Economic Aspects of Loneliness in Australia

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Abstract

We highlight the problem of loneliness, and argue that it is not only a public health issue but also an economic problem. We provide a brief review of findings from the key literature on the associations between loneliness, mental and physical health, and healthcare costs; and then present some evidence on its trends, the extent of socioeconomic inequalities and its links with health and healthcare usage, in Australia. We hope to encourage further economics research on loneliness, and related issues of social isolation and poor social support, to aid the design of policies and interventions to reduce loneliness.

1. Introduction

Loneliness is now an increasingly global problem. It has been suggested that the prevalence of loneliness is increasing, driven by more people living alone, longer and with chronic health conditions (Cacioppo and Cacioppo 2018a). Some commentators have even suggested that there is an epidemic of loneliness in many countries (for example, Murthy 2020; Ninivaggi 2019; Relationships Australia 2018). It is therefore no surprise that loneliness is now (or strongly advocated to be) part of national public health policies (for example, Holt-Lunstad, Robles and Sbarra 2017; National Academies of Sciences, Engineering, and Medicine 2020; Public Health England 2019; United Kingdom Government 2018, 2020a).

Loneliness is not just about the availability or frequency of social interactions; rather, it is a discrepancy in what an individual perceives as their current situation, relative to their desired combination of the frequency and quality of their interactions (Peplau and Perlman 1982; Yang and Victor 2011). Loneliness is a distressing and pervasive experience (Matthews et al. 2019a), and has been described as social pain (Cacioppo et al. 2006). It can thus be thought of as a measure of scarcity, that is, having less than you feel you need (Mullainathan and Shafir 2013). Importantly, with regard to policy responses, loneliness is not simply the same as social isolation: some people appreciate solitude, while others can be surrounded by people but still feel lonely. Indeed the correlation between loneliness and social isolation is moderate at best (Moorer and Suurmeijer 2001; Newall and Menec 2017).

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Here we argue that besides being a public health issue, loneliness is an economic problem. We provide a brief review of the most salient literature, and then present evidence on trends in loneliness for different age groups, and the extent of the socio-economic gradient in loneliness. We also illustrate the strong relationship between loneliness and mental health in Australia, as well as how it relates to physical health and healthcare usage. Our aim is to encourage more economics research on loneliness, particularly relating to identifying causal relationships, and undertaking rigorous economic evaluations of policies and interventions.

2. Background

In a highly-cited meta-analytic review of nearly 150 studies from a decade ago (Holt-Lunstad, Smith and Layton 2010), the risk of premature mortality associated with loneliness was found to be stronger than the risks associated with obesity and physical inactivity, and on par with the risk of smoking (also see Flegal et al. 2013; Holt-Lunstad et al. 2015). An extensive literature has also documented consistent associations between loneliness and mental and physical health: studies have revealed that lonelier individuals are at higher risk of depression, suicidal ideation and attempts, and even cardiovascular disease, cognitive decline and inflammation (Cacioppo and Cacioppo 2014, 2018b; Cacioppo and Hawkley 2009; Cacioppo, Capitanio and Cacioppo 2014; Courtin and Knapp 2017; Holt-Lunstad et al. 2015; Leigh-Hunt et al. 2017; Steptoe et al. 2013; Stickley et al. 2013; Stickley and Koyanagi 2016; Valtorta et al. 2016). Indeed, in the Productivity Commission’s recent Inquiry into Mental Health in Australia (2020), the relationship between loneliness and mental health is highlighted; along with how these can be mutually reinforcing, where loneliness is associated with an increased risk of mental illness, but individuals with severe mental illness also tend to be lonelier. In Cacioppo and Hawkley (2003), some of the pathways through which loneliness can lead to long-term health conditions is discussed: (i) direct effects (that is, affecting health by influencing lifestyle, health behaviours, and healthcare usage), (ii) heightened or excessive response to stress, and (iii) poor physiological repair and maintenance processes (for example, lack of sleep).

These findings are important because the prevalence of loneliness is high. While the statistics vary considerably across surveys and measures, it is clear that many people in the developed world experience loneliness on a regular basis. In a survey of 20,000 adults in the United States, a staggering 46 per cent reported sometimes or always feeling alone, 43 per cent said that they felt isolated from others, and only 53 per cent reported having meaningful social interactions (Cigna 2018). A recent Australian survey found that 51 per cent of adults feel lonely for at least one day per week, 28 per cent feel lonely for three or more days per week, and nearly 55 per cent feel that they lack companionship at least some of the time (Lim 2018). Similarly, a recent survey from the United Kingdom found that 31 per cent feel lonely sometimes, and 17 per cent feel lonely often or all the time (Ibbetson 2019).

It is often thought that loneliness is a problem only for older individuals, but this is not the case. Loneliness does not discriminate, and anyone can feel lonely at any point in their lives. Loneliness is therefore a health concern for all ages (Patterson and Veenstra 2010), and survey data reveal a high prevalence of loneliness from childhood to old age (Qualter et al. 2013, 2015; Yang and Victor 2011). In fact, evidence suggests that loneliness is most common among young adults. For example, in the United Kingdom, 31 per cent of those aged 18–24 years report feeling lonely often or all the time, compared with 14 per cent of those aged 45–54 and 9 per cent of those aged 55 and over (Ibbetson 2019). Similarly, using British cohort data Matthews et al. (2019a) found that by age 18, 23–31 per cent of respondents have experienced feelings of loneliness some of the time, and 5–7 per cent reported feeling lonely often.
The evidence outlined above highlights the importance of loneliness as an economic issue to be studied. This is because the associated costs to healthcare systems are substantive (Mihalopoulos et al. 2020), and governments have set aside funds in order to support preventive strategies (for example, Australian Government 2020; United Kingdom Government 2020b). The COVID-19 pandemic, and resulting policy responses pertaining to national lockdowns and social distancing, have also exacerbated loneliness (although evidence on its persistence and long-term consequences is still in its early days) (for example, Australian Bureau of Statistics 2020; Bu, Steptoe and Fancourt 2020a, 2020b; Buecker et al. 2020; Killgore et al. 2020), increasing the urgency of this body of research. However, the vast majority of the loneliness literature, including its evolutionary origins, psychological mechanisms, risk factors, trends, related health risks and potential interventions, lies predominantly in the fields of psychology, epidemiology and public health (see for a review Lim, Eres and Vasan 2020); there is additionally a growing literature on the biological and genetic bases of loneliness (for example, Cacioppo, Capitanio and Cacioppo 2014; Cole et al. 2015; Day, Ong and Perry 2018; Spithoven et al. 2019).

In sharp contrast, economics research on loneliness is currently scant, with virtually no studies published in leading general or field journals. Moreover, Niedzwiedz et al. (2016, p. 25) noted that, ‘a disadvantaged socio-economic position is linked with loneliness, but in general, studies have rarely adopted an inequalities lens’. However, we would argue that the application of economic theories (for example, relating to the development of non-cognitive skills, the role of education, network formation and peer effects), econometric models (for example, dynamic panel models, spatial econometrics, IV and RDD), and economic evaluation methods, can help provide a stronger understanding of the socioeconomic determinants (for example, the pathways between poverty and loneliness, and the impact of financial events such as redundancy), dynamics and causal effects of loneliness over the life course. In a review of the literature by Courtin and Knapp (2017, p. 799), despite the sizable literature on loneliness, the authors called for more research on the causal pathway that, ‘better links the evidence on the risk factors for loneliness and social isolation and the evidence on their impact on health’, to inform the development of appropriate interventions.

Upon reviewing the literature on the economic costs of loneliness, Mihalopoulos et al. (2020) concluded that there is a lack of evidence calculating the economic costs of loneliness, and on cost-effective interventions to prevent or address loneliness and social isolation. The few studies that exist have focused on older adults, for whom a cost-effective intervention may be very different in nature from interventions targeted at younger adults (who may experience a considerable change in their social networks when leaving full-time education, leaving their parental home and entering the workforce), individuals suffering from long-term mental health conditions (given that loneliness and mental health symptoms can be mutually reinforcing), and those living in rural and regional areas (Productivity Commission 2020; Victorian Royal Commission 2019).

The costs of loneliness to employers can also be substantial, and this is an important topic for future research. Although difficult to calculate, a recent report found the cost of loneliness to employers to be £2.5 billion per year in the United Kingdom, with the main direct costs resulting from increased sickness absence, employees’ caring responsibilities for people whose health conditions can be attributed to loneliness, loss of productivity and increased voluntary staff turnover resulting from lower job satisfaction (Michaelson, Jeffrey and Abdallah 2017).

3. Who is Lonely?

As already noted, it is often thought that loneliness is prevalent only among older individuals, but studies and recent surveys have shown this is not true. Young adults are just as likely—if not more likely—to be lonely as older individuals (Barreto et al. 2020;
Luhmann and Hawkley 2016). Studies have also demonstrated how associations between loneliness and poor health are already present among adolescents and young adults (Hämmig, 2019; Yang et al. 2016). Generally, there is little evidence for a gender difference in loneliness (Mund et al. 2019), though this may depend on the age group observed (Lasgaard, Friis and Shevlin 2016). An important consideration, nonetheless, is that males may be more likely to underreport loneliness when asked directly (that is, using the term ‘lonely’; Borys and Perlman 1985; von Soest et al. 2020).

A substantial literature has discussed individual correlates of loneliness, finding consistent associations between loneliness and living alone, as well as widowhood, migration and disability statuses, among others (see for a review Lim, Eres and Vasan 2020). As for its socioeconomic correlates, we are unaware of any causal evidence in the literature, though a number of existing studies have discussed these associations using descriptive analysis or simple multivariate regression models. The literature reveals educational attainment, employment, income and wealth to be negatively associated with loneliness (for example, Hansen and Slagsvold 2016; Hawkley et al. 2008; Lasgaard, Friis and Shevlin 2016; Luhmann and Hawkley 2016; Menec et al. 2019; Niedzwiedz et al. 2016; Pinquart and Sorensen 2001; Routasalo et al. 2006; Savikko et al. 2005; Victor and Yang 2012). People who work in lower-status occupations (Finlay and Kobayashi 2018), receive disability pensions (Lasgaard, Friis and Shevlin 2016), report financial difficulties (Ausín, Muñoz and Castellanos 2017; Fokkema and Naderi 2013; Scharf and de Jong Gierveld 2008; Wen and Wang 2009) or are experiencing a worsening of their financial situation (de Jong Gierveld, Keating and Fast 2015), tend to report higher levels of loneliness. Loneliness is also higher in areas of socioeconomic deprivation (Beere, Keeling and Jamieson 2019; Lasgaard, Friis and Shevlin 2016; Routasalo et al. 2006; Savikko et al. 2005; Scharf and de Jong Gierveld 2008), as well as in rural and regional areas (Victorian Royal Commission 2019).

The literature does offer some heterogeneity in these findings, particularly by age: for example, education is associated with lower loneliness during young adulthood, but not later in life (Lasgaard, Friis and Shevlin 2016). Higher income is associated with lower loneliness for all age groups, but this association is strongest in mid-adulthood (Luhmann and Hawkley 2016). While among middle-aged adults full-time employment is associated with lower loneliness, this is not significant for older adults (Hansen and Slagsvold 2016; Luhmann and Hawkley 2016), whereas among younger adults, full-time employment is associated with higher loneliness (Cree and Reynolds 2001; Hansen and Slagsvold 2016). For young adults, some studies have failed to find differences in loneliness by parental socioeconomic background or neighbourhood deprivation (Matthews et al. 2019a, 2019b).

4. Trends and the Socioeconomic Gradient in Loneliness in Australia

Here we present descriptive evidence on trends and the extent of socioeconomic inequalities in loneliness, as well as the link between loneliness, health and healthcare usage. Our intention is to encourage future research that aims to better understand why these exist, and subsequently research on the effective design of policy and interventions to tackle loneliness that do not lead to a further widening of inequalities.

The Household, Income and Labour Dynamics in Australia (HILDA) Survey is a powerful tool for investigating the socioeconomic aspects of loneliness. Uniquely, the survey has tracked a large, nationally representative sample of adults for up to 19 years (2001–2019), where experiences of loneliness and social support, and information on aspects of social isolation, are captured every year. In particular, respondents are asked to rate the extent to which they agree with the statement ‘I often feel very lonely’ on a Likert scale between 1 ‘strongly disagree’ and 7 ‘strongly agree’. Here we provide some statistics to highlight the prevalence of loneliness and its trends by age and gender, and

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illustrate the difference in loneliness by levels of education, household income and local area socioeconomic disadvantage. We define loneliness as reporting a value of 5, 6 or 7 (agree that they are often lonely). When pooling all the waves of data for those aged 15–85 years, using all observations with non-missing loneliness responses, we find that 18.8 per cent of female respondent observations \((n = 134,412)\) and 16.1 per cent of male respondent observations \((n = 119,035)\) fall into our definition of loneliness (all statistics in this note are weighted using population weights).

4.1 Trends in Loneliness

It has been suggested that the prevalence of loneliness is increasing, but evidence on this matter has been mixed. Longitudinal surveys, including HILDA, are often limited in their ability to firmly establish trends, given new entrants to the panel and sample attrition. Nevertheless, Figure 1 shows the proportion of female and male respondents reporting to be lonely, by four broad age groups (15–24; 25–44; 45–64; 65–85) for each survey year (2001–2019). We observe that females have a higher prevalence of loneliness than males within each age group and in every year. Worryingly, loneliness is a problem not only for older individuals in Australia, among whom around 16.1 per cent are reportedly lonely; around 15–20 per cent of those aged 15–24 years can also be categorised as lonely. While we see no clear pattern for older males, there is a continual decline in the proportion of female respondents aged over 65 years reporting to be lonely. In contrast, since around 2013, those aged 15–24 have displayed an increase in the proportion agreeing with the statement that, ‘I often feel very lonely’. Important research questions to address include: why are so many young people reporting to be lonely, in a rich country such as Australia? To what extent do lonely youth become chronically lonely adults? How strong is the intergenerational correlation in loneliness, and what are its causal pathways? As

**Figure 1** Proportion Reporting Loneliness by Age Group and Gender Over Time

*Note:* Figure plots survey-weight weighted average proportion of females in Panel A and males in Panel B that report to feel often very lonely (5,6,7), over years and by age groups.

![Figure 1](image-url)

Source: Household, Income and Labour Dynamics in Australia (HILDA) v19, 2001–19, own calculations.
previously noted, the most effective policy responses are likely to differ when aimed at reducing loneliness in the young relative to the old.

4.2 Socioeconomic Gradients in Loneliness

Figures 2 (females) and 3 (males) show the proportion of respondents (with 95 per cent confidence bands from clustered standard errors) reporting to be lonely, by highest education level, equivalised disposable household income quintile, and SEIFA decile (that is, a measure of local area socioeconomic disadvantage). These socioeconomic gradients are substantial. Around 15 per cent of females and 13 per cent of males with a college-level education report loneliness, but this is about 70 per cent higher among respondents who did not complete high school. The difference in loneliness between respondents in the lowest and highest equivalised household income quintiles, and the difference between those living in disadvantaged and advantaged areas, is even greater. When we fit linear regression models of loneliness conditioning on age, marital status, education, household income and SEIFA decile, significant and substantive socioeconomic gradients remain. For example, compared with respondents in the lowest household income quintile, those in the highest quintile show a lower probability of reporting loneliness by 5.8 percentage points for females, and by 6.1 percentage points for males. Corresponding differences between respondents residing within the lowest and highest SEIFA decile areas are 7.1 and 5.6 percentage points for females and males, respectively, after controlling for education and income. To provide some perspective to these gradients, the ‘benefit’ of being married is a reduced probability of reporting loneliness by 11.2 percentage points for females, and by 14.1 percentage points for males.

What explains these socioeconomic gradients? There is no doubt that these are only raw rather than causal relationships: we can certainly think of a myriad of potential confounders linking both socioeconomic status and loneliness (for example, family background, mental health, personality traits, etc.).
preferences), and the direction of causality is not clear. However, we would argue that economists, with a focus on using novel and innovative methods to identify causal effects, can help provide answers to important policy-relevant questions. As examples, do financial shocks impact on loneliness, such as through reduced consumption of social activities? How does the loss of workplace social interactions following redundancy affect loneliness? What is the causal effect of retirement on loneliness? How strongly are local area amenities, such as parks, sports facilities, clubs and libraries, linked to loneliness, after accounting for selection into residential areas?

4.3 Social Isolation and Lack of Social Support

Loneliness is not the same as social isolation, which is not the same as lacking social support. Social isolation can be measured in many ways, but here we define it as living alone, and only reporting to ‘get together socially with friends or relatives not living with you’ less than once per week. Using this definition, 5.1 per cent of females, and 6.7 per cent of males, are socially isolated. To measure social support, we use responses to the statement, ‘I have no one to lean on in times of trouble’, which is answered on a scale between 1 ‘strongly disagree’ and 7 ‘strongly agree’, as is the case for the loneliness statement. Following our definition of loneliness, we define a lack of support as agreeing with this statement (that is, reporting 5, 6 or 7). Some 11.1 per cent of females, and 12.6 per cent of males, report lacking support in times of trouble.

Among females, the correlation between loneliness and social isolation is 0.09 (0.14 for males). Between loneliness and lack of social support, the correlation is 0.31 (0.33 for males), whereas between social isolation and lack of support, the correlation is 0.09 (0.11 for males). For females who report to be lonely (vs. not lonely), 8.1 per cent (3.4 per cent) are socially isolated, and 31.2 per cent (6.2 per cent) report a lack of social support. The corresponding percentages for males are 12.6 per cent (4.0 per cent) and 37.4 per cent (7.8 per cent). Therefore, based on these measures, loneliness appears more strongly linked (that is, the differential is largest) to lack of social support than social isolation in Australia. These relationships are important when considering potential policies: loneliness,

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social isolation and lack of social support may not be highly correlated, but these simple correlations suggest that focusing on quality rather than quantity of relationships might be more effective as a policy focus for reducing loneliness from a social interaction perspective.

We reproduce the socioeconomic gradients for social isolation in Figures 4 and 5, and the corresponding gradients for lack of social

Source: Household, Income and Labour Dynamics in Australia (HILDA) v19, 2001–19, own calculations.

Figure 4 Proportion of Socially Isolated Females by Measures of SES
Note: See Figure 2 for notes, analogous construction for proportion of socially isolated, that is, living alone and getting together socially less than once a week, number of total observations are Panel A, N = 149,169, Panel B, N = 155,729 and Panel C, N = 155,691.

(A) by education categories
(B) by equiv. disposable hh income quintiles
(C) by sex and decades

Source: Household, Income and Labour Dynamics in Australia (HILDA) v19, 2001–19, own calculations.

Figure 5 Proportion of Socially Isolated Males by Measures of SES
Note: See Figure 4 for notes, analogous construction for males, number of total observations are Panel A, N = 135,028, Panel B, N = 145,825 and Panel C, N = 145,784.

(A) by education categories
(B) by equiv. disposable hh income quintiles
(C) by sex and decades

Source: Household, Income and Labour Dynamics in Australia (HILDA) v19, 2001–19, own calculations.
Overall, it is clear that in Australia, low education, low household income and residing in a more disadvantaged area are strongly linked to an increased likelihood of being socially isolated and lacking social support. However, disentangling the causal pathways and dynamics of loneliness, social isolation and social support proves to be a major empirical challenge, which we hope can be addressed using future developments in econometric modelling.

**Figure 6** Proportion of Females with Reporting No Social Support by Measures of SES  
*Note:* See Figure 2 for notes, analogous construction for proportion of social support, that is, having no one to lean on in times of trouble (5,6,7), number of total observations are Panel A, \( N = 134,252 \), Panel B, \( N = 134,286 \) and Panel C, \( N = 134,252 \).

**Source:** Household, Income and Labour Dynamics in Australia (HILDA) v19, 2001–19, own calculations.

**Figure 7** Proportion of Males Reporting No Social Support by Measures of SES  
*Note:* See Figure 6 for notes, analogous construction for males, number of total observations are Panel A, \( N = 118,885 \), Panel B, \( N = 118,957 \) and Panel C, \( N = 118,929 \).

**Source:** Household, Income and Labour Dynamics in Australia (HILDA) v19, 2001–19, own calculations.
Finally, we provide evidence on the links between loneliness, health and healthcare usage in the Australian context, by age group and gender. Our two health measures are the Mental Health and Physical Functioning scale scores (from the 36-item Short-Form Health Survey), both increasing in health status on a 0–100 range. The mental health scale captures symptoms of anxiety and depression, as well as positive affect, whereas the Physical Functioning scale reflects the extent to which individuals are limited by their health in performing an array of physical activities, such as walking and bathing. Evidence for the reliability and validity of these scales in the HILDA sample can be found in Butterworth and Crosier (2004).

To observe healthcare usage, we measure the number of annual doctor visits and the number of annual hospital admissions, which are important when considering the costs of loneliness to the healthcare system. Information on doctor visits is available in the 2009, 2013 and 2017 HILDA waves, and that for hospital admissions is available in the 2004, 2009, 2013 and 2017 waves. Separate graphs are presented for females (Figure 8) and males (Figure 9), by four broad age groups (15–34, 25–44, 45–64 and 65–85).

These figures highlight a number of interesting differences. First, the link between loneliness and mental health is stark for males and females, particularly so for younger age
groups. The gap in mental health by loneliness status—though always strong—diminishes with age. In contrast, differences in physical functioning by loneliness status are much smaller, but increasing with age. With regard to healthcare usage, as expected we observe increasing doctor visits and hospital admissions with age, but from the young to the old, being lonely is markedly related to greater healthcare usage. However, it would be an enormous challenge to identify the costs to the healthcare system that can be attributable only to loneliness, and thus saved by reducing its prevalence and severity. Besides the costs of mental and physical health more generally, there is a plethora of other potential risk factors, including lifestyle and health behaviours, that are likely to confound this relationship.

5. Conclusion

Loneliness is not only a major public health problem but also an economic issue. While there is currently little research in economics on loneliness, with virtually no studies published in leading general or field journals, we believe that economists have the insights (theories), tools and skills to contribute to a better understanding of its socioeconomic determinants, economic consequences and costs, in order to help drive the policy debate. There is currently a paucity of evidence on the causal mechanisms by which chronic socioeconomic disadvantage, in childhood and adulthood, impacts on the quantity and quality of social relationships; on the socioeconomic pathways linking loneliness to health, such as through labour supply decisions, unemployment, income and consumption; on

Source: Household, Income and Labour Dynamics in Australia (HILDA) v19, 2001–19, own calculations.
the economic implications of loneliness, for purposes of cost estimations; and even on the cultural heterogeneity in these relationships, such as between individualist and collectivist groups. In addition, the literature still lacks economic evaluations of interventions conducted using high-quality designs, including randomised controlled trials.

Endnotes

1. Similar statistics can be found in the recent Productivity Commission Report (2020).
2. Estimates available upon request.
3. Loneliness and social isolation have shown independent associations with mortality and poor health (for example, Beller and Wagner 2017; Coyle and Dugan 2012; Ge et al. 2017; Hakulinen et al. 2018; Newall and Menec 2017; Pressman et al. 2005; Shankar et al. 2011; Steptoe et al. 2013).

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