</sub> -November	-.10	-.03	-.08	-.17	-.17	.02	1	—	.33	.20
D <sub>q</sub> -June	-.31**	-.26**	-.25**	-.35***	-.27*	-.21*	.60***	1	.31	.22

Note: S<sub>g</sub> = global stability index varying on a continuum between 0 (no stability) and 1 (perfect stability); D<sub>q</sub> = depression scores obtained from questionnaires and varying on a continuum between 0 (no symptoms) and 2 (severe symptoms).

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

**Table 4. Hierarchical Linear Regression Analyses Testing the Predictive Link between the Global Friendship Stability Index and Depressive Symptoms, with Participants' Gender as Moderator**

	Predictor	<i>b</i>	<i>t</i>	<i>F</i> change ( <i>df</i> )	<i>R</i> <sup>2</sup> change
Step 1				52.99 (1, 95)	.36***
	Initial depression	.64	7.28***		
Step 2				4.18 (2, 93)	.05*
	Stability	-.23	-2.38*		
	Gender	-3.87	-1.11		
Step 3				.34 (1, 92)	.00
	Stability × gender	-9.88	-.58		

Note: *N* = 99.

\* *p* < .05, \*\*\* *p* < .001.

simultaneous effects of multiple predictors on one or more outcome measures while taking the interrelations among the predictors into consideration. Moreover, the 'goodness of fit' of the overall model is evaluated, thus allowing us to assess how well the proposed model reproduces the observed correlation matrix (Ullman, 2001).

Considering the small sample size (*N* = 102) for this analysis, the proposed model was replicated using three separate assessment intervals, instead of including all these intervals into one single model: Model 1 examined the time interval between March and April; Model 2 examined the time interval between April and May; and Model 3 examined the time interval between May and June. The three models are presented in Figure 1.

A first stage of the analysis consisted of the development of structural paths between monthly stability indexes and monthly depression scores across time and cross-sectionally. The following paths were allowed in the model: (1) Time-1 constructs were allowed to correlate among themselves; (2) Time-2 constructs were allowed to correlate among themselves; (3) each Time-1 construct was used to predict the same Time-2 construct, thus controlling for construct stability; and (4) all cross-lag relations were included. Therefore, this model tests for cross-lag effects after controlling for construct stability as well as concurrent relations at both Time 1 and Time 2.

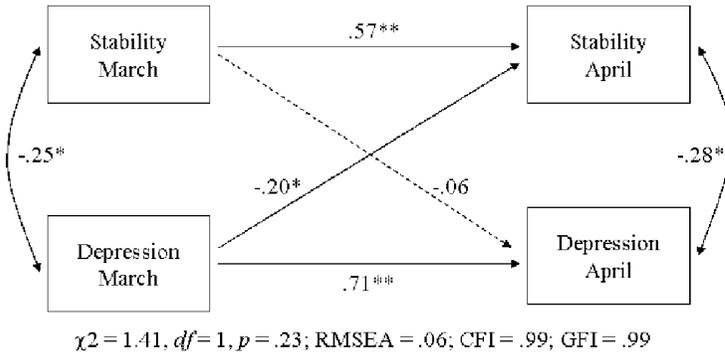
As can be seen in Figure 1, the results from the SEM showed that all three models proved to be a good fit with the data. In essence, several observations can be drawn from the three models. Firstly, monthly stability indexes were moderately stable over the course of the monthly assessments (*r*s = .45 – .53). This suggested that if a participant's friendship network was extremely stable at one point in time, it was very likely that his/her network remained very stable in the following months. Secondly, monthly depression scores were also quite stable over the course of the monthly assessments (*r*s = .61 – .67). Thirdly, in Models 1 and 3, elevated depressive symptoms at one point in time predicted an increase in friendship instability in the following month. This result was not significant in Model 2, although the path between depression in April and stability in May was in the expected direction. Finally, in all three models, friendship instability at one point in time did not predict an increase in depressive symptoms in the following month.

**Table 5. Means, Standard Deviations, and Correlations Among the Monthly Friendship Stability Indexes and the Monthly Depressive Symptoms Variables**

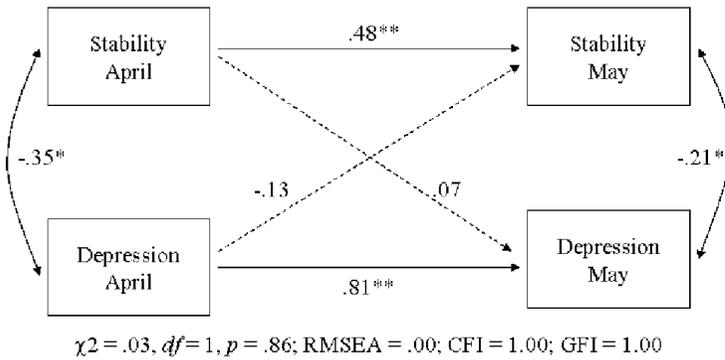
Variables	1	2	3	4	5	6	7	8	M	SD
S <sub>m</sub> -March	1	—	—	—	—	—	—	—	.76	.20
S <sub>m</sub> -April	.53***	1	—	—	—	—	—	—	.78	.18
S <sub>m</sub> -May	.44***	.45***	1	—	—	—	—	—	.80	.17
S <sub>m</sub> -June	.29**	.28**	.50***	1	—	—	—	—	.81	.19
D <sub>i</sub> -March	-.21*	-.28**	-.33***	-.23*	1	—	—	—	2.28	1.93
D <sub>i</sub> -April	-.19*	-.30**	-.26**	-.23*	.61***	1	—	—	2.28	1.79
D <sub>i</sub> -May	-.20*	-.18	-.19*	-.26**	.59***	.67***	1	—	2.38	1.97
D <sub>i</sub> -June	-.21*	-.22*	-.16	-.29**	.54***	.61***	.64***	1	2.18	1.98

Note: N = 102. S<sub>m</sub> = monthly stability index varying on a continuum between 0 (no stability) and 1 (perfect stability); D<sub>i</sub> = monthly depression scores obtained from telephone interviews and varying on a continuum between 0 (no symptoms) and 8 (severe symptoms).  
 \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

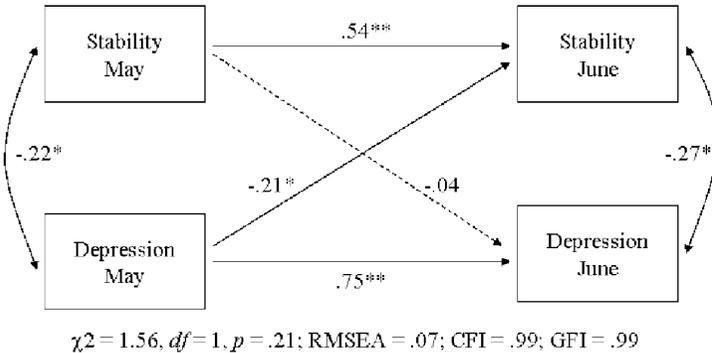
**Model 1**



**Model 2**



**Model 3**



*Figure 1.* Final Models Linking Monthly Friendship Stability and Monthly Depressive Symptoms.

**Table 6. Hierarchical Linear Regression Analyses with Instability in Different Components of Friendship Networks Predicting Participants' Depressive Symptoms**

Predictor	<i>b</i>	<i>t</i>	<i>F</i> change ( <i>df</i> )	<i>R</i> <sup>2</sup> change
<i>Model 1: Friendship status</i>				
Step 1			51.41 (1, 92)	.36***
Initial depression	.65	7.17***		
Step 2			3.68 (2, 90)	.05*
Best frd. stability	-.15	-1.38		
Secondary frd. stability	-.15	-1.80		
<i>Model 2: Friendship contexts</i>				
Step 1			47.41 (1, 68)	.41***
Initial depression	.66	6.89***		
Step 2			1.90 (3, 65)	.05
School frd. stability	-.16	-1.71		
Non-school frd. stability	-4.58	-.81		
Multi-context frd. stability	-2.77	-.37		

Note: The first regression analysis is based on *N* = 94; the second regression analysis is based on *N* = 70.

Frd. = friendship.

\* *p* < .05, \*\*\* *p* < .001.

#### *Instability in Different Components of Friendship Networks in Relation with Depressive Symptoms*

*Friendship Status.* Descriptive statistics including the means, the respective standard deviations, as well as correlations among these variables are depicted in Table 3. As reported in Table 3, the stability indexes in best and secondary friendships were moderately correlated ( $r = .32, p < .001$ ). A regression analysis was then performed in order to examine the unique contribution of each friendship status in predicting depressive symptoms. This analysis was performed with a reduced sample ( $N = 94$ ) because only participants whose friendship network was composed of both best and secondary friendships were included. As presented in Model 1 of Table 6, results revealed that, after controlling for initial depression, neither instability in best friendships,  $b = -.15$ , NS, nor instability in secondary friendships,  $b = -.15$ , NS, predicted changes in depressed mood. We noted, however, that when the initial level of depression was not controlled for in the analysis, instability in best friendships significantly predicted depressive symptoms,  $b = -.23, p < .05$ , whereas instability in secondary friendships did not,  $b = -.18$ , NS.

*Friendship Contexts.* Descriptive data including the means, the standard deviations, and the correlations among these variables are illustrated in Table 3. As shown in Table 3, the stability indices within each friendship context were moderately correlated ( $r_s = .18 - .41$ ). A regression analysis was carried out in order to examine the contribution of each context in predicting depressive symptoms. Only participants

who designated at least one friend in *each* context were included in this analysis ( $N = 70$ ). As can be seen in Model 2 of Table 6, after controlling for initial levels of depressive symptoms, instability in school ( $b = -.16$ , NS), in non-school ( $b = -4.58$ , NS), and in multiple contexts ( $b = -2.77$ , NS) did not predict an increase in adolescents' depressed mood. Once again, it should be noted that when the initial level of depression was not controlled for in the analysis, only instability in school friendships significantly predicted depressive symptoms,  $b = -.33$ ,  $p < .01$ , whereas instability in non-school and instability in multi-context friendships did not (respectively,  $b = -.19$ , NS and  $b = -.07$ , NS).

## Discussion

In the current investigation, a focus was placed on the early adolescence period (i.e., between 11 and 13 years). Indeed, fluctuations in youths' social universe may be more pronounced during this period because it coincides with the transition to high school, along with numerous developmental changes at the cognitive, social, and biological levels (Berndt, 1982; Eccles, Lord, & Buchanan, 1996). According to Sullivan (1953) and several other scholars, friendships in early adolescence are crucial to developmental outcome because they afford distinct functions to youths, such as contexts for skill development, sources of social support, and models for later relationships (Ladd & Kochenderfer, 1996). Parker and Gottman (1989) further contended that stable friendships allow children to explore their emotions (e.g., fears, doubts, anxieties) and relieve everyday frustrations. For this purpose, the early adolescence period forms a unique context to explore the link between friendship instability and depressive feelings given that individual differences would be even more prominent during this time.

Accordingly, the primary questions raised in the present study were the following: (1) Is perceived friendship instability related to changes in depressive symptoms? (2) What is the directionality of this relation? (3) Is instability in different components of friendship networks associated with depressive symptoms? The relation between self-reported friendship instability and depressive symptoms was thus examined among young adolescents over the course of five months by means of brief monthly telephone interviews. Results are discussed according to these three research questions.

### *Overall Relation between Friendship Instability and Depressive Symptoms*

By and large, is it preferable to maintain the same friends over time or to change frequently? Results revealed that adolescents who perceived a high level of instability in their friendship network reported an increase in depressive feelings over a five-month period. In other words, youths varied in their report of how stable their friendship networks were and these individual differences were significantly associated with their emotional adjustment. Although Parker and Seal (1996) examined stability in reciprocal friendships, our result was consistent with their findings showing that children with distinct patterns of friendship stability differed in their behavioral characteristics (e.g., social status).

Contrary to expectations, participants' gender did not moderate the link between friendship instability and depressed mood. It is possible, however, that gender differences would be found with a slightly older adolescent sample. Indeed, several reviews have documented that gender differences in depression are most evident between ages

15 and 18, with females being twice more likely to be depressed than males (Nolen-Hoeksema & Girgus, 1994; Wichstrom, 1999). Researchers have recognized that the number of reported stressful life events rises dramatically during adolescence (Ge et al., 2003). In this respect, youths may be more vulnerable to depression during mid- to late- adolescence as they progress through adolescence and experience increasing levels of stress (Hankin et al., 1998).

In the present study, both friendship loss and formation were considered together in the computation of the global stability index. This index carried the advantage of capturing the overall quantity of change in a friendship network in comparison with traditional indexes. Thus, it can be the case that adolescents who perceived much change in their network (either losing old friends or making new ones) experienced lower quality in their friendship network, fewer bases of support, and greater loneliness, thereby becoming more depressed. In particular, youths who subjectively lose friendships may indicate more depressive symptoms because friendship disruption is associated with a reduction of social support (Cairns, Leung, & Cairns, 1995). As for the process of developing new friendships, it may be stressful as well because novel relationships may not yet represent strong bases of intimacy or emotional support. It has been shown that new friendships could play a key role in the development of certain delinquent behaviors, such as initiation of substance use (Kiesner & Fassetta, 2007). This finding thus provides further evidence for the view that the formation of new friendships may not always be linked with positive outcomes in early adolescence.

Altogether, the current study points to the idea that the temporal changes (i.e., termination and formation) perceived within friendship networks constitute a relationship dimension worth considering for its significant contribution to understanding depressive symptoms in early adolescence. More specifically, instability in *perceived* friendships may represent a critical variable related to adolescents' psychosocial adjustment. In support of this notion, prior research has demonstrated that individuals' perceptions of support reduce stress, even when individuals do not actually receive any type of support from their friends (Cohen & Wills, 1985). Perceptions of supportive friendships are therefore sufficient to increase people's confidence that they have the resources needed to cope with a stressor.

As a final point, it is essential to underline that, although the relation between friendship instability and depressive symptoms was a significant one, this link was not predictive on a temporal level but correlational instead. Indeed, it was the overall *change* in friendship networks occurring between February and June that was significantly associated with the *change* in depressive symptoms during the same period. Therefore, the directionality of the link between the two variables could not be ascertained in this analysis and microscopic monthly analyses needed to be conducted.

#### *Monthly Examination of the Relation between Friendship Instability and Depressive Symptoms*

After learning that friendship instability over five months was related to an increase in depressive feelings, one can wonder which came first: Was it instability in friendships that led to depressive symptoms or the feelings of depression that brought instability? Firstly, both monthly stability indexes and monthly depression scores were quite stable over the five-month period. This suggests that one's level of friendship stability is likely to remain constant over time. That is, if a youth's network is

highly stable from one month to another, it is prone to remain stable the following months. As for the strong correlations found in participants' monthly depressive symptoms, they were comparable to those reported by Connell and Dishion (2006), although there was less variability in the present investigation's scores. On the whole, results revealed that elevated depressive symptoms at one time point predicted deterioration in friendship stability by the following month and this finding was significantly replicated in two out of three models. On the other hand, perceived friendship instability at one point did not appear to predict an increase in depressive symptoms the next month. In other words, there was no evidence in the current study that monthly disruptions in friendship networks amplified monthly depressive symptoms.

Subsequently, findings from this study support the assumption that young adolescents with depressed mood hold a negative perceptual bias of their interpersonal relationships leading them to perceive instability in their network. In line with this notion, Rudolph and Clark (2001) found that youths with elevated depressive symptoms were more likely to view themselves as socially incompetent and to believe that their friends are untrustworthy and hostile. Such a pessimistic view was also reported by Brendgen et al. (2002) who indicated that depressed children perceive low quality in their friendships and high rejection by peers. In light of the interpersonal model of depression (Coyne, 1976a, 1976b), the following processes can then be hypothesized to be taking place. When a person begins to display depressive behaviors, others may provide reassurance at first, but gradually withdraw from interaction. As the depressed person receives mixed messages of approval and rejection from others, he/she may come to perceive that his/her relationships are unstable.

Several interpretations could be made to explain why monthly friendship instability at one point did not significantly predict increases in depressive symptoms the following month. Firstly, it could be that depressive symptoms are a relatively stable characteristic that are not affected by short-term shifts in friendship networks. Supporting this possibility, we found that monthly depression scores were remarkably stable over the five months. Secondly, it should be noted that a clear trend was found showing that perceived friendship instability from one month to another was correlated with depressive symptoms by the second month. It is therefore possible that the subjective effect of friendship instability on depressive symptoms may only be noticeable over a longer time period, for instance after repeated rejection from others. Lastly, it should be kept in mind that friendship instability may not always be harmful for adjustment, especially when it reflects a rigid environment in which people fail to change relationships as their needs and interests are altering (Cairns, Leung, & Cairns, 1995). Hence, it is possible that those who experienced instability in their network may have done so because they replaced a low-quality friendship with a higher-quality friendship. In other words, it seems plausible to expect that the stress caused by the breakup of a friendship is alleviated by the addition of a new higher-quality friendship. Friendship instability in this context may therefore be positive for emotional well-being. In sum, the present investigation offers partial evidence for the cognitive-interpersonal models of depression, which bring to light the critical role of perceptions of difficulties in personal relationships in association with depression. Importantly, the reliance on short time frames between assessments constitutes an original contribution of the present investigation, and the microscopic mechanisms by which temporal friendship patterns and depressive symptoms are related together are visibly in need of further study and replication.

*Instability in Different Components of Friendship Networks in Relation to Depressive Symptoms*

Mixed evidence was found in examining whether the link between friendship instability and depressed mood was specific to certain components of adolescent networks. Regarding friendship status, instability in adolescents' best friendship choices appeared to be related to high levels of depressive symptoms, whereas instability in secondary friendship choices was not. However, when participants' initial level of depression was controlled for, instability according to friendship status was no longer related to depressed mood. Perhaps this is the product of adding another variable (initial depression) to the analysis, which resulted in a reduced statistical power. If this is the case, adolescent networks may prove to be comprised of varying levels of relationship status, with subjective best friendships possibly playing a more significant role than secondary friendships. Because adolescents may experience higher levels of intimacy in their best friendships (Claes, 2003), findings from the present study suggest that temporal changes within these higher-quality relationships may be related to youths' depressive affect to a greater extent.

As for friendship contexts, results revealed that only perceived instability in school networks was significantly associated with elevated depressive symptoms, whereas instability in non-school and in multiple contexts was not. However, when initial level of depression was controlled for, perceived instability according to the different friendship contexts was no longer related with changes in depressed mood, again possibly due to a reduced statistical power. Thus, the findings point to the idea that fluctuations in school friendships may have more influence on adolescent depressed mood than non-school or multi-context friendships. One possible explanation is that youths spend the largest part of their day in school (5–7 hours a day; Larson & Verma, 1999), so that perceived instability within the school setting may be more strongly related to depressive feelings than in any other settings. Furthermore, it should be noted that the current study was conducted nearly six months following the transition to high school. It is well-known that school transitions bring high levels of readjustment in adolescent network (Eccles et al., 1996), resulting in the breakup of old friendships while providing opportunities to form new relationships (Hardy et al., 2002). Consequently, it can be the case that a few months after facing the school transition, adolescents encountered some changes in their school network, which brought along elevated depressive symptoms. Maintaining stable friendships in the school context may thus facilitate adaptation to a new environment by providing bases of support (Ladd & Kochenderfer, 1996). Alternatively, why was instability in multi-context friendships unrelated to depressed mood? It has been shown that friendships taking place simultaneously in multiple settings are more stable to begin with than those taking place in one single context (Chan & Poulin, 2007). Because of this, changes experienced within multi-context friendships may be less likely to be influenced by adolescents' depressive states. Finally, it is possible that interactions between friendship status and contexts have a different bearing on depressive symptoms. For instance, we can wonder whether instability in school best friendships would contribute more significantly to youths' development compared with secondary friendships taking place outside of school. Taken together, researchers need to consider adolescent friendship networks across a wide range of ecologies (e.g., various friendship status and contexts). This would help identify how each friendship network component distinctively relates to youths' social and affective development.

*Limitations and Future Directions*

Limitations of the current study include the sole reliance on self-reported data. Although self-report measures are central to the study of interpersonal relationships (Furman, 1996), the use of self-reported measures raises the possibility that the findings result from common method variance. In addition, when participants provide information on the characteristics of their own network, there is a possibility that they present a self-enhancing picture of their relationships (Cairns, Leung, & Cairns, 1995). The eight-item monthly depression scale used in the present study had relatively low internal consistency, despite significant findings. Future work would thus benefit from multiple sources of measurement of friendship and depression variables with strong psychometric properties. Moreover, SEM techniques are very sensitive to sample size. The model tested in this study should thus be replicated with a larger sample. Finally, lacking statistical power for some analyses, the current study could not definitively address the issues concerning the relation between instability in different friendship components and depressed mood, and this should be kept in mind when interpreting the results.

Despite these limitations, several strengths of the present study should be acknowledged. Firstly, the results provided evidence that the temporal level of stability in self-reported friendship networks is a relationship dimension significantly associated with depressive symptoms among young adolescents. Moreover, an important contribution of this investigation was the innovative use of multiple short spacing of measurement in order to study adolescent dynamic processes. Such microscopic analysis opens up the window to new research questions. For instance, it would be interesting to re-examine the relation between friendship instability and depression with a clinically depressed sample. In view of designing more effective prevention and intervention programs, specifying such a microscopic framework may ultimately enhance our understanding of the processes by which friendship relations are relevant to the development of depressive behaviors during early adolescence. Additionally, it should be noted that the direction of causality between friendship instability and depressed mood cannot be ascertained. Therefore, future work should assess the unique contribution of friendship stability on depression, after controlling for the potential effect of other relationship dimensions found in the literature to be related to adolescent depressed mood (e.g., friendship quality, friends' characteristics). New research is also needed to examine the relation between friendship instability and other developmental difficulties in adolescence, such as behavior problems or substance use. In closing, it would be relevant to assess the relation between friendship instability and depressive symptoms in the long-term, one or two years later, because as Cairns, Leung, Buchanan, et al. (1995, p. 53) pointed out, 'changes can be disruptive in the short term even if they are adaptive in the long term'.

**References**

- Allen, J. P., Insabella, G., Porter, M. R., Smith, F. D., Land, D., & Phillips, N. (2006). A social-interactional model of the development of depressive symptoms in adolescence. *Journal of Consulting and Clinical Psychology, 74*, 55–65.
- Aloise-Young, P. A., Graham, J. W., & Hansen, W. B. (1994). Peer influence on smoking initiation during early adolescence: A comparison of group members and group outsiders. *Journal of Applied Psychology, 79*, 281–287.
- Benenson, J. F., & Christakos, A. (2003). The greater fragility of females' versus males' closest same-sex friendships. *Child Development, 74*, 1123–1129.

- Berndt, T. J. (1982). The features and effects of friendship in early adolescence. *Child Development*, 53, 1447–1460.
- Berndt, T. J. (1989). Obtaining support from friends during childhood and adolescence. In D. Belle (Ed.), *Children's social networks and social supports* (pp. 308–331). New York: John Wiley & Sons, Inc.
- Berndt, T. J. (1999). Friends' influence on students' adjustment to school. *Educational Psychologist*, 34, 15–28.
- Berndt, T. J., & Hoyle, S. G. (1985). Stability and change in childhood and adolescent friendship. *Developmental Psychology*, 21, 1007–1015.
- Birmaher, B., Ryan, N. D., Douglas, E. W., Brent, D. A., Kaufman, J., Dahl, R. E., et al. (1996). Childhood and adolescent depression: A review of the past 10 years. Part I. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35, 1427–1439.
- Boivin, M., Poulin, F., & Vitaro, F. (1994). Depressed mood and peer rejection in childhood. *Development and Psychopathology*, 6, 483–498.
- Bowker, A. (2004). Predicting friendship stability during early adolescence. *Journal of Early Adolescence*, 24, 85–112.
- Brendgen, M., Markiewicz, D., Doyle, A. B., & Bukowski, W. M. (2001). The relations between friendship quality, ranked-friendship preference, and adolescents' behavior with their friends. *Merrill-Palmer Quarterly*, 47, 395–415.
- Brendgen, M., Vitaro, F., & Bukowski, W. M. (2000). Deviant friends and early adolescents' emotional and behavioral adjustment. *Journal of Research on Adolescence*, 10, 173–189.
- Brendgen, M., Vitaro, F., Turgeon, L., & Poulin, F. (2002). Assessing aggressive and depressed children's social relations with classmates and friends: A matter of perspective. *Journal of Abnormal Child Psychology*, 30, 609–624.
- Bukowski, W. M., Brendgen, M., & Vitaro, F. (2007). Peers and socialization: Effects on externalizing and internalizing problems. In J. E. Grusec, & P. D. Hastings (Eds.), *Handbook of socialization: Theory and research* (pp. 355–381). New York: Guilford Press.
- Cairns, R. B., Leung, M.-C., Buchanan, L., & Cairns, B. D. (1995). Friendships and social networks in childhood and adolescence: Fluidity, reliability, and interrelations. *Child Development*, 66, 1330–1345.
- Cairns, R. B., Leung, M.-C., & Cairns, B. D. (1995). Social networks over time and space in adolescence. In L. J. Crockett, & A. C. Crouter (Eds.), *Pathways through adolescence: Individual development in relation to social contexts. The Penn State series on child and adolescent development* (pp. 35–56). Hillsdale, NJ: Erlbaum.
- Chan, A., & Poulin, F. (2007). Monthly changes in the composition of friendship networks in early adolescence. *Merrill-Palmer Quarterly*, 53, 578–602.
- Claes, M. (2003). *L'univers social des adolescents [The social universe of adolescents]*. Montréal: Les Presses de l'Université de Montréal.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310–357.
- Connell, A. M., & Dishion, T. J. (2006). The contribution of peers to monthly variation in adolescent depressed mood: A short-term longitudinal study with time-varying predictors. *Development and Psychopathology*, 18, 139–154.
- Coyne, J. C. (1976a). Depression and the response of others. *Journal of Abnormal Psychology*, 85, 186–193.
- Coyne, J. C. (1976b). Toward an interactional description of depression. *Psychiatry*, 39, 28–40.
- Degirmencioglu, S. M., Urberg, K. A., Tolson, J. M., & Richard, P. (1998). Adolescent friendship networks: Continuity and change over the school year. *Merrill-Palmer Quarterly*, 44, 313–337.
- Dishion, T. J., & Medici Skaggs, N. (2000). An ecological analysis of monthly 'bursts' in early adolescent substance use. *Applied Developmental Science*, 4, 89–97.
- Eccles, J. S., Lord, S., & Buchanan, C. M. (1996). School transitions in early adolescence: What are we doing to our young people? In J. A. Graber, & J. Brooks-Gunn (Eds.), *Interpersonal domains and context* (pp. 251–284). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.
- Finch, A. J., Saylor, C. F., & Edwards, G. L. (1985). Children's Depression Inventory: Gender and grade norms for normal children. *Journal of Consulting and Clinical Psychology*, 53, 424–425.

- Fundulis, T., Berney, T. P., Kolvin, O., Famuyiva, O. O., Barrett, T., Bhate, S., et al. (1991). Reliability and validity of two rating scales in the assessment of childhood depression. *British Journal of Psychiatry*, *159*, 36–40.
- Furman, W. (1996). The measurement of friendship perceptions: Conceptual and methodological issues. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendships in childhood and adolescence* (pp. 41–65). Cambridge: Cambridge University Press.
- Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology*, *21*, 1016–1024.
- Ge, X., Brody, G. H., Conger, R. D., Simons, R. L., Gibbons, F. X., & Cutrona, C. E. (2003). It's about timing and change: Pubertal transition effects on symptoms of major depression among African American youths. *Developmental Psychology*, *39*, 430–439.
- Hankin, B. L., & Abramson, L. Y. (2001). Development of gender differences in depression: An elaborated cognitive vulnerability-transactional stress theory. *Psychological Bulletin*, *127*, 773–796.
- Hankin, B. L., Abramson, L. Y., Moffitt, T. E., Silva, P. A., McGee, R., & Angell, K. E. (1998). Development of depression from preadolescence to young adulthood: Emerging gender differences in a 10-year longitudinal study. *Journal of Abnormal Psychology*, *107*, 128–140.
- Hardy, C. L., Bukowski, W. M., & Sippola, L. K. (2002). Stability and change in peer relationships during the transition to middle level school. *Journal of Early Adolescence*, *22*, 117–142.
- Hodges, E. V. E., Boivin, M., Vitaro, F., & Bukowski, W. M. (1999). The power of friendship: Protection against an escalating cycle of peer victimization. *Developmental Psychology*, *35*, 94–101.
- Hogue, A., & Steinberg, L. (1995). Homophily of internalized distress in adolescent peer groups. *Developmental Psychology*, *31*, 897–906.
- Joiner, T. E., Jr. (1999). A test of interpersonal theory of depression in youth psychiatric inpatients. *Journal of Abnormal Child Psychology*, *27*, 77–85.
- Kiesner, J. (2002). Depressive symptoms in early adolescence: Their relations with classroom problem behavior and peer status. *Journal of Research on Adolescence*, *12*, 463–478.
- Kiesner, J., Cadinu, M., Poulin, F., & Bucci, M. (2002). Group identification in early adolescence: Its relation with peer adjustment and its moderator effect on peer influence. *Child Development*, *73*, 196–208.
- Kiesner, J., & Fassetta, E. (2007). Old friends and new friends: Their presence at substance use initiation. Manuscript submitted for publication.
- Kiesner, J., Poulin, F., & Nicotra, E. (2003). Peer relations across contexts: Individual-network homophily and network inclusion in and after school. *Child Development*, *74*, 1–16.
- Kovacs, M. (1985). The children's depression inventory (CDI). *Psychopharmacology Bulletin*, *21*, 995–998.
- Ladd, G. W., & Kochenderfer, B. J. (1996). Linkages between friendship and adjustment during early school transitions. In W. M. Bukowski, A. F. Newcomb, & W. W. Hartup (Eds.), *The company they keep: Friendship in childhood and adolescence* (pp. 322–345). Cambridge: Cambridge University Press.
- Larson, R. W., & Verma, S. (1999). How children and adolescents spend time across the world: Work, play, and developmental opportunities. *Psychological Bulletin*, *125*, 701–736.
- Lewinsohn, P. M., Roberts, R. E., Seeley, J. R., Rohde, P., Gotlib, I. H., & Hops, H. (1994). Adolescent psychopathology: II. Psychosocial risk factors for depression. *Journal of Abnormal Psychology*, *103*, 302–315.
- Mahoney, J. L. (2000). School extracurricular activity participation as a moderator in the development of antisocial patterns. *Child Development*, *71*, 502–516.
- Nangle, D. W., Erdley, C. A., Newman, J. E., Mason, C. A., & Carpenter, E. M. (2003). Popularity, friendship quantity, and friendship quality: Interactive influences on children's loneliness and depression. *Journal of Clinical Child and Adolescent Psychology*, *32*, 546–555.
- Nolen-Hoeksema, S., & Girgus, J. S. (1994). The emergence of gender differences in depression during adolescence. *Psychological Bulletin*, *115*, 424–443.
- Parker, J. G., & Gottman, J. M. (1989). Social and emotional development in a relational context: Friendship interaction from early childhood to adolescence. In T. J. Berndt, & G. W. Ladd (Eds.), *Peer relationships in child development*. New York: Wiley & Sons.

- Parker, J. G., Rubin, K. H., Erath, S. A., Wojslawowicz, J. C., & Buskirk, A. A. (2006). Peer relationships, child development, and adjustment: A developmental psychopathology perspective. In D. Cicchetti, & D. J. Cohen (Eds.), *Developmental psychopathology, Vol. 1: Theory and methods* (2nd ed., pp. 419–493). Hoboken, NJ: John Wiley & Sons Inc.
- Parker, J. G., & Seal, J. (1996). Forming, losing, renewing, and replacing friendships: Applying temporal parameters to the assessment of children's friendship experiences. *Child Development, 67*, 2248–2268.
- Rose, A. J. (2002). Co-rumination in the friendships of girls and boys. *Child Development, 73*, 1830–1843.
- Rudolph, K. D., & Clark, A. G. (2001). Conceptions of relationships in children with depressive and aggressive symptoms: Social-cognitive distortion or reality? *Journal of Abnormal Psychology, 29*, 41–56.
- Rudolph, K. D., Hammen, C., & Burge, D. (1997). A cognitive-interpersonal approach to depressive symptoms in preadolescent children. *Journal of Abnormal Child Psychology, 25*, 33–45.
- Sullivan, H. S. (1953). *The interpersonal theory of psychiatry*. New York: Norton.
- Tram, J. M., & Cole, D. A. (2006). A multimethod examination of the stability of depressive symptoms in childhood and adolescence. *Journal of Abnormal Psychology, 115*, 674–686.
- Ullman, J. B. (2001). Structural equation modeling. In B. G. Tabachnick, & L. S. Fidell (Eds.), *Using multivariate statistics* (4th ed., pp. 653–771). Needham Heights, MA: Allyn & Bacon.
- Wichstrom, L. (1999). The emergence of gender difference in depressed mood during adolescence: The role of intensified gender socialization. *Developmental Psychology, 35*, 232–245.

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