The effect of negative and positive friendship quality on depressive symptoms in adolescents and the role of loneliness

C. van Voorst

Departement Medische en Klinische Psychologie en Gezondheid, Universiteit van Tilburg

6 Jan. 15

Supervised by: M. Giletta, P.hD.

Abstract

Depression poses a serious problem in the developmental challenging period adolescence. Adolescent depression indicates negative outcomes like functional impairment and delinquency, and increases the risk for adult depression. During this period, peer support and the influence of peers increases. Therefore, friendship quality might be explaining depressive symptoms in adolescence. Little is known about how friendship quality influences depression in adolescents. Based on literature it is hypothesized that loneliness might be a contributing factor in this process. In this study a mediational model is tested in which loneliness mediates the relation between the friendship quality dimensions and depressive symptoms by using linear regression analysis. A sample was used of 711 Italian adolescents (53 % male, Mage=15.53). A distinction was made between positive friendship quality and negative friendship quality. The mediational hypothesis was not supported by the results. However significant correlations were found between the different factors. Interestingly, no significant correlation was found between positive friendship quality and depressive symptoms. Further implications are discussed.

KeywordsPositive friendship quality- Negative friendship quality - Loneliness - Depressive symptoms - Adolescence

Adolescence is a developmental challenging period in terms of social and emotional adjustment in terms of identity and attachment (Galliher&Kerpelman, 2012). Adolescence is a period ranging from 12 to 18 years (Turner, Joinson, Peters, Wiles, & Lewis, 2014). In this period of life, depressive symptoms raise significantly. Balàzs et al. (2013) found that 10.5 percent of adolescents were depressed, and 29.2 percent had remarkably high levels of depressive symptoms.Knowledge regarding the mechanisms underlying depression in adolescents is important, because adolescent depression predicts various negative outcomes such as academic problems and delinquency, drug abuse and suicide (Lewinsohn et al., 1994; Andel, Raveis, & Davies, 1991). Also, adolescent depression increase risk for relapseand is a risk factor for adult depression (Lewinsohn et al., 1994; Qualter, Brown, Munn, & Rotenberg, 2010).

As children move toward adolescence they tend to spend more time with their peers (Fitzgerald, Fitzgerald, &Aherne, 2012). The influence of friends grows and peers become increasingly important. Peers are theorized to be the primary influence of identity development (Meeus&Dekovic, 1995). Adolescents have a stronger identification with peers than parents (Ladd &Ettekal, 2013). Adolescents have larger networks of peers compared to children.Also, their networks of friends are more stable, intimate and supportive, and have more influence on attitudes and behaviors (Prinstein, Brechwald, & Cohen, 2011). Since social relationships play a key role in in life satisfaction, suboptimal social relationships may lead to depressive symptoms. Friendship experiences of adolescents have shown to be related to loneliness and depressive symptoms (Heinrich &Gullone, 2006).Friendship quality is especially important in social development and friendships of high quality contribute positively to developmental processes, like improved social adjustment,after controlling for individual characteristics (Berndt, 2002). For example, Fitzgerald, Fitzgerald, &Aherne (2012) found in an adolescent sample that good

quality friendships strengthen self-determined motivation and perceived self-competence. Evidently high quality relationships have a positive effect on wellbeing. Friendship are a primary source of social support during adolescence (Furman &Buhrmester, 1992). Therefore friendship quality is an importantfactor for understanding depression in adolescence. The importance of the friendship quality dimension on development and well-being is confirmed by a number of studies (Hoza et al., 2000; Parker & Asher, 1993).

Many of these studies focused on positive friendship quality features only. However, when defining friendship quality, it is important to differentiate between positive and negative dimensions of friendship quality, especially since scores on the two dimensions are poorly correlated with each other (Berndt, 1996).High friendship quality is characterized by high scores on perceived support, satisfaction, affect and companionship. Negative friendship quality is characterized by high scores on the dimensions conflict, criticism and dominance. By making a distinction between positive and negative friendship quality, the effect of both dimensions will be examined more specifically.

Subsequently, previous studies found that friendship quality is negatively associated with depression (Windle, 1994). Other researchers found that problematic peer relationships are associated with depressive symptoms (Boivin, Hymel, &Bukowski, 1995; Boivin, Poulin, &Vitaro, 1994; Burks, Dodge, & Price, 1995). LaGreca & Harrison (2005) found in a study with adolescents an effect of negative friendship qualities on depressive symptoms. Positive friendship quality however did not serve as a buffer against depressive symptoms. Problematic peer relationships increase the risk of depression and affected children's perspective of peer relationships (Bukowski et al., 1993).

Loneliness is defined as a negative reaction to perceived discrepancy between desired an actual quality of one's social network (Vanhalst, Luyckx, Raes, & Goossens, 2012). In literature there has traditionally been made a distinction between parent-related loneliness and peer-related loneliness, for example, the Loneliness and Aloneness Scale for Children and Adolescents captures family related loneliness and peer-related loneliness (Marcoen, Goossens&Caes, 1987). A number of studies indicate that friendship quality is a predictor of loneliness in childhood (Nangle et al., 2003; Parker & Asher, 1993). Also, research shows that this effect is reversible; perceived high quality friendship is associated with low levels of loneliness (Parker & Asher, 1993; Demir&Urberg, 2004). Research has acknowledged the direct contribution of friendship quality as a protective factor against loneliness in childhood (Nangle, Erdley, Newman, Mason, & Carpenter, 2003; Parker & Asher, 1993). Friendship has been found to negatively predict loneliness in early adolescence (Sletta, Valas, Skaalvik, &Sobstad, 1996).Multiple studies examining this association are conducted among children, however, limited research on this topic is conducted in adolescence. An exception is a study conducted by Vanhalst et al. (2014) in which the link between peer relationships on loneliness and depression in adolescence was examined. The results of this study suggested that loneliness is a matter of peer-context, specifically friendship quality contributed as a significant factor to loneliness.

Baumeister and Leary (1995) state that as human beings we have a need to belong, meaning having a desire for lasting, positive and significant social relationships. When the need for belongingness is not satisfied, people are likely to experience loneliness and depression (Baumeister& Leary, 1995). As mentioned earlier, social support and friendship become increasingly important during adolescence. Therefore, if peer-relations are not satisfying, adolescents are more likely to experience loneliness, which in turn increases the chance to experience depressive symptoms. Various studies link friendship experiences of adolescents with loneliness and depressive symptoms. In this study, a meditational model is proposed in which loneliness mediates the relation between friendship quality and depressive symptoms in adolescents.

Previous research suggests that more perceived conflict in friendship is linked with higher levels of loneliness (Parker & Asher, 1993). Also, negative friendship quality dimensions such as dominance and conflict has been associated with an increase in loneliness and negative outcomes (Berndt, 2002). An explanation for this effect is that friends who get in conflict and try to dominate others, engage in negative social behavior that influences the interaction with friends (Berndt, 2002). On the other hand, positive friendship quality is associated with a higher selfesteem and a decrease in loneliness (Parker & Asher, 1993). Multiple studies found direct pathways between friendship quality and loneliness (Nangle et al., 2013; Vanhalst et al., 2014).

Depressive symptoms are strongly associated with the experience of loneliness (Vanhalst, Luyckx, Raes, &Goossens, 2012).Specifically, loneliness is associated with depressive symptoms in adolescence. A meta-analysis conducted among adolescents shows a high correlation between loneliness and depressive symptoms (Mahon, Yarcheski, Yarcheski, Cannella, & Hanks, 2006).Not only is there a correlation between these constructs, research shows that loneliness predicts depressive symptoms over time(Vanhalst, Luyckx, Raes, &Goossens, 2012; Vanhalst et al., 2012).This finding was confirmed by Lasgaard, Goossens and Elklit (2011) who used a longitudinal design to examine the relationship between loneliness and depressive symptoms in late adolescence. In a study using samples of children and early adolescents, Qualter, Brown, Munn, and Rotenberg (2010) found that loneliness predicted depressive symptoms over time.This eight-year prospective study showed that childhood

loneliness predicts depressive symptoms at age thirteen. Another example is a study conducted by Rich &Scovel (1987) who found that loneliness at the start of a college semester predicted depression later in the semester. These studies indicate that loneliness may play a causative role in depression. A possible mechanism explaining how loneliness could predict symptoms of depression is the development of mal-adaptive coping strategies that makes one more likely to experience depressive symptoms (Qualter, Brown, Munn, & Rotenberg, 2010).

Multiple studies have looked into the associations between friendship quality and loneliness, friendship quality and depressive symptoms and loneliness and depressive symptoms. Literature suggests that all these constructs are related to each other. The present study tested a mediational model in which loneliness mediates the relation between the friendship quality dimensions and depressive symptoms by using linear regression analysis. Friendships with high quality provide protection from loneliness, and in turn decrease the chance of experiencing depressive feelings. Based on previous studies, it was hypothesized that positive friendship quality has a negative effect on depressive symptoms and negative friendship quality has a positive effect on depression. Furthermore, it was hypothesized the association between friendship quality and depressive symptoms was mediated by loneliness.

Method

Participants

Participants in this study were adolescents enrolled in the Italian secondary education system in which they followed one of three main educational tracks (ISTAT 2009). Specifically, 37.2 % of the participants attended pre-university education, 50.3 % a technical education and 12.5 % a vocational education. In total 711 adolescents (53.2 % male) participated between 14 and 18 years old (M=15.53 years, SD=1.01). The adolescents were recruited from three public high schools and 51 different classrooms of the Northwest of Italy. Of these, 38.1 % of them were first grade, 32.8 % in the second grade, and 29.1 % in the third grade. In the sample, 85.3 % of the adolescents lived with both biological parents, 12.2 % in a single-parent family and 2.5 % lived with relatives or stepfamily.

Measures

Depressive Symptoms – To assess adolescent depressive symptoms the Short Mood and Feeling Questionnaire was used (SMFQ; Angold et al. 1995). The questions describe depressive symptoms in the past two weeks, and are rated on three response options: "never", "sometimes", "always". The questionnaire contains thirteen items, for example, "I hated myself", "I did everything wrong". The SMFQ is an adequate measure of depressive symptoms in terms of internal construct validity (Sharp, Goodyer, &Croudace, 2006). The items of this questionnaire correspond to the DSM-IV (Kuo, Vander Stoep, & Stewart, 2005). Cronbach's alpha was .84 both at Time 1 and Time 2. An overall measure of depressive symptoms was computed by averaging the separate scores on each item, resulting in a mean score ranging from zero to two. A higher score on the SMFQ indicates more depressive symptoms and a lower score indicates less depressive symptoms.

Loneliness – One subscale from the Social and Emotional Loneliness Scale for Adults-Short (SELSA-S) was used to assess peer-related loneliness (DiTommaso, Brannen, & Best, 2004). Another subscale measures parent-related loneliness. This subscale was not used because this research only focuses on friendship relationships. The peer-related loneliness subscale consists of five items, measured on a 5-point scale (1= strongly disagree, 5 = strongly agree). The negative items were reversed and a mean score across the items within the subscale was calculated. Higher scores indicate a higher level of loneliness. This measure has a good construct validity and has been used among several adolescent samples (DiTommaso et al., 2004). In this sample, Cronbach's alpha was .77.

Friendship quality – To assess different dimensions of adolescent perceived friendship quality, the Network of Relationship Inventory was used (NRI; Furman &Buhrmester, 1985). The friendship quality measure was divided into separate variables, namely negative friendship quality and positive friendship quality. Six different subscales of the NRI were used, which consisted of three items each. Participants were asked to answer each question on a five-point scale (1= never, 5 = always). The subscales of the NRI used in this study consist of items used to assess negative friendship quality features (dominance and conflict) and positive friendship quality features (support, satisfaction, affect and companionship). The measure was completed related to the adolescents' best friend. In this research both negative and positive friendship quality subscales were analyzed. The positive friendship quality measures of the NRI reflect dyadic qualities of the friendship, such as companionship. The dominance measure of the negative friendship quality on the other hand, ask for one's unilateral opinion of the behavior of

one's best friend. Among measures of positive friendship quality the associations are moderate to strong, as analysis revealed, with correlations ranging from r = .50 to r = .70. The same results were found for the correlations between measures of negative friendship quality (r = .40). Cronbach's alpha was .90 and .72 for positive friendship quality and negative friendship quality respectively.

Procedure

The data used in this study were collected for a longitudinal project on adolescent peer relationships and internalizing symptoms. The data were gathered from a community sample from Northwest Italy. In total 1038 families were contacted with the request to participate in the study. An informed consent was obtained from the parents, by a letter sent to the parents to ask for their permission. Of them 4.6% denied permission and were not included in the sample. The questionnaires were administered in the fall (Time 1) and six months after (Time 2). At Time 1, 832 adolescents were present, and out of them 711 completed the questionnaires at Time 2. Only the data of adolescents who participated at both times was used. Furthermore, data from six participants were excluded because of unreliable answers, and data from 15 participants were excluded due to disorder diagnosis (e.g., autistic disorders or intellectual disabilities). The final sample included 711 participants.

Statistical analyses

Correlations were computed between depressive symptoms at Time 1 and Time 2, loneliness, positive and negative friendship quality. The steps of Baron and Kenny's approach (Baron and Kenny, 1986) were followed to test if loneliness mediated the associations between negative and positive friendship quality and depressive symptoms at time 1. The first condition is that the predictor friendship quality was correlated to the mediator loneliness and the outcome variable depressive symptoms. Secondly, the mediatorshould be associated withdepressive symptoms. If these criteria were met, a linear regression model was run. In step 1 the control variables age and gender were entered. In step 2 the predictor friendship quality was entered, and finally in step 3 the mediator loneliness was entered to the model. To test the significance of the mediation effect the Sobel test was conducted (Baron & Kenny, 1986).

Results

Descriptive results

In Table 1, means, standard deviations, and internal consistencies measured by Cronbach's alpha are shown. Table 3 shows the correlations between all the study variables. Firstly, it was hypothesized that positive friendship quality would be negatively correlated to depressive symptoms and negative friendship quality would be positively correlated to depressive symptoms, because the assumption was that higher levels of perceived positive friendship quality would serve as a buffer against depressive symptoms, and perceived negative friendship quality increase feelings of depressive symptoms. It was found that negative friendship quality indeed correlated positively with depressive symptoms, both at Time 1 and Time 2 (see Table 3). The results showed no significant correlations between positive friendship quality and depressive symptoms both at Time 1 and Time 2 as shown in Table 3. The second hypothesis concerns the relationship between loneliness and depressive symptoms. It was hypothesized that higher levels of loneliness would be related to higher levels of depressive symptoms. A significant positive correlation between loneliness and depressive symptoms was found at both Time 1 and 2 (see Table 3). Furthermore, it was hypothesized that higher levels of negative friendship quality would be associated with higher levels of loneliness. A weak correlation was found between these variables. However, a strong negative correlation was found between positive friendship quality and loneliness (see Table 3), suggesting a buffering effect of positive friendship quality on loneliness.

A series of t-tests were conducted to examine gender differences on the study variables. Significant gender differences were found for depressive symptoms both Time 1 and Time 2, and for positive friendship quality. On these variables, girls reported higher values than boys (see Table 2).

Mediator effects of loneliness on the associations between negative friendship quality and depressive symptoms

The main hypothesis was that the effect of friendship quality on depressive symptoms was mediated by loneliness. Depressive symptoms Time 1 was specified as the dependent variable, loneliness as the mediator, and positive and negative friendship quality served separately as the independent variables. Hierarchical multiple linearregression was used to assess the effects of two measures (negative and positive friendship quality and loneliness) on depressive symptoms, after controlling for the influence of gender and age. In step 1 age and gender were entered, explaining 6.6% of the variance of depressive symptoms. Age was positively related to depressive symptoms, which indicates that older adolescents reported more depressive symptoms. Also for gender a significant positive effect was found, suggesting that girls reported more depressive symptoms than boys (see Table 2). In step 2 only negative friendship quality was added to the model, since positive friendship quality was not correlated to depressive symptoms it was left out.Negative friendship quality had a positive significant effect,

indicating that more reported negative friendship quality leads to more depressive symptoms. The total variance explained by the model as a whole was 13.1%, p<.001.In step 3, the mediator loneliness was added to the model. In the final model, all the variables were significant except for age. After adding the mediator to the model, the variance explained by negative friendship quality decreased. However, the conducted Sobel test (z = 0.51) did not indicate a significant mediation effect of loneliness on the relationship between negative friendship quality and depressive symptoms.

Another meditational model was tested using linear regression. In this model, depressive symptoms at Time 2 was specified as the dependent variable. Depressive symptoms at Time 1 was entered in step 1 as a control variable. In step 1, there was no significant effect of age. For gender a significant positive effect was found. Depressive symptoms Time 1 was a significant predictor for depressive symptoms Time 2. In step 2, negative friendship quality was added to the model. This variable had a small, non-significant negative effect. In step 3, the mediator loneliness was added to the model. Loneliness had a small non-significant positive effect. Gender and depressive symptoms Time 1 were still significant.

Discussion

Depressive symptoms are relatively common and represent an important problem in adolescence (Vanhalst et al., 2012). Friendship becomes increasingly important during adolescence, and has a considerable effect on psychological well-being (Berndt, 2002). Since adolescence is a critical period in terms of social and emotional development, it is important to study the occurrence of loneliness and depressive symptoms and what contributes to these constructs. This study aimed to clarify the relationships between friendship quality (positive and negative) and depressive symptoms, by looking at the role of loneliness in this association. Correlation analysis revealed that all the factors were correlated as hypothesized. The only exception was the factor positive friendship quality that was excluded from the models, because it was not related to depressive symptoms. Negative friendship quality and loneliness both predicted depressive symptoms at Time 1. Despite the decrease in the effect of negative friendship quality after the mediator loneliness was added to the model, the conducted Sobel test did not give a significant result. The longitudinal model did not give any significant results, so there was no need to conduct a Sobel test. In both models gender was a significant predictor of depressive symptoms.

The constructs depressive symptoms and loneliness are closely related (Heinrich &Gullone, 2006). Whereas several studies examined these associations among children, less is known about these processes during adolescence. The present study addressed this association among adolescents. The analysis of this research has shown that all the factors friendship quality, loneliness and depressive symptoms were related. A number of studies conducted in childhood confirmed that poor friendship quality predicts loneness in childhood (Nangle et al., 2003; Parker & Asher, 1993), the current study shows that the same effect occurs in adolescence as

hypothesized. Also, negative friendship quality was a significant predictor of loneliness as suggested by Berndt (2002). Loneliness in turn predicted depressive symptoms in adolescence. Multiple studies found that loneliness predicted depressive symptoms over time (Vanhalst, Luyckx, Raes, &Goossens, 2012; Vanhalst et al., 2012), but such effect was not found in this study when controlled for depressive symptoms at Time 1.Loneliness was expected to mediate the association between friendship quality and depressive symptoms, however this model was found not to be significant. Probably there are different mechanisms underlying the association between adolescent friendship quality and depressive symptoms.

In this study a distinction was made between measures of positive (e.g., companionship), and negative (e.g. conflict) friendship quality features to assess friendship quality accurately. Remarkably, the effect of positive friendship quality on loneliness was much stronger than the effect of negative friendship quality on loneliness. A number of studies have confirmed that high quality friendships protect against feelings of loneliness, making no distinction between positive and negative friendship quality (Nangle, Erdley, Newman, Mason, & Carpenter, 2003; Parker & Asher, 1993). This research showed that negative friendship quality had a strong effect on depression as expected, however, there was no such effect for positive friendship quality, as was found in prior work (LaGreca& Harrison, 2005). This suggests that the presence of negative friendship quality features is a better predictor of social-wellbeing than the presence of positive friendship quality features. However it might be possible that adolescents who experience depressive symptoms perceive their friendships more negatively. Close relationships are hypothesized to protect against depressive feelings (Baumeister & Leary, 1995), so it is surprising that positive friendship quality does not serve as a buffer. According to the negativity effect model (the negativity effect model; Ingersoll-Dayton, Morgan, &Antonucci, 1997) there is

primarily a relationship between negative social exchange and well-being. This theory is supported by multiple studies indicating a stronger relationship between depression and negative exchanges than depression and positive exchanges (Ingersoll-Dayton, Morgan, &Antonucci, 1997). Another possible explanation for this effect is the process of co-rumination. Corumination refers to a process in friendships whereby personal problems are often discussed and revisited with a focus is on negative feelings (Rose, 2002). Possibly, positive friendship qualities characterized by high support and intimacy reinforce depressive symptoms by talking about problems, putting the focus on negative feelings (LaGreca& Harrison, 2005; Rose, 2002). The level in which co-rumination occurs in friendship may depends on whether self-disclosure focuses on negative of positive topics. Co-rumination could also explain why girls report higher friendship quality and report more depressive symptoms.Girls spend more to self-disclose than boys (Parker & Asher, 1993) so they are also more likely to co-ruminate. This gender effect might be even stronger in adolescence when social contacts become more complex, increasing the risk of depression contagion (Rose, 2002). Apparently positive friendship quality and negative friendship quality are two different constructs with different predictive value.

This study has a number of strengths, including the use of an adolescent sample. Whereas multiple studies examining the associations between friendship quality, loneliness and depressive symptoms were conducted among children, studies on adolescent samples are scare. However, some important limitations should be mentioned. First, friendship quality was assessed to self-reported measures. This is useful as the friendship quality measures are difficult to observe. However given that there are two parties in a friendship, experiences may differ (Furman& Buhrmester, 1985). To asses friendship quality more completely, both parties' perspectives should be considered. So far not much research has focused on the different dimensions of

friendship quality. Future research should pay more attention to the difference between negative and positive friendship quality because negative features of friendship have important clinical implications. Specifically they are directly related to depressive symptoms, and could therefore be an important factor to understand the occurrence of depressive symptoms in adolescence. This finding stresses the importance of providing interventions focused on improving social skills including conflict solving. Indeed, high depressive symptoms can predict numerous problems including major depressive disorder and suicide (Lewinsohn et al., 1994; Andel, Raveis, & Davies, 1991).

In this study no a priori hypotheses were formulated on gender differences, but the T-test used to assess gender differences showed that depressive symptoms and positive friendship quality were significantly different. A possible explanation for gender differences in friendship quality is that boys and girls have different play preferences and group structures (Parker & Asher, 1993). This changes the relationships needs thus explains the gender difference in friendship quality. Therefore this could be a focus for future research. A limitation of this study is the fact that the data sample was not representative of the general population of adolescents, because it was a convenience sample. That is, the data were gathered from a community sample from Northwest Italy. This decreases the extent to which these findings can be generalized to the general population of adolescents in Italy and worldwide. Only correlations between the different variables were found. Moreover, in this study only friendship quality was investigated, leaving out other aspects of friendship like friendship quantity like reciprocity and the number of friends. Notably, a larger network of friends might also provide a buffer against feelings of loneliness and depression (Nangle et al., 2003).

Despite these limitations, this study found strong associations between negative friendship quality and adolescents' loneliness and depressive symptoms. Positive friendship quality did not serve as a buffer against depressive symptoms against expectations. This issue should be further examined in future research. Besides the association between positive friendship quality and depressive symptoms, all factors were related. The proposed mediation model with loneliness as a mediator of friendship quality and depressive symptoms was found not to be significant. More research is needed to examine the mechanisms underlying these factors in the developmental important period of adolescence.

References

Angold, A., Costello, E. J., Messer, S. C., & Pickles, A. (1995).Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents.*International Journal of Methods in Psychiatric Research*, 5, 237–249.

Balázs, J., Miklósi, M., Keresztény, Á., Hoven, C. W., Carli, V., Wasserman, C., & ...
Wasserman, D. (2013). Adolescent subthreshold-depression and anxiety:
Psychopathology, functional impairment and increased suicide risk. *Journal of Child Psychology and Psychiatry*, 54, 670-677.

- Banny, A. M., Heilbron, N., Ames, A., & Prinstein, M. J. (2011). Relational benefits of relational aggression: Adaptive and maladaptive associations with adolescent friendship quality. *Developmental Psychology*, 47, 1153-1166.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, 51, 1173.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497–529.
- Berndt, T. J. (2002). Friendship quality and social development. *Current Directions in Psychological Science*, 11, 7-10.
- Bertha, E. A., &Balázs, J. (2013). Subthreshold depression in adolescence: A systematic review. *European Child & Adolescent Psychiatry*, 22, 589-603.

Coyne, J. C. (1976). Toward an interactional description of depression. Psychiatry, 39, 28-40.

- Demir, M., &urberg, K.A. (2004) Friendship and adjustment among adolescents. *Journal of Experimental Child Psychology*, 88, 68.
- DiTommaso, E., Brannen, C., Best, L., 2004. Measurement and validity characteristics of the short version of the social and emotional loneliness scale for adults. Educational and *Psychological Measurement* 64, 99–119.
- Fitzgerald, A., Fitzgerald, N., &Aherne, C. (2012). Do peers matter? A review of peer and/or friends' influence on physical activity among American adolescents. *Journal of Adolescence*, 35, 941-958.
- Furman, W., &Buhrmester, D. (1992).Age and sex differences in perceptions of networks of personal relationships.*Child Development*, 63, 103–115.
- Furman, W. &Buhrmester, D., 1985.Children's perceptions of the personal relationships in their social networks.Developmental Psychology, 21, 1016–1024
- Galliher, R. V., &Kerpelman, J. L. (2012). The intersection of identity development and peer relationship processes in adolescence and young adulthood: Contributions of the special issue. *Journal of Adolescence*, 35, 1409-1415.
- Goossens, L., Lasgaard, M., Luyckx, K., Vanhalst, J., Mathias, S., &Masy, E. (2009).
 Loneliness and solitude in adolescence: A confirmatory factor analysis of alternative models. *Personality and Individual Differences*, 47, 890–894.

Heinrich, L. A., &Gullone, E. (2006). The clinical significance of loneliness: A literature review. *Clinical Psychology Review*, *26*, 695–718.

- Ingersoll-Dayton, B., Morgen, D., &Antonucci, T. (1997). The effects of positive and negative social exchanges on aging adults. *Journal of Gerontology: social sciences*, 52, 190-199.
- Kandel, D. B., Raveis, V. H., & Davies, M. (1991). Suicidal ideation in adolescence: Depression, substance use, and other risk factors. *Journal of Youth and Adolescence*, 20, 289-309.
- Kuo, E. S., Vander Stoep, A., & Stewart, D. G. (2005). Using the Short Mood and FeelingsQuestionnaire to Detect Depression in Detained Adolescents. *Assessment*, 12, 374-383.
- Ladd, G. W., &Ettekal, I. (2013).Peer-related loneliness across early to late adolescence: Normative trends, intra-individual trajectories, and links with depressive symptoms. *Journal of Adolescence, 36*, 1269-1282.
- La Greca, A. M., & Harrison, H. M. (2005). Adolescent Peer Relations, Friendships, and Romantic Relationships: Do They Predict Social Anxiety and Depression? *Journal of Clinical Child & Adolescent Psychology, 34*, 49-61.
- Lasgaard, M., Goossens, L., &Elklit, A. (2011). Loneliness, depressive symptomatology, and suicide ideation in adolescence: cross-sectional and longitudinal analyses. *Journal of Abnormal ChildPsychology*, *39*, 137–150.
- 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.
- Mahon, N. E., Yarcheski, A., Yarcheski, T. J., Cannella, B. L., & Hanks, M. M. (2006). 'A metaanalytic study of predictors for loneliness during adolescence': Erratum. *Nursing Research*, 55, 446.

- Marcoen, A., Goossens, L., &Caes, P. (1987). Loneliness in pre-through late adolescence: Exploring the contributions of a multidimensional approach. *Journal of Youth and Adolescence, 16*, 561–576.
- Meeus, W., &Dekovic, M. (1995). Identity development, parental and peer support in adolescence: Results of a national Dutch survey. *Adolescence*, *30*, 931–944
- 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.
- Parker, J. G., & Asher, S. R. (1993). Friendship and friendship quality in middle childhood:
 Links with peer group acceptance and feelings of loneliness and social dissatisfaction.
 Developmental Psychology, 29, 611-621.
- Qualter, P., Brown, S. L., Munn, P., & Rotenberg, K. J. (2010). Childhood loneliness as a predictor of adolescent depressive symptoms: An 8-year longitudinal study. *European Child & Adolescent Psychiatry*, 19, 493–501.
- Rich, A. R., & Scovel, M. (1987). Causes of depression in college students: A cross-lagged panel correlational analysis. *Psychological Reports*, 60, 27–30.
- Rose, A. J. (2002). Co-rumination in the friendships of girls and boys. *Child Development, 73*, 1830-1843.
- Sharp, C., Goodyer, I. M., & Croudace, T. J. (2006). The Short Mood and Feelings Questionnaire (SMFQ): A unidimensional item response theory and categorical data

factor analysis of self-report ratings from a community sample of 7-through 11-year-old children. *Journal of Abnormal Child Psychology*, *34*, 379-391.

- Turner, N., Joinson, C., Peters, T. J., Wiles, N., & Lewis, G. (2014). Validity of the Short Mood and Feelings Questionnaire in late adolescence. *Psychological Assessment, 26*, 752-762.
- Vanhalst, J. L. (2012). Disentangling the Longitudinal Relation between Loneliness and Depressive Symptoms: Prospective Effects and the Intervening Role of Coping. *Journal* of Social & Clinical Psychology, 31, 810-834.
- Vanhalst, J., Luyckx, K., &Goossens, L. (2014). Experiencing loneliness in adolescence: A matter of individual characteristics, negative peer experiences, or both? *Social Development, 23*, 100-118.
- Vanhalst, J., Luyckx, K., Raes, F., &Goossens, L. (2012). Loneliness and depressive symptoms:
 The mediating and moderating role of uncontrollable ruminative thoughts. *The Journal of Psychology: Interdisciplinary and Applied, 146*, 259-276.
- Vanhalst, J., Klimstra, T. A., Luyckx, K., Scholte, R. H., Engels, R. C., &Goossens, L. (2012). The interplay of loneliness and depressive symptoms across adolescence: Exploring the role of personality traits. *Journal of youth and adolescence*, 41, 776-787.



	Ν	Mean	Standard	Cronbach's
			Deviation	Alpha
Depressive symptoms Time 1	711	.51	.38	.84
Depressive symptoms Time 2	709	.51	.38	.84
Loneliness	711	1.80	.68	.77
Positive friendship quality	695	4.05	.68	.90
Negative friendship quality	691	2.32	.68	.72

Table 1. Descriptive statistics

Table 2. Mean and SD by gender

	Boys		Girls	
	Mean	SD	Mean	SD
Depressive symptoms Time 1	.43	.35	.61***	.39
Depressive symptoms Time 2	.40	.34	.64***	.37
Loneliness	1.80	.66	1.80	.70
Positive friendship quality	3.90	.70	4.24***	.61
Negative friendship quality	2.34	.70	2.30	.68

p < .05. **p < .01. ***p < .001

	1	2	3	4	5
1. Depressive	-	.56***	.29***	.02	.24***
symptoms Time 1					
2. Depressive	.56***	-	.17***	.04	.10**
symptoms Time 2					
3. Loneliness	.29***	.17***	-	54***	.08*
4. Positive	.02	.04	54***	-	.12**
friendship quality					
5. Negative	.24***	.10**	.08*	.12**	-
friendship quality					

*p < .05. **p < .01. ***p < .001

	Variable	В	SE B	β
Step 1	-			
	Age	.03*	.01	.10
	Gender	.19***	.03	.30
Step 2				
	Age	.03**	.01	.09
	Gender	.20***	.03	.26
	Negative	.14***	.02	.25
	friendship			
	quality			
Step 3				
	Age	.02	.01	.07
	Gender	.20***	.03	.30
	Negative	.12***	.02	.23
	friendship			
	quality			
	loneliness	.15***	.02	.26

 Table 4. Linear regression

 $\hline{*p < .05. **p < .01. ***p < .001}$

	Variable	В	SE B	β
Step 1				
	Age	.02	.01	.05
	Gender	.15***	.02	.20
	Depressive	.50***	.03	.50
	symptoms T1			
Step 2				
	Age	.02	.01	.05
	Gender	.15***	.02	.20
	Depressive	.51***	.03	.51
	symptoms T1			
	Negative	01	.02	01
	friendship			
	quality			
Step 3				
	Age	.02	.01	.05
	Gender	.15***	.02	.20
	Depressive	.50***	.03	.51
	symptoms T1			
	Negative	01	.02	01
	friendship			
	quality			
	loneliness	.01	.02	.01

Table 5. *Linear regression*

 $\overline{*p < .05. **p < .01. ***p < .001}$