Loneliness trajectories from middle childhood to pre-adolescence: Impact on perceived health and sleep disturbance

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ABSTRACT

The current study is the first to examine the association between chronic loneliness and perceived health, school absence due to illness, sleep duration and disturbance, in a sample of pre-adolescents ($N = 209$). Loneliness was measured in three collection waves that were 18 months apart and covered the ages 8–11 years. Using growth mixture modeling, two groups were identified with discrete growth patterns of loneliness: (a) relatively high, reducing loneliness (48%), and (b) low, stable loneliness (52%). At age 11 years, those in the relatively high, reducing lonely group reported higher levels of depressive symptoms, poorer general health, took longer to get to sleep, and had greater sleep disturbance than children in the low, stable loneliness group. These findings suggest that there may be long-term health effects of experiencing high loneliness in middle childhood, even when loneliness levels reduce to normal levels at pre-adolescence.

People are motivated to form and maintain social relationships (Baumeister & Leary, 1995). When a person's social relationships do not meet their desired social connection needs, a state of loneliness can occur, which is psychologically painful and distressing (Peplau & Perlman, 1982). People will, therefore, actively seek out others for support and companionship to alleviate this discomfort (Cacioppo et al., 2006). However, when this state of loneliness endures, poor physical and mental health has been reported in adults (Cacioppo & Hawkley, 2003; Luo, Hawkley, Waite, & Cacioppo, 2012). Amongst pre- and early-adolescents, loneliness that is enduring has been implicated in poor mental health (Jones, Schinka, van Dulmen, Bossarte, & Swahn, 2011; Qualter, Brown, Munn, & Rotenberg, 2010). However, it is not yet known whether chronicity of loneliness results in poor physical health at these specific developmental milestones. Therefore, the current study explores whether high loneliness in childhood is associated with markers of poor health in pre-adolescence.

Given evidence that even young children are experiencing loneliness (Cassidy & Asher, 1992; Coplan, Closson, & Arbeau, 2007; Qualter & Munn, 2002), it is important to examine the time course of loneliness before adolescence. Often researchers will simply consider the growth in a given phenomenon in terms of mean average across the whole sample. This mean approach to modeling behavior assumes that the growth trajectories of all individuals in the sample can be adequately described using a single estimate in growth parameters; the assumption is that all participants are drawn from a single population with common experiences. But, this may not be the case, and there is a need to also examine inter-individual differences in loneliness over time. Such an examination with children in America was completed by Jobe-Shields, Cohen, and Parra (2011). They found distinct trajectories of loneliness from 9 to 11 years of age. These three distinct loneliness

trajectories included (1) the majority group that had low, stable loneliness, (2) a group that increased in loneliness, and (3) a final group that decreased in loneliness across middle childhood to pre-adolescence. This study is important as it identifies different subgroups of lonely children/early adolescents and demonstrates that loneliness feelings do not change in the same way for all children. However, growth mixture modeling is a sample-specific technique and replication in other samples is essential. Thus, in the current study, we examine, first, the general course of loneliness from middle childhood to pre-adolescence in a UK sample, but second, we investigate individual differences in the trajectories of loneliness for these children aged 8–11 years examining health outcomes at 11 years of age for each of the trajectories.

Loneliness and health

Research has examined the association between loneliness and poor health in adulthood (Hawkley & Cacioppo, 2003; Steptoe, Owen, Kunz-Ebrecht, & Brydon, 2004). Findings suggest that loneliness is associated with poor health (Hawkley & Cacioppo, 2003), impaired sleep and daytime dysfunction (Hawkley, Preacher, & Cacioppo, 2010), reduced physical activity (Hawkley, Thisted, & Cacioppo, 2009; Page & Hammermeister, 1995), increased blood pressure (Hawkley, Thisted, Masi, & Cacioppo, 2010), and increased hypothalamic–pituitary–adrenal axis (HPA) activity (Adam, Hawkley, Kudielka, & Cacioppo, 2006; Doane & Adam, 2010). Recent trajectory studies in adulthood have demonstrated that it is the long-term experience of loneliness that is associated with poor health (Shiovitz-Ezra & Ayalon, 2010; Tijhuis, de Jong-Gierveld, Feskens, & Kromhout, 1999).

Loneliness and health has also been investigated in adolescents. In line with adult literature, lonely adolescents report lower perceived health status and increased symptoms of psychosomatic manifestations of psychological distress, such as headaches and loss of appetite (Løhre, Lydersen, & Vatten, 2010; Mahon, Yarcheski, & Yarcheski, 2003; Mahon, Yarcheski, & Yarcheski, 1993). What is missing from the adolescent research investigating the association between loneliness and health is an examination of loneliness over time.

The current study examines whether poor health is associated with a particular pattern of loneliness over time. Based on findings in the adult trajectory literature (Shiovitz-Ezra & Ayalon, 2010; Tijhuis et al., 1999) and cross sectional research (Løhre et al., 2010; Mahon et al., 2003; Mahon et al., 1993), we expect a high developmental trajectory of loneliness in middle childhood to pre-adolescence to be associated with poorer health outcomes at pre-adolescence.

Loneliness and sleep

Loneliness is associated with sleep dysfunction in adults: lonely adults spend similar amounts of time in bed to non-lonely peers, but they spend more of this time awake (Cacioppo, Hawkley, Berntson, et al., 2002; Steptoe et al., 2004) and they report more daytime dysfunction linked to poor sleep efficiency (Hawkley, Preacher, et al., 2010; Hawkley, Thisted, et al., 2010). Patterns of sleep dysfunction have also been reported in lonely early and middle adolescents: greater sleep disturbance, such as mid-sleep awakenings, movements during sleep, and soundness of sleep are reported in lonely adolescents in comparison to their non-lonely peers (Mahon, 1994).

Poor sleep has been linked with negative health outcomes and may explain why lonely people have poorer health. Reduced sleep results in decreased endocrine function (Spiegel, Leproult, & Cauter, 1999; Van Cauter et al., 2007), immune system functioning (Redwine, Hauger, Gilin, & Irwin, 2000) and increases the risk of age-related chronic disorders, such as diabetes, obesity, and hypertension (Spiegel et al., 1999). However, previous research which has examined the link between loneliness and sleep efficiency is limited as no differentiation between people experiencing transient and chronic loneliness has been made. As loneliness trajectories differentially predict health outcomes in adults (Shiovitz-Ezra & Ayalon, 2010; Tijhuis et al., 1999) it is important to consider whether different patterns of sleep dysfunction are associated with a specific trajectory of loneliness in childhood and pre-adolescence. The longitudinal design of the current study overcomes this limitation and allows us to examine whether different developmental trajectories of loneliness are associated with sleep dysfunction. Given that previous literature has identified a special significance to loneliness experienced over time, we expect that high levels of loneliness will be associated with higher levels of sleep dysfunction.

Depression

Loneliness tends to be co-morbid with depression (Caccioppo, Hughes, Waite, Hawkley, & Thisted, 2006; Segrin, 1998) and chronic loneliness is longitudinally predictive of depression in adults (Cacioppo et al., 2006) and adolescents (Qualter et al., 2010). Further, like loneliness, depression is associated with poor health related quality of life (Bradley, Burns, Tweed, & Erickson, 2002), cardiovascular disease (Glassman, 2007) and dysregulation of the HPA axis in adults (Pariante & Lightman, 2008). Given the association between depression and poor health it may be the co-morbidity of depression in loneliness that results in the poor health demonstrated in lonely individuals. However, previous research has shown that the health effects of loneliness remain when depression is controlled for (Cacioppo, Hawkley, Crawford, et al., 2002; Hawkley, Burleston, Bernston, & Cacioppo, 2003). Therefore, in the current study, we have controlled for depressive symptoms in our examination of the longitudinal associations between loneliness and health.

Depression has also been associated with sleep difficulties (Thase, Kupfer, Fasiczka, Buysee, Simons, & Frank, 1997; Tsuno, Besset, & Ritchie, 2005). Previous studies, with both adult and adolescent samples, that examine the association between