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## Brief Report

## Different sources of loneliness are associated with different forms of psychopathology in adolescence

Mathias Lasgaard<sup>a,\*</sup>, Luc Goossens<sup>b</sup>, Rikke Holm Bramsen<sup>c</sup>, Tea Trillingsgaard<sup>c</sup>, Ask Elklit<sup>a</sup><sup>a</sup> Institute of Psychology, University of Southern Denmark, Denmark<sup>b</sup> Department of Psychology, Catholic University of Leuven, Belgium<sup>c</sup> Department of Psychology, Aarhus University, Denmark

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## ABSTRACT

The present study investigated associations between loneliness in different social relationships and indicators of psychopathology in adolescence. A nationally representative sample of 1009 high school students completed measures of three types of loneliness and six indicators of psychopathology. Results indicated that peer-related and family-related loneliness were associated with depression, anxiety, and suicide ideation, whereas peer-related and romantic loneliness were associated with social phobia. In contrast, only family-related loneliness was associated with deliberate self-harm and eating disorders. It is important, therefore, to distinguish between experiences of loneliness in different social relationships, in particular the peer versus the family setting, when investigating loneliness and psychopathology in adolescence.

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## 1. Introduction

Theoretical approaches to loneliness have assigned special importance to adolescence, which is regarded as a period of life when loneliness is particularly prevalent (Heinrich & Gullone, 2006). Loneliness is a negative emotion that comes about through a discrepancy between desired and achieved levels of social contact (Perlman & Peplau, 1981) and has been associated with psychopathology (Heinrich & Gullone, 2006). However, studies that investigate the clinical significance of loneliness as experienced in different social relationships are rare. This paper presents the first known study into the associations between various forms of loneliness (i.e., peer-related, family-related, and romantic) and a broad range of indicators of psychopathology using data from a representative sample of high school students.

Several authors have stated that different relationships are potential sources of loneliness. Weiss (1974), for instance, argued that different types of social relationships offer different social provisions or meet different interpersonal needs. Peers or friends offer provisions associated with a sense of social integration, relationships with family members offer a sense of guidance, and relationships with romantic partners offer a sense of reliable attachment (DiTommaso & Spinner, 1997). The absence of a required relational provision is signalled by a form of distress that is experienced as

loneliness and, in turn, may be associated with various forms of psychopathology.

Weiss (1974) further argued that social needs have a different value in different phases of life. As a result, the risk of being lonely with regard to different relationships may increase or decrease over time. From this perspective, the link between loneliness and psychopathology may also vary among different age groups. During adolescence, relationships with peers achieve special prominence in social life, but relationships with parents, as key figures in the family, continue to be important as well. Hence, family-related loneliness is as likely to be associated with indicators of psychopathology in adolescence as is peer-related loneliness. Later on, romantic partners may replace peers and parents as primary attachment figures (Larson, 1999) and therefore romantic loneliness is more likely to be associated with psychopathology in college students.

These notions can be put to an empirical test. Several well-established measures are available to measure loneliness in different relationships (e.g., DiTommaso, Brannen, & Best, 2004) that may be used with high school students or undergraduates. Moreover, factor analytic studies on these age groups that have used multiple loneliness measures have clearly distinguished between two factors that tap peer-related and family-related loneliness, respectively (e.g., Goossens et al., 2009). Yet, only two studies have examined the links between loneliness as experienced in different relationships, on the one hand, and psychopathology, on the other hand, during adolescence or the college years.

The first study examined loneliness in three different relationships – peer-related loneliness (labelled ‘social loneliness’), family-related loneliness, and romantic loneliness – in undergraduates

\* Corresponding author. Address: University of Southern Denmark, Campusvej 55, 5230 Odense M, Denmark.

E-mail address: [mlasgaard@health.sdu.dk](mailto:mlasgaard@health.sdu.dk) (M. Lasgaard).

using a well-established loneliness measure (the Social and Emotional Loneliness Scale for Adults or SELSA; DiTommaso et al., 2004). Peer-related loneliness, rather than family-related and romantic loneliness, was a specific correlate of depression, anxiety, and general distress (DiTommaso & Spinner, 1997). The second study examined loneliness in two different relationships – with peers and with family members – in students from Grades 5 through 9, by means of the Experience Sampling Method. Using this ecologically valid type of instrumentation, both peer-related and family-related loneliness were significant correlates of depression (Larson, 1999).

The findings of these studies lent support to the notion that different sources of loneliness are differentially associated with young people's psychopathology. They also suggest that the pattern of associations obtained differs across periods of development (i.e., late adolescence and early adolescence). However, both studies showed a number of limitations. First, convenience samples of undergraduate students and students from Grades 5 through 9 were used, which limits the generalizability of the results obtained. Second, researchers have relied on a small set of measures of psychopathology. Using a larger set could provide additional insights into the links between loneliness as experienced in different relationships and adolescent psychopathology.

The present study aimed to expand on the existing literature and tried to remedy some of the shortcomings of earlier research. First, associations between relation-specific loneliness and psychopathology were examined using data from a representative sample of high school students. Second, multiple indicators of psychopathology were used. Four of these indicators (i.e., depression, anxiety, social phobia, and suicide ideation) have been shown to be associated with adolescent loneliness in several earlier studies (Heinrich & Gullone, 2006). Two additional indicators (i.e., deliberate self-harm and eating disorders) have been associated with interpersonal problems in the family domain, but have rarely been investigated in relation to loneliness. Suicide and suicide ideation are frequently associated with problematic relationships with both peers and family members (Joiner, Brown, & Wingate, 2005). Poor family relationships predict deliberate self-harm in adolescents (Hawton & Harriss, 2008) and a considerable body of research has focused on family problems prior to the onset of eating disorders (e.g., Fairburn et al., 1998).

Based on the findings reported in the literature, and because social phobia is a subtype of anxiety, it was hypothesized that both peer-related and family-related loneliness would be associated with four indicators of psychopathology (i.e., depression, anxiety, social phobia, and suicide ideation) in the current study on high school students. Family-related loneliness was hypothesized to be associated with the remaining indicators (i.e., deliberate self-harm and eating disorders). Because of the age of the participants, romantic loneliness was not expected to be associated with any of the indicators of psychopathology. During high school, romantic relationships tend to be short-lived and self-centered, and therefore, romantic loneliness has more limited repercussions. During the college years and early adulthood, by contrast, young people tend to develop truly mature romantic relationships and consider the possibility of long-term commitment to their romantic partner (Brown, 1999) and, as a consequence, romantic loneliness may be expected to show more pronounced associations with psychopathology.

## 2. Method

### 2.1. Participants and procedure

Data were used from the High School Loneliness Study, a Danish national study. The sample was stratified, using the number of

students in counties to define different geographical areas of approximately equal size. Moreover, the number of liberal versus vocational oriented schools was stratified. The class teacher monitored the data collection according to standardized instructions. An accompanying letter informed the students about procedures securing confidentiality and that participation was entirely voluntary. For more details about the design of the study please see Lasgaard, Goossens, and Elklit (2010).

A total of 1009 high school students ( $M = 17.11$  years old;  $SD = 1.11$ ) in the first-year group from 46 stratified schools participated in the study. The demographic characteristics of the sample were comparable to national figures of Danish high school students (based on 2005 figures, the most recent figures available). Average age of the sample was 17.11 years ( $SD = 1.11$  year), as compared to 17.70 years in the population. Fifty-seven percent of the sample was female, as compared to 56% in the population. Most of the participants (i.e., 94%) were born in Denmark, as compared to 96% in the population. Within the sample, 61% of the adolescents were enrolled in the liberal education high school course and 38% in the vocational course. Corresponding figures in the population were 69% and 31%, respectively. Sixty-seven percent of the adolescents were living in a two-parent family, 24% in a single-parent family, 3% with a boyfriend or girlfriend, 3% alone, and 3% reported other living conditions.

### 2.2. Measures

#### 2.2.1. Loneliness

The 15-item Social and Emotional Loneliness Scale for Adults – Short Form (SELSA-S; DiTommaso et al., 2004) comprises three subscales (five items each) that assess peer-related loneliness (labelled 'social loneliness'), family-related loneliness, and romantic loneliness, respectively. Items are rated on a 7-point Likert scale. Prior to data collection, the SELSA-S was translated to Danish by the first author, back-translated by a bilingual psychologist (PhD) with English as first language, and then evaluated by the first author and 62 students in a pilot study. The internal consistency of the adapted scale was satisfactory (peer-related loneliness  $\alpha = .80$ ; family-related loneliness  $\alpha = .87$ ; romantic loneliness = .87).

#### 2.2.2. Indicators of psychopathology

Depression and anxiety were measured by means of the Danish version of the Beck Depression Inventory for Youth (BDI-Y) and the Beck Anxiety Inventory for Youth, respectively (Thastum, Ravn, Sommer, & Trillingsgaard, 2009). Both scales comprise 20 items that are scored on a 4-point Likert scale. One item in the BDI-Y asks if the respondent feels lonely. To avoid results being influenced by item overlap, this item was excluded prior to analyses. Internal consistency of the two scales was satisfactory (depression  $\alpha = .94$ ; anxiety  $\alpha = .87$ ).

Social phobia was assessed using the 19-item Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998), an instrument that taps into general fears of social interaction due to concerns about negative evaluation and rejection. The SIAS corresponds to the DSM-III-R description of social phobia, generalized type. Prior to data collection, the scale was adapted to Danish using the same procedure as with the SELSA-S. Responses are provided using a 5-point Likert scale. The internal consistency of the adapted SIAS was satisfactory ( $\alpha = .90$ ).

Suicide ideation was tapped by means of the 8-item Suicide Ideation subscale from the Suicide Probability Scale (Cull & Gill, 1988). Scores on this measure reflect the extent to which an individual has thoughts associated with suicide and the instrument has proved effective in predicting suicide attempts in adolescents. Prior to data collection, the scale was adapted to Danish using the same procedure as with the SELSA-S. The symptoms are scored on a

4-point Likert scale and weighted as defined in the manual of the scale. The internal consistency of the adapted scale was satisfactory ( $\alpha = .90$ ).

Deliberate self-harm was measured using three items that examined the occurrence of (a) general self-harm behaviors, (b) skin-cutting, and (c) thoughts about self-harm, respectively. The items were scored on a 4-point Likert scale and scores were summed across these items. This 3-item scale showed acceptable internal consistency ( $\alpha = .88$ ).

Risk behavior related to eating disorders (e.g., excessive dieting) was assessed using an 8-item instrument, the Risk Behavior related to Eating Disorders scale (RiBED-8; Waadegaard, Thoning, & Petersson, 2003). The RiBED-8 has been validated in Danish samples and overall the scale demonstrates good psychometric properties. However, assessment of the construct validity indicates that the scale is inaccurate in identifying males at risk of eating disorders. Therefore, this instrument was completed by the females in the sample only, as recommended by the scale developers. The scale demonstrated acceptable internal consistency in the present study on the female half of the sample ( $\alpha = .71$ ). The items were initially rated on a 4-point Likert scale and then recoded in dichotomous fashion to reflect “low risk behavior” and “high risk behavior”, respectively, as defined in the manual of the scale (M. Waadegaard, personal communication, February 6, 2007).

### 2.3. Data analysis

Hierarchical regression analyses (HRA) were performed with the different measures of psychopathology as the dependent variables. In Step 1, gender (0 = male; 1 = female), age, and dummy-coded aspects of participants living conditions were included as control

variables (living in a two-parent family, living with boyfriend/girlfriend, or living alone [all 0 = no; 1 = yes]), because previous research has associated demographic factors with loneliness and psychopathology. In Step 2, the loneliness measures were included to estimate the relationships between the different types of loneliness and indicators of psychopathology. Although a correction for multiple comparisons was applied so that each analysis used a significance level of .008, the large sample resulted in a large number of predictors being statistically significant, but of limited psychological relevance. Hence, we used a more stringent criterion, interpreting the associations as both significant and meaningful if the semi-partial correlations accounted for at least 2% of the variance in the criterion variable, corresponding to a small effect size (Cohen, 1988).

On all measures except five items the percentage of missing variables was small (0.8–3.1%). Yet, the percentage of missing variables was rather high on the romantic loneliness subscale (5.9–13.6%). Possibly, some participants, who did not have a boyfriend or girlfriend, refrained from answering some of these questions. The Expectation Maximization algorithm, which is an effective method of dealing with missing data (Bunting, Adamson, & Mulhall, 2002), was performed to impute missing data.

### 3. Results

Intercorrelations among the measures used and descriptive statistics (i.e., mean, SD, and range) are presented in Table 1. In accordance with previous research (e.g., DiTommaso et al., 2004), the three loneliness measures were weakly to moderately intercorrelated. These findings suggest that peer-related, family-related, and romantic loneliness are relatively independent constructs.

**Table 1**  
Correlations Among the Study Measures and Descriptive Statistics.

Measure	2.	3.	4.	5.	6.	7.	8.	9.	Mean (SD)	Range
1. Peer-related loneliness	.37	.11	.38	.34	.40	.27	.16	.17	10.06 (4.73)	5–34
2. Family-related loneliness		.15	.41	.32	.28	.34	.31	.24	9.85 (5.77)	5–34
3. Romantic loneliness			.16	.13	.24	.10	-.02	.02	20.81 (9.53)	5–35
4. Depression				.77	.53	.70	.57	.35	26.83 (8.00)	19–70
5. Anxiety					.54	.52	.43	.35	30.42 (7.04)	20–74
6. Social phobia						.33	.21	.24	21.17 (12.22)	0–64
7. Suicide ideation							.59	.28	9.76 (4.35)	8–39
8. Deliberate self-harm								.36	3.81 (1.73)	3–12
9. Eating disorders								–	1.68 (1.73)	0–8

Note. Bonferroni's correction for multiple comparisons applied.  $r \geq .09$ ,  $p < .006$ .

**Table 2**  
Regression Analysis with Peer-Related Loneliness, Family-Related Loneliness, and Romantic Loneliness as Predictors of Psychopathology.

Variable	Depression		Anxiety		Social phobia		Suicide ideation		Deliberate self-harm		Eating disorders	
	$\beta$	$r_{sp}^2$	$\beta$	$r_{sp}^2$	$\beta$	$r_{sp}^2$	$\beta$	$r_{sp}^2$	$\beta$	$r_{sp}^2$	$\beta$	$r_{sp}^2$
<i>Step 1</i>												
Gender	.23	.049*	.20	.038*	.09	.008	.06	.004	.16	.024*	–	–
Age	.03	.000	.01	.000	.02	.000	.07	.005	.00	.000	-.05	.002
Living in two-parent family	-.08	.003	-.09	.008	.02	.000	-.06	.003	-.06	.003	-.09	.008
Living with boy-/girlfriend	-.01	.000	-.03	.000	-.08	.006	-.07	.004	.05	.002	-.03	.001
Living alone	.00	.000	.03	.000	-.01	.000	-.03	.001	.03	.001	.05	.002
<i>Step 2</i>												
Peer-related loneliness	.26	.076*	.21	.045*	.33	.109*	.17	.027*	.05	.003	.06	.003
Family-related loneliness	.29	.089*	.21	.045*	.13	.019	.26	.061*	.30	.081*	.22	.041*
Romantic loneliness	.14	.017	.11	.013	.19	.040*	.04	.002	-.04	.002	-.04	.002
Model $R^2$ (%)		29		19		22		14		13		6
Step 2 $\Delta R^2$ (%)		23		14		21		14		10		6
F(df)	F(8998) = 53		F(8998) = 30		F(8998) = 37		F(8998) = 21		F(8998) = 19		F(7547) = 6	

Note.  $\beta$  = standardized regression coefficients;  $r_{sp}^2$  = semi-partial correlation squared.

\* Accounting for at least 2% of the variance in the criterion variable, corresponding to a small effect size (Cohen, 1988).

Results of the HRAs, expressed as standardized regression coefficients, can be seen in Table 2. As regards effects of background characteristics, females reported more depressive symptoms, more anxiety symptoms, and more deliberate self-harm.

The three loneliness measures significantly predicted depression scores, accounting for 23% of the variance independent of the control variables. Both peer-related and family-related loneliness were associated with depressive symptoms and the two types of loneliness had an equal effect size. In addition, the three loneliness measures significantly predicted anxiety scores, accounting for 14% of the variance independent of the control variables. As was the case for depression, peer-related and family-related loneliness were associated with anxiety symptoms and the two types of loneliness had an equal effect size. The three loneliness measures significantly predicted social phobia scores as well, accounting for 21% of the variance independent of the control variables. Peer-related and romantic loneliness were associated with this particular indicator of psychopathology, with peer-related loneliness being a stronger predictor than romantic loneliness.

The three loneliness measures significantly predicted suicide ideation scores, accounting for 14% of the variance independent of the control variables. Peer-related and family-related loneliness were associated with this specific indicator with family-related loneliness being a stronger predictor than peer-related loneliness. In addition, the three loneliness measures significantly predicted reports of deliberate self-harm, accounting for 10% of the variance independent of the control variables. Only family-related loneliness was associated with this indicator. Finally, the three loneliness measures significantly predicted risk behavior related to eating disorders in female participants, accounting for 6% of the variance independent of the control variables. Once again, only family-related loneliness was associated with this particular indicator of psychopathology.

#### 4. Discussion

The findings from the present study demonstrate that researchers are well-advised to distinguish between various sources of loneliness when examining the association between loneliness and psychopathology in adolescence. As hypothesized, both family-related loneliness and peer-related loneliness were associated with three indicators of psychopathology (i.e., depression, anxiety, and suicide ideation). Again in line with hypotheses, family-related loneliness was associated with two additional indicators of psychopathology (i.e., deliberate self-harm and eating disorders). Collectively, these findings attest to the continuing importance of family ties during adolescence and support the notion that family-related loneliness may be as worthy of investigation as peer-related loneliness in this age period (Larson, 1999).

Interestingly, family-related loneliness only was associated with deliberate self-harm and eating disorders. In accordance with this result, difficulties in family relationships have been found to be the most frequently recorded problem in hospitalized adolescents with deliberate self-harm, and twice as prevalent as difficulties with friends (Hawton & Harriss, 2008). These findings could indicate that difficulties within the family domain are particularly prominent in adolescents reporting these types of psychopathology. However, we are aware of no prior studies that have examined the relationship between different sources of loneliness and these indicators of psychopathology. This novel finding, therefore, suggests a need for further theorizing and additional research.

As regards social phobia, peer-related loneliness was a significant predictor, as expected. However, two unexpected findings emerged. Family-related loneliness did not contribute to the

prediction of this particular aspect of psychopathology, but romantic loneliness did. The dominant concern in social phobia, that is, fear of negative evaluation, may be rather specific in scope and may not affect one's perception or evaluation of the family context. Both depression and overall anxiety, by contrast, have a more general, non-specific focus than social anxiety, which may lead to more global negative perceptions of potential sources of support, including one's family members. Socially anxious youth, for instance, describe their family environment in more positive terms than do depressed youth (Johnson, Inderbitzen-Nolan, & Schapman, 2005). People with social phobia also tend to be anxious with regards to opposite-sex interactions and report reduced quality of their romantic relationships (Sparrevohn & Rapee, 2009) and this may already apply to the fledgling romances of adolescence.

The present study has a number of limitations. Future longitudinal research will have to clarify the direction of effects and to consider potential reciprocal effects between loneliness and psychopathology. Also, longitudinal research may provide evidence for an age-related relationship between different sources of loneliness and psychopathology. The link between loneliness in different relationships and psychopathology will have to be examined in late adolescents as well, using the elaborate set of indicators of psychopathology used in the present study. Despite these limitations, the present study demonstrates that one ought to distinguish different sources of loneliness when investigating indicators of psychopathology in adolescence. Future studies that adopt such an approach will increase our understanding of loneliness in adolescence and identify associations with psychopathology that may allow clinicians to assist lonely adolescents.

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