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LONELINESS AND DEPRESSION AMONG POLISH UNIVERSITY STUDENTS: PRELIMINARY FINDINGS FROM A LONGITUDINAL STUDY

Abstract

It is widely acknowledged that loneliness and depression are prevalent among university students and may contribute to poor academic achievements or higher probability of dropping out of university. However, the associations between these two phenomena are complex and not fully understood. In this paper we describe preliminary findings from a longitudinal study investigating the interrelationships between loneliness and depression in a representative sample of students of the University of Rzeszów (Poland). The obtained results confirm those from previous studies reporting a stronger and more stable effect of loneliness on depression than vice versa. A temporally stable influence of loneliness on depression suggests that interventions aiming to reduce the intensity of the feeling of loneliness should result in lowering the severity of depressive symptoms. University counselling services should offer interventions targeting loneliness among the students in order to help them to adapt to the challenges of the university education and protect them from developing depression.

Introduction

Epidemiological studies indicate that depression belongs to the most common mental disorders. Comparative analyses demonstrate that both in developed and developing countries the 12-month prevalence rates of major depression are at least 5% (Kessler et al., 2010). It is widely recognized that university students are one of the groups particularly prone to depression. The meta-analysis performed by Ibrahim et al. (2012), which included the results of 24 studies published in the span of the last 20 years, proved that nearly one third of the students experienced depressive symptoms (the weighted mean for all the included studies was 30.6%).

The elevated level of depressive symptoms in university students is regarded to be associated with a high level of stressors appearing in a relatively short period of time. Stressful events related to this period of life have two different sources (Besser & Zeigler-Hill, 2012). First, they result from the specificity of the educational process: new – relative to a high school – methods of teaching and learning, lesser social support received from lecturers, and greater role of an individual approach to academic duties, individualized skills to scientific work and time management abilities. Second, they are associated with changes in one's social relationships: limited contacts with family and friends, necessity of leaving home and building new social networks.

An unsuccessful process of adaptation to a new social environment may result in social isolation and, as a consequence, feeling of loneliness, understood as "a situation experienced by the individual as one where there is an unpleasant or inadmissible lack of (quality of) certain relationships" (De Jong Gierveld, 1987, p.

120). Similar to depression, loneliness is highly prevalent among university students (Cutrona, 1982; Ponzetti, 1990).

Both feelings of loneliness (Hawkley & Cacioppo, 2010; Mahon, Yarcheski, Yarcheski, Cannella & Hanks, 2006;) and depressive symptoms (Michael, Hueisman, Gerard, Gilligan & Gustafson, 2006) are related to a number of negative consequences – physical (e.g. lowered immunity, increased risk of cardiovascular disorders, sleep disturbances), intrapersonal (e.g. poor self-esteem, decreased level of optimism, anxiety, suicidal behaviours), or interpersonal (e.g. impaired quality of social networks, diminished frequency of interpersonal contacts, social anxiety, reduced perceived social support) – which may lead to a higher mortality (Holt-Lunstad, Smith, Layton & Brayne, 2010; Mykletun et al., 2009). Importantly, loneliness (Benner, 2011) and depression (Eric Chan, Zadeh, Jahng & Mak, 2008; Grimm, 2007) correlate with poor academic achievements and higher probability of dropping out of university.

Depression and loneliness are distinct but closely related, mutually reinforcing phenomena. On the one hand, negative perception of one's social relationships (loneliness) may form the basis for the development of depressive symptoms, and on the other hand depression may contribute to impairments in social relationships (Joiner & Timmons, 2009), and hence to feelings of loneliness. These complex links between inadequate social relationships and depression are well described in a series of papers by Karen D. Rudolph (2008; 2008; 2009).

The reciprocal effects of depression and loneliness are also reflected in longitudinal studies using contemporary statistical methods, e.g. autoregressive cross-lagged panel models (Geiser, 2013). The findings from these studies lead to a general conclusion that although depression and loneliness mutually affect each other, the impact of loneliness is larger (Luo, Hawkley, Waite & Cacioppo, 2012; Vanhalst, Klimstra, et al., 2012) and more stable (Vanhalst, Luyckx, Teppers & Goossens, 2012). The establishment of the direction of this relationship is not only of great theoretical interest, but has also important practical implications.

Identifying mechanisms linking loneliness and depression may help in designing and implementing different types of effective preventive interventions aiming to alleviate their negative consequences. Therefore, we undertook the present longitudinal study intended to further explore the relationship between loneliness and depression in a sample of university students. We tested the hypothesis that this relationship is bi-directional but the effect of loneliness on depression is stronger than the effect of depression on loneliness.

Methods

Participants

A representative sample of 1021 students from the University of Rzeszów (Poland), randomly selected from the university's student database, anonymously took part in this longitudinal, three phase (December 2011, March 2012, June 2012), Internet survey. The majority of the participants were women (85.2%), single (93.3%), with permanent address in the countryside (60.6%).

Instruments

Loneliness was assessed with the UCLA Loneliness Scale–Revised (UCLA-R) (Russell, 1996; Russell, Peplau & Ferguson, 1978). This 20-item questionnaire

contains 11 negatively worded (lonely) and 9 positively worded (non-lonely) items. Respondents are asked to rate each item on a scale ranging from 1 (never) to 4 (often). After reverse coding of several items, a higher score on the scale reflects more feelings of loneliness. The instrument has been demonstrated to have good construct validity (Russell, 1996). In the present study, Cronbach's alpha coefficient was high ($\alpha \geq 0.95$ in each wave of the research).

Depressive symptoms were measured using the Center for Epidemiologic Studies Depression Scale (CES-D) Iowa short form (Kohout, Berkman, Evans & Cornoni-Huntley, 1993; Radloff, 1977). This self-report instrument consists of 11 items rated on a 4-point Likert scale that ranges from 0 (rarely or none of the time [less than 1 day]) to 3 (most or all of the time [5–7 days]) based on respondents' feelings during the last week. Responses are summed up to create a total score – higher values indicate more severe depression. We excluded from the total score three items concerning social relations of respondents („I felt lonely", "People were unfriendly" and "I felt that people disliked me") in order to avoid item overlap between measures of loneliness and depression (Cacioppo, Hawkley & Thisted, 2010). In our sample, the internal consistency of the scale was adequate ($\alpha > 0.80$ in each wave of the research).

Procedure

In order to examine the longitudinal relationships between loneliness and depression, we used autoregressive cross-lagged modelling with observed variables. In this model, autoregressive and cross-lagged effects can be analyzed (Geiser, 2013). Autoregressive (or autopredictive) effect refers to that part of the model in which a variable is regressed on itself at an earlier time period. Autoregressive part provides information about the relative stability (continuity) of a specified construct over time, or – more precisely – about how much of the variance of the variable X at time T is explained by the same variable measured at time T-1. The first-order autoregressive effects are autoregressive effects between adjacent time points (eg. between T1 and T2 or T2 and T3). Second-order autoregressive effects are autoregressive effects between nonadjacent time points (e.g. between T1 and T3). Cross-lagged effects represent the longitudinal prediction of one construct at time T from the other at time T-1, controlling for the autoregressive prediction of that construct from itself over time.

All the analyses were performed with Mplus 7 (Muthén & Muthén, 1998-2012) and maximum likelihood estimator. Model fit was assessed by several commonly used (Byrne, 2012) fit indices: chi-square test, the Tucker-Lewis index (TLI), the comparative fit index (CFI), and the root-mean-square error of approximation (RMSEA). We assumed that good fit is indicated by *p* value for chi square test greater than 0.05, values greater than 0.95 for TLI and CFI and lower than 0.06 for RMSEA.

Results

The model with second-order autoregressive effects fitted the data well (χ^2 = 5.14, df = 2, p = 0.07, RMSEA = 0.04, CFI = 0.99, TLI = 0.99). Regarding the standardized autoregressive coefficients, a high degree of stability between adjacent time points (first-order autoregressive effects: $UCLA_{T1} \rightarrow UCLA_{T2}$ = 0.83; $UCLA_{T2} \rightarrow UCLA_{T3}$ = 0.53; $CES\text{-}D_{T1} \rightarrow CES\text{-}D_{T2}$ = 0.53; $CES\text{-}D_{T2} \rightarrow CES\text{-}D_{T3}$ = 0.41)

and non-adjacent time points (second-order autoregressive effects: $UCLA_{T1} \rightarrow UCLA_{T3} = 0.32$; $CES\text{-}D_{T1} \rightarrow CES\text{-}D_{T3} = 0.25$) in loneliness and depression was found. All autopredictive effects (including both first- and second-order effects) were statistically significant ($p < 0.05$). Higher values of the regression coefficients for loneliness than for depression indicate that the relative level of loneliness remained more stable than depression throughout the study period.

The analysis of the cross-lagged effects leads to the conclusion that while loneliness predicted later depressive symptoms across both time intervals ($UCLA_{T1} \rightarrow CES\text{-}D_{T2} = 0.19$ and $UCLA_{T2} \rightarrow CES\text{-}D_{T3} = 0.13$), depressive symptoms predicted loneliness only between T2 and T3 ($CES\text{-}D_{T2} \rightarrow UCLA_{T3} = 0.09$), but not between T1 and T2 ($CES\text{-}D_{T1} \rightarrow UCLA_{T2} = 0.02$). Additionally, the estimated standardized cross-lagged effects from loneliness to depression were larger than the corresponding cross-lagged effects from depression to loneliness. Overall, the present cross-lagged study clearly indicates that loneliness predicts later depressive symptoms.

Conclusions

The main purpose of the presented study was to assess the relationships between loneliness and depression using longitudinal data collected from a representative sample of students of the University of Rzeszów (Poland) at three points in time (during one academic year). The obtained results confirm those from previous studies reporting a stronger and more stable effect of loneliness on depression than vice versa. Thus, our findings provide support for the hypothesis that a negative evaluation of one's interpersonal relationships contributes to the development of depressive symptoms (Luo et al., 2012; Vanhalst, Klimstra, et al., 2012; Vanhalst, Luyckx, Teppers, et al., 2012).

A temporally stable influence of loneliness on depression suggests that interventions aiming to reduce the intensity of the feeling of loneliness should result in lowering the severity of depressive symptoms. The earlier empirical analyses showed that diminishing the level of loneliness assessed with the UCLA scale by one standard deviation leads to a reduction in depressive symptoms measured with the CES-D scale by 0.33 standard deviation two years after the intervention has been applied (VanderWeele, Hawkley, Thisted & Cacioppo, 2011).

While interpreting the findings from our study, some methodological limitations should be taken into consideration. First of all, it is worth noticing that we assessed depression with a simple, shortened version of the CES-D scale. Further studies are needed using the full, preferably revised version of this instrument (CES-D-R, Eaton, Smith, Ybarra, Muntaner, & Tien, 2004), which reflects the diagnostic criteria of DSM-IV (American Psychiatric Association, 2000) and does not contain items concerning interpersonal relationships. Furthermore, we did not include in the analyses important variables which may modify the mutual relationships between loneliness and depression, such as e.g. attachment styles, self-esteem, sense of coherence, sociotropy/autonomy orientation, personality features, level of anxiety, perceived stress, stress coping strategies, or spirituality/religiosity.

Given that depression appearing at earlier life stages may lead to the accumulation of negative consequences through adult life, it seems desirable that university counselling services should offer interventions targeting loneliness among

the students in order to help them to adapt to the challenges of the university education and protect them from developing depressive symptoms. However there is some evidence that the interventions addressing maladaptive social cognition are effective (Masi et al., 2011) the trainings based on empowerment paradigm seems to be promising solution. Engaging young people in structured organized activities that link them to each other and to institutions enhances their self-awareness and social achievement, improves mental health and academic performance and reduces possible social exclusion. Also could help students meet their needs for power and belonging, which will positively affect their achievement motivation – hence learning.

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