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Article

The Potential Public Health Relevance of Social Isolation and Loneliness: Prevalence, Epidemiology, and Risk Factors

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Introduction

Our social relationships are widely considered crucial to emotional well-being; however, the possibility that social connection may be a biological need, vital to physical well-being and even survival, is commonly unrecognized. Still, extreme examples clearly illustrate infants in custodial care who lack human contact fail to thrive and often die (UNICEF, 1997), and social isolation is so distressing that solitary confinement has been used as a form of punishment and even torture. Yet an increasing portion of the U.S. population now experiences isolation regularly. News headlines from many nations, including the United States, Germany, Australia, and the United Kingdom, suggest that we are facing a loneliness epidemic (http://www.campaigntoend-loneliness.org/loneliness-research, http://www.spiegel.de/international/germany/germany-faces-epidemic-of-lonely-and-isolated-seniors-a-876635.html, https://startsat60.com/health/new-survey-reveals-australias-loneliness-epidemic, http://www.huffingtonpost.com.au/tania-de-jong/loneliness-is-the-global-epidemic-of-our-times), leading to the important question of whether there is evidence to support such a claim and, if so, whether we are facing a public health crisis. Recently my work has systematically examined and summarized the available evidence supporting the public health prioritization of social connections (Holt-Lunstad, Robles, & Sbarra, 2017). Here I will summarize data on prevalence rates, epidemiological evidence of risk, and potential risk factors.

Prevalence

According to one estimate, more than eight million older adults are affected by isolation (AARP, n.d.). However, this prevalence estimate is likely a conservative estimate given it is restricted to a specific age range and a narrow definition of social disconnection. Social isolation and loneliness are distinct experiences, but both are characterized by a lack of social connection. When we consider social connection more broadly, as a multi-dimensional construct (Holt-Lunstad et al., 2017)—including the extent to which relationships are present in our lives (e.g., structural aspects of relationships), the extent others can be relied upon (e.g., functional aspects of relationships), and our satisfaction with them (e.g., quality of relationships)—the prevalence of U.S. adults lacking social connection may be much larger.

A precise estimate of the prevalence of adults in the United States that lack social connection is difficult, given that assessments are not currently systematically and routinely collected. However, some demographic characteristics that are indicators of social disconnection are routinely collected as part of census data. These data show that over a quarter

of the U.S. population, and 28% of older adults, live alone (Vespa et al., 2013). More than half the U.S. adult population is unmarried, of which 20% have never married (Vespa et al., 2013). Further, approximately 40% of first marriages and 70% of remarriages end in divorce (United States Census Bureau, 2011). While such demographics are relatively crude indicators of social disconnection (e.g., someone who is single or lives alone may still have a wide social network) they are nonetheless robust predictors of health outcomes and thus should still be taken seriously.

Data collected from nationally representative samples provide additional estimates of social disconnection that go beyond demographics. For example, more than one third of adults over age 45 report being lonely (Wilson & Moulton, 2010), equating to over 42 million older adults who experience chronic loneliness. Even among those who are married, over 30% of relationships are severely discordant (Whisman, Beach, & Snyder, 2008). Further, the majority of American adults do not participate in any kind of social group (Pew Research Center, 2009). Less than half of adults participate in a local religious group, and less than a quarter of adults participate in a social club, community group, sports league, or other local group (Pew Research Center, 2009). Taken together, these data suggest that a significant portion of the population, and older adults in particular, may be socially isolated/disconnected.

Is there evidence that social isolation, loneliness, and relationship distress are increasing? In other words, are we becoming more socially disconnected? To address this question, we can look to these different sources of data to determine whether isolation (or social disconnection) is increasing to determine the degree of urgency of addressing this issue. For example, the average household size has decreased and there has been a 10% increase in those living alone (United States Census Bureau, 2011). The number of single occupancy households worldwide is now greater than ever in recorded history (Euromonitor International, 2014). Further demographic trends show reductions in marriage rates, smaller household sizes, and increased rates of childlessness (United States Census Bureau, 2011), suggesting fewer familial sources of support. Decreased community involvement is evidenced by falling rates of volunteerism (U.S. Department of Labor, Bureau of Statistics, 2016) and an increasing percentage of Americans reporting no religious affiliation (Pew Research Center, 2015). Over the past 2–3 decades, the average size of social networks has declined by one-third and social networks have become less diverse (Pew Research Center, 2009). Given evidence to suggest that that social networks shrink with age (Wrzus, Hanel, Wagner, & Neyer, 2013), the prevalence of loneliness is estimated to increase with increased population aging. These trends suggest that Americans are becoming less socially connected. With dramatic shifts in the use of technology as a means of connecting socially, it is currently not adequately understood whether such shifts will exacerbate such trends among future generations.

Epidemiological Evidence of Public Health Relevance

To estimate the influence social connection may have on longevity, or the extent to which social disconnection contributes to risks of premature mortality, my colleagues and I have conducted two meta-analyses (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015; Holt-Lunstad, Smith, & Layton, 2010). The first meta-analysis examined the influence of social connections, including a variety of indicators. Evidence from 148 independent prospective studies, including more than 300,000 participants, revealed that greater social connection is associated with a 50% reduced risk of early death (Holt-Lunstad et al., 2010). The second meta-analysis examined deficits in social connection (social isolation, loneliness, living alone). Cumulative evidence from 70 independent prospective studies (Holt-Lunstad et al., 2015) and including over 3.4 million participants indicates that each risk factor (social isolation, loneliness, living alone) has a significant and equivalent effect on risk for mortality, which exceeds the risk associated with obesity (Flegal, Kit, Orpana, & Graubard, 2013). Both meta-analyses also account for potential alternative explanations (e.g., age and initial health status), and thus rule out reverse causality. Together, these data demonstrate that social disconnection is indeed a severe problem.

The overall magnitude of effect of social connection can be benchmarked against other well-established lifestyle risk factors. Lacking social connection carries a risk that is comparable, and in many cases, exceeds that of other well-accepted risk factors, including smoking up to 15 cigarettes per day, obesity, physical inactivity, and air pollution (Holt-Lunstad et al., 2010). There are now several meta-analyses examining various aspects of social connection (Roelfs, Shor, Kalish, & Yogev, 2011; Shor & Roelfs, 2015; Shor, Roelfs, Bugyi, & Schwartz, 2012). Across the studies, a variety of measures were used, and some were more predictive of longevity than others. Despite the variability in strength of magnitude, there is evidence across social connection indicators of a significant effect on mortality risk that is comparable to other factors that currently receive substantial public health attention and resources (Holt-Lunstad et al., 2017). Further, many of the studies included in the meta-analyses were restricted to disease-related mortality, and thus do not include deaths due to violence or suicide. Therefore, the effect may represent a conservative estimate. Prevalence rates, or the proportion of the population affected, are also comparable with well-established risk factors (Holt-Lunstad et al., 2017).

There is also evidence that social connection influences a variety of mental and physical health outcomes. For example, those who are isolated are at increased risk for depression, cognitive decline, and dementia (Cacioppo & Cacioppo, 2014; Global Council on Brain Health, 2017). Social isolation and loneliness also adversely influence activities of daily living that influence functional status among

older adults (Shankar, McMunn, Demakakos, Hamer, & Steptoe, 2017). There is also substantial evidence that social relationships can influence health-related behaviors such as medication/treatment adherence (DiMatteo, 2004a, 2004b), and have a direct influence on health-relevant physiology such as blood pressure, immune functioning, and inflammation (Hostinar, Sullivan, & Gunnar, 2014; Robles & Kiecolt-Glaser, 2003; Uchino, 2006). While each of these examples are important endpoints themselves, each has also been implicated as pathways to mortality risk. Thus, we also have substantial evidence supporting psychological, behavioral, and biological pathways by which social connections influence risk for premature mortality.

Risk Factors

Can we identify those who are at greatest risk? It is important to note that the overall effect of lacking social connection on risk for mortality can be applied quite broadly: robust effects were found across age, gender, health status, and cause of death (Holt-Lunstad et al., 2010). Further, the protective effect of social connection—or, conversely, the risk of disconnection—appears to be continuous: there is evidence of a dose-response effect such that for every level of increase in isolation there is an increase in risk (Yang et al., 2016). This dose-response effect held across indicators of structural, functional, and quality of relationships. Thus, it is important to acknowledge data supports treating this as a continuous issue, not a dichotomous issue. Nevertheless, there are factors that may contribute to increased risk.

Living alone, being unmarried (single, divorced, widowed), no participation in social groups, fewer friends, and strained relationships are not only all risk factors for premature mortality (Holt-Lunstad et al., 2010), but also increase risk for loneliness. Retirement and physical impairments (e.g., mobility, hearing loss) may also increase risk for social isolation (AARP, n.d.). Although few studies examined multiple components of social connection in the same sample, measures of complex social integration were the strongest predictors of mortality; thus, presumably those who lack connection on more than one indicator would carry greater risk.

Social isolation and loneliness may be particularly important among older adults. Chronic exposure to either protective or risk factors will be more pronounced as individuals age. For example, the effects of social disconnection (neglect, strain, isolation) or connection (supportive, stable family environment) that occurred earlier in life will become more apparent later in life. Further, there are a number of important life transitions among older adults that may result in disruptions or decreases in social connection (e.g., retirement, widowhood, children leaving home, age-related health problems). A growing body of research shows that health problems in adulthood and older age stem from conditions earlier in life, suggesting the importance of preventative efforts (World Health Organization, 2011).

Conclusion

There is now substantial evidence documenting that being socially connected significantly reduces risk for premature mortality, and lacking social connection significantly increases risk, even more than the risks associated with many factors that currently receive substantial public health attention and resources (e.g., obesity, physical inactivity, air pollution). Further, social isolation influences a significant portion of the U.S. adult population and there is evidence the prevalence rates are increasing. With an increasing aging population, the effect on public health is only anticipated to increase. While many U.S. health organizations have been slow to recognize this, the World Health Organization (n.d.) explicitly recognizes the importance of social connections. Indeed, many nations around the world now suggest we are facing a loneliness epidemic. The challenge we face now is what can be done about it. Sustained efforts, attention, and resources are needed to adequately address this important issue.

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