American Psychological Association

Psychology and Aging

© 2019 American Psychological Association
0882-7974/19/$12.00

2019, Vol. 34, No. 8, 1134–1143
http://dx.doi.org/10.1037/pag0000357

Loneliness Declines Across Birth Cohorts: The Impact of Mastery and Self-Efficacy

Bianca Suanet and Theo G. van Tilburg
Vrije Universiteit Amsterdam

In the public debate and media, it has been suggested that there currently is a "loneliness epidemic" in Western societies. To shed light on this pressing issue we investigated whether age-related changes in loneliness found in early studies also pertain to later-born cohorts, and whether mastery and self-efficacy have become increasingly important for explaining differences in loneliness. We used data from the Longitudinal Aging Study Amsterdam. Observations were of 4,880 Dutch people aged 55 and older between 1992 and 2016. We employed multilevel regression analyses incorporating birth cohort while controlling for age. Older adults were less lonely in later-born cohorts, although the effect size was small (d = .11 at Age 65 comparing Cohorts 1918–1927 and 1948–1957; and d = .11 at Age 75 comparing cohorts 1908–1917 and 1938–1947). Furthermore, we found a sharp age-related increase in loneliness; older people were lonelier than younger people (d = .83 comparing Ages 75 and 95 in Cohort 1908–1917; and d = .21 comparing Ages 55 and 78 in Cohort 1938–1947). Age effects thus clearly outweigh cohort effects in size. Increasing levels of mastery and self-efficacy across birth cohorts explain the observed cohort-related decline in loneliness. Mastery contributes similar to the effect size of partner status in the explanation of differences in loneliness. We conclude that there is no evidence of a loneliness epidemic among later-born cohorts of older adults relative to earlier-born cohorts. Also, mastery and self-efficacy are crucial to fully understanding loneliness in today's society.

Keywords: cohort differences, loneliness, mastery, self-efficacy

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Recently much attention has been devoted to loneliness in the media and in public debates. Earlier, Killeen (1998) already stated that we are facing a 'loneliness epidemic' in Western societies. However, the extent to which loneliness is becoming a larger problem in later-born cohorts of older adults is currently unclear. Loneliness is a subjective negative feeling originating from perceived deficits in social relationships (de Jong Gierveld & van Tilburg, 2010). Loneliness is a social pain similar to physical pain, resulting in a stimulus to reconnect with others (Cacioppo et al., 2006). There is a sociopsychological undercurrent to loneliness, because lonely people often describe themselves as feeling empty inside and disconnected from others (Weiss, 1973). Previous studies have found that loneliness is stable across old age until the age of 75–80, after which loneliness increases steeply (e.g., Aartsen & Jylhä, 2011; de Jong Gierveld, 1998). Loneliness has been linked to adverse outcomes among older adults, such as depressive symptoms (Cacioppo, Hawkley, & Thisted, 2010), poor physical health (Cornwell & Waite, 2009), and early mortality (Holt-Lunstad, Smith, Baker, Harris, & Stephenson, 2015; Holwerda et al., 2016).

Until now, the impact of psychological resources on loneliness has received insufficient attention in the literature, although it is likely that psychological resources have strong impacts given the subjective nature of loneliness. The few studies that have looked at psychological resources as determinants of loneliness have showed that control beliefs such as perceived low mastery and self-efficacy are robust predictors of loneliness among older adults (Cohen-Mansfield & Parpura-Gill, 2007; Fry & Debats, 2002; Newall et al., 2009; Nicolaisen & Thorsen, 2012). Control beliefs denote the degree to which older adults feel they are in charge of their (social) environment and able to change it. It makes sense for these control beliefs to impact older adults' relationship behavior as well as their evaluation of social relationships, which may be expressed as loneliness.

Although mastery and self-efficacy are not the only psychological resources that impact loneliness, they are likely to be crucial for understanding loneliness in individualized societies. In recent decades, traditional communities, such as neighborhoods, churches, and extended families that habitually provided people with social integration have lost strength (Giddens, 1990). These changes make individuals' management of their social lives more important than before (Allan, 2001). In such a context, older adults in later-born cohorts might have more need to develop mastery and self-efficacy to sustain satisfying relationships. Previous studies have shown that older adults from later-born cohorts

Bianca Suanet and Theo G. van Tilburg, Department of Sociology, Vrije Universiteit Amsterdam.

The Longitudinal Aging Study Amsterdam is supported by a grant from the Netherlands Ministry of Health Welfare and Sports, Directorate of Long-Term Care. The data collection in 2012–2013 and 2013–2014 was financially supported by the Netherlands Organisation for Scientific Research (NWO) in the framework of the project "New Cohorts of young old in the 21st century" (Grant 480-10-014). Bianca Suanet's work was supported by a Veni grant from the NWO (Grant 451-14-019).

Correspondence concerning this article should be addressed to Bianca Suanet, Department of Sociology, Vrije Universiteit Amsterdam, De Boelelaan 1105, 1081HV Amsterdam, the Netherlands. E-mail: b.a.suanet@vu.nl

feel more in control of their lives and less dependent on external circumstances than those in earlier-born cohorts (Drewelies, Deeg, Huisman, & Gerstorf, 2018; Hülür et al., 2016). In contemporary society, those with low mastery and self-efficacy might be particularly at risk of becoming lonely in old age. Societal changes that have taken place in recent decades have raised the following questions:

1. To what extent do age-related changes in loneliness found in earlier studies relate to later-born cohorts?
2. To what extent do cohort differences in mastery and self-efficacy explain cohort differences in age-related changes in loneliness?
3. Do mastery and self-efficacy have a growing impact on loneliness across birth cohorts?

Loneliness in Old Age

In the cognitive theoretical approach, loneliness reflects a discrepancy between the desired and realized social relationships of individuals (Perlman & Peplau, 1982; de Jong Gierveld & van Tilburg, 2010). Loneliness is a subjective phenomenon that differs from objective social isolation, that is, being alone is not synonymous with being lonely. Loneliness is known to increase sharply in old age, with the oldest old experiencing substantially higher levels of loneliness than younger age groups (Aartsen & Jylhä, 2011; de Jong Gierveld, 1998). About 40–50% of those aged 80 and over report moderate to severe loneliness, whereas this is only 20–30% among the middle-aged and young-old (Dykstra, van Tilburg, & de Jong Gierveld, 2005). There are at least three explanations for the increase in loneliness with increasing age and why recovery from loneliness might become harder as people get older. First, opportunities for social contact are limited by the death and incapacity of similar-age peers among the oldest old. Particularly, widowhood triggers feelings of loneliness (Aartsen & Jylhä, 2011). Second, people may lose social roles in old age due to retirement and other factors, such as an inability to continue voluntary work, which may result in the loss of established network contacts and a reduction in opportunities for establishing new social contacts (Weiss, 2005). Third, physical and mental health problems, the incidence of which increases in older age, limit communication and mobility, restricting social contact and participation in social activities (Cornwell & Waite, 2009).

The Role of Mastery and Self-Efficacy Beliefs

Research has tended to focus on people's loss of social contacts and their poor health as explanations for loneliness in old age. Psychological resources, although likely very important, have received less attention in loneliness studies. Mastery, or the feeling that one is able to control important conditions affecting one's life, is seen as a major psychosocial resource that can help people cope with stress from negative life events and adverse conditions (Pearlin & Schooler, 1978). The concept of self-efficacy is rooted in Bandura's (1977) social-cognitive theory. Self-efficacy refers to the agentic belief that one is able to achieve a desired outcome or to realize the patterns of thought necessary to achieve a desired outcome. Although both mastery and self-efficacy have been grouped under the umbrella term "control beliefs" (Skinner, 1996), they are not the same. Mastery is usually seen as a broader outlook on life that refers not only to the degree to which people feel they can engage in a certain desired behavior (in other words, their self-efficacy) but also the extent to which they can control a situation and the outcome of their behaviors. Studying both constructs may enhance our understanding of which type of control is more important for alleviating feelings of loneliness. The relationships of loneliness to mastery and self-efficacy are likely to be reciprocal (Cacioppo et al., 2006). This is because successful efforts to counter loneliness might bolster self-efficacy and mastery, whereas failed efforts might undermine feelings of self-efficacy and mastery. Given its broader nature, mastery is less likely to be undermined by potential failed efforts to engage in behaviors or thoughts to counter loneliness than self-efficacy.

To understand how feelings of mastery and self-efficacy relate to loneliness, it is imperative to realize that there are two ways to cope with loneliness (Lazarus & Folkman, 1984). The first is by taking action, for example, to improve existing social relationships or foster new ties. Individuals with high mastery and self-efficacy engage more in active coping and take more action to reduce their feelings of loneliness than those with low levels (Hawkley & Cacioppo, 2010), thus exercising more influence over the causes of their feelings of loneliness. If these actions are successful, then the discrepancy between their desired and realized relationships reduces, and the intensity of their loneliness decreases. Furthermore, if one has a positive attitude about potential changes one can make to improve one's situation, negative thoughts are less likely to dominate (Fry & Debats, 2002). Previous studies have suggested that those with low self-efficacy experience less positive affect and might not be as successful in building satisfying and lasting relationships as those with high levels, contributing to less life satisfaction (Caprara & Steca, 2005). Those with high mastery and self-efficacy, who are more likely to combat existing feelings of loneliness, have an easier time bouncing back from the unpleasant and distressing experiences associated with loneliness. A second way of reducing feelings of loneliness is through the use of passive coping strategies. People low in mastery and self-efficacy are likely to learn to live with a situation as it presents itself and to escape from the undesired situation as much as they can (Lawton et al., 1999). Also, they may lower their relationship expectations. A passive coping strategy seems to be less effective in reducing loneliness than an active coping strategy (Schoenmakers, van Tilburg, & Fokkema, 2012).

Mastery and self-efficacy beliefs are predictors of (changes in) loneliness in old age. In a study of older adults aged 65 years and over, Fry and Debats (2002) showed that a global measure of self-efficacy as well as several domain-specific self-efficacy beliefs were negatively related to loneliness and psychological distress. Cohen-Mansfield and Parpura-Gill (2007) concluded that low self-efficacy in social situations was associated with loneliness and depressive symptoms among residents of independent-living buildings for older people on low incomes. In a longitudinal study, Newall et al. (2009) showed that over a period of 5 years, high levels of external and uncontrollable causal beliefs resulted in low social participation and high levels of loneliness among a sample of older United States adults. Nicolaisen and Thorsen (2012) found that a high level of mastery is related to a low risk of loneliness at

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

two time points 5 years apart (2002 and 2007) in a longitudinal study of Norwegian older adults aged 67–79 years old.

Cohort Differences in Loneliness: Mechanisms and Previous Findings

In recent decades, large scale societal changes have taken place that are likely to have had an impact on loneliness across birth cohorts as well as on the role of mastery and self-efficacy in explaining loneliness. First, in sociological theories on individualization (Beck, 1992) and detraditionalization (Giddens, 1990), it has been argued that traditional communities, such as churches, extended families, and neighborhoods have lost strength. Communities that habitually provided older adults with meaningful social relationships have declined, making social relationships less rooted than before. Instead, individuals' management of their social lives has become more important (Allan, 2001). In such a societal context, it is likely that individuals will show a great need and preference for active coping and for making their own efforts to sustain satisfying social relationships. Opportunities to engage in a diverse set of social roles are likely to have amplified in today's society, as older adults' productive potential is emphasized in modernizing Western societies (Laslett, 1991; Martinson & Minkler, 2006). Furthermore, older adults today have more opportunities to interact with age peers until higher ages due to increased longevity (Mathers, Stevens, Boerma, White, & Tobias, 2015). In addition, there might be a breakdown of barriers to relationships between generations, for example, in multigenerational households. Finally, advances in information and communication technologies (ICTs) over the last few decades have lowered barriers to maintain and gain contact with people across large geographical distances (Wang & Wellman, 2010), which could reduce feelings of loneliness. However, how these societal changes have shaped patterns of loneliness among older adults remains unclear.

If opportunities to create satisfying social networks have increased, then a decrease in loneliness could be expected. It is, however, unclear how relationship expectations have changed over the past decades, as little empirical evidence exists. Bauman (2003) suggested that people nowadays have a consumerist view on relationships in which the fulfillment of their own desires is vital for continuing that relationship. Giddens (1992) dubbed the term "pure relationships" to denote romantic relationships that are entered into by people purely to enjoy the relationship itself, free from other constraints and motivations. Although these ideas are primarily based on romantic relationships, relationship expectations, also for other network members, might be higher when the continual satisfaction of one's own desires is vital, and obligation and tradition become less important motives to sustain relationships. If relationship expectations have gone up, loneliness might have increased across birth cohorts. However, it is also possible that higher relationship expectations have resulted in more selectivity in which ties are continued, thereby potentially lowering loneliness across birth cohorts. Yet another option is that lower relationship expectations are maintained by later birth cohorts to bolster a sense of control, which is likely more essential in individualized societies.

We perceive the described societal changes as gradual rather than tied to a specific point in time. For example, although individualization is argued by Allan (2001) to have started in the 1970s, it is also acknowledged that the speed and strength of these developments differ between categories of people and societal contexts. We do, however, assume that later-born cohorts of older adults have been influenced more strongly by societal changes. For example, people born in 1957 were 13 years old in 1970, a period in which societal changes are likely to have had a profound effect on shaping worldviews and behavior, the so-called formative period (Inglehart, 1997). In 1970, people born in 1917 were already past the child-rearing phase and at the end of the employment phase, so they are less likely to be strongly affected by these societal changes.

Several studies have investigated cohort differences in loneliness among older adults. In our discussion here, we have only selected studies that investigated a long time span and had multiple observations, as in these studies, period effects were less likely to confound cohort effects. So far, there is mixed evidence as to whether loneliness has decreased, remained stable, or increased in the older population. In the Berlin Aging Study, Hülür et al. (2016) found that loneliness was significantly lower among older adults aged 70 and over in their 2013–2014 sample than in their 1990–1993 sample. Victor et al. (2002) used data from three social surveys in England between 1945 and 1960 as well as data from a 1999 survey in South London to show that loneliness has been relatively stable among the older population in England. An increase in the percentage of the sample who reported loneliness was observed only in the 70–74 age group, but the authors argued that it was unclear whether this was due to chance, as confidence intervals were very wide. Nyqvist, Cattan, Conradsson, Näsman, and Gustafsson (2017) investigated loneliness over a period of 10 years among Swedish older adults aged 85 and older and found that loneliness was widespread but relatively stable throughout the 2002–2012 study period. Dahlberg, Agahi, and Lennartsson (2018) investigated changes in loneliness among Swedish older adults between 1992 and 2014 in a repeated cross-sectional design and found that loneliness levels remained stable. Finally, Arsenijevic and Groot (2018) found that based on three waves of the Survey of Health, Aging, and Retirement, the percentage of older adults in the Netherlands who rated themselves as lonely increased between 2004 and 2013.

Cohort differences in age-related trajectories in loneliness can appear in three ways. First, people from different birth cohorts could enter old age with differential levels of loneliness resulting from alterations in their respective life courses that persist throughout old age. Second, the onset of an increase in loneliness could be postponed until later ages in later-born cohorts. Increased resources like better cognitive health, higher educational level, and later widowhood and bereavement of other network members may result in such a delay. Third, birth cohorts may have different gradients of change in loneliness across old age. Societal changes may have changed the process of social aging through increased opportunities and necessity to gain and maintain social relationships in old age, which could result in less steep increases in loneliness throughout old age. Given the plentiful mechanisms described above suggesting that opportunities to gain a satisfying network have increased, coupled with earlier findings that hint at the stability or decline of loneliness in later-born cohorts, we expected loneliness to have declined across birth cohorts among older adults in our sample.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Hypothesis 1a: Older adults are less lonely in later-born cohorts.

Hypothesis 1b: The increase in loneliness across old age is slower in later-born cohorts.

Are Mastery and Self-Efficacy Beliefs (More) Important for Loneliness Today?

As stated in the introduction, recent studies have shown that later-born cohorts of older adults feel more in control of their lives and less dependent on external circumstances than earlier-born cohorts (Drewelies et al., 2018; Hülür et al., 2016). If loneliness is lower in later-born cohorts, increased mastery and self-efficacy could be a vital explanation. Also, as argued at the outset of the paper, we expected that societal changes related to individualization were likely to have raised the impact of psychological resources, such as mastery and self-efficacy, on loneliness. When people need more active coping strategies, it could be important for individuals to feel that they can combat existing feelings of loneliness, pick themselves up after negative experiences, and change their current conditions to a more positive situation. Therefore, those that have low mastery and self-efficacy in later-born cohorts might be particularly susceptible to experiencing loneliness.

Hypothesis 2: Higher mastery and self-efficacy explain why older adults are less lonely in later-born cohorts.

Hypothesis 3: Mastery and self-efficacy are more important for explaining differences in loneliness in later-born cohorts than in earlier-born cohorts.

Method

Participants

Data were taken from the Longitudinal Aging Study Amsterdam (LASA), a longitudinal multidisciplinary research program on the social, physical, cognitive, and emotional functioning of older adults (Huisman et al., 2011). This program employed stratified random samples of men and women born between 1908 and 1957. The oldest participants, particularly the oldest men, were overrepresented in the sample. The initial LASA sample was drawn from the population registers of 11 municipalities in three regions varying in religious denomination and level of urbanization. The LASA sample was initially recruited for the Living Arrangements and Social Networks of Older Adults study. A total of 3,107 respondents born between 1908 and 1937 took part in the first LASA observation, which was conducted between 1992 and 1993 (further denoted as 1993). The response rate was 63%. In 2002 (N = 1,002; born 1938–1947) and 2012 (N = 1,023; born 1948–1957), new samples aged 55–64 years were added following an identical sampling frame to study cohort differences in functioning. Response rates were 62% and 63%, respectively.

Follow-up observations have been conducted every 3 or 4 years. Observations were conducted in 1993 (N = 3,107), 1996 (N = 2,545), 1999 (N = 2,076), 2002 (N = 2,693), 2006 (N = 2,165), 2009 (N = 1,818), 2013 (N = 2,545), and 2016 (N = 2,024). For each follow-up, an average of 82% of respondents were reinterviewed, 11% had died, 2% were too ill or too cognitively impaired to be interviewed, 5% refused to be reinterviewed, and less than 1% could not be contacted due to a residential relocation to another country or an unknown destination. We omitted data from the observations of institutionalized respondents (5%), data that were collected from an interview with a proxy (2%) or by phone with a short questionnaire (5%), data from respondents that were unable to undergo a full interview due to their incapacity (4%), and data from respondents that was incomplete due to item nonresponse (less than 1%). Analyses were performed on 15,883 observations from 4,880 respondents. The age of the 2,360 men and 2,520 women varied between 54 and 99 (mean across the observations was 70.5 years). The longest follow-up time was 23.8 years, the average was 7.5 years (M = 3.8 among those born from 1908–1917, and 8.5, 13.7, 9.4, and 2.2 in subsequent 10-year birth cohorts).

Measures

Loneliness was measured using a scale of 11 items (de Jong Gierveld & van Tilburg, 2010). The unidimensional scale assessed the severity of feelings of loneliness and consisted of negative as well as positive items that represented a latent continuum of deprivation. Five items were positively phrased, and six were negatively phrased. Items included the following: "There is always someone I can talk to about my day-to-day problems," "I find my circle of friends and acquaintances too limited," and "I miss having people around." Response categories were *no*, *more or less*, and *yes*. The scale met the criteria of the dichotomous logistic Rasch model (de Jong Gierveld & Kamphuis, 1985). Scale values ranged from 0 (*no loneliness*) to 11 (*severe loneliness*). Cronbach's alpha was 0.85.

Mastery was measured using the Pearlin Mastery Scale (Pearlin & Schooler, 1978). At all observations, an abbreviated version of this scale was used, which consisted of five items (all negative). Items included the following: "There is really no way I can solve some of the problems I have," "I have little control over the things that happen to me," and "There is little I can do to change many of the important things in my life." Response categories ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The score was the sum of recoded ratings, with a total range from 5 to 25, such that a higher rating indicated a higher sense of mastery. Cronbach's alpha was 0.74.

Self-efficacy was measured using a 12-item version of the General Self-Efficacy Scale (Bosscher & Smit, 1998). The scale represented three aspects underlying the scale, that is, an individual's willingness to initiate a behavior (initiative), their willingness to expend effort in completing a behavior (effort), and their persistence in the face of adversity (persistence). The scale included both positive and negative items, such as the following: "When I make plans, I am convinced I can execute them successfully," "If something fails the first time, I cling onto it until it goes better," and "When I get the impression that something is complicated, I will not start on it." Respondents were asked to indicate whether five statements applied to them (*strongly disagree* to *strongly agree*; range 1–5). In order to obtain their total self-efficacy score, scores on negative items were recoded. Thus, a minimum score of 12 indicated the most negative general self-efficacy score and 60

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

the most positive. Cronbach's alpha was 0.74. The correlation between scores on the mastery and self-efficacy scales was .55.

Network members were identified by name using the domain-contact method (van Tilburg, 1998). Seven domains were distinguished: household members, children and their partners, other relatives, neighbors, colleagues at work or school, fellow members of organizations, and others (e.g., friends and acquaintances). The following question was asked: "We would like to know who you have regular contact with and who is important to you." The criteria of importance was left to the interpretation of the respondent and only persons older than 18 could be considered network members. The identification method was the same across all observations. Network size was the number of people identified (up to a maximum of 80), excluding the individual's partner. Network diversity was measured using an adapted version of Cohen's Social Network Index (Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997). Contacts were classified into 12 social roles: child, child-in-law, sibling, sibling-in-law, parent, (other) relative, close friend, acquaintance, neighbor, (former) colleague, voluntary organization, and other group. A higher score reflected a greater diversity in the roles in an individual's personal network. Individuals were also asked to report the frequency of their contact with all identified network members, ranging from 1 (*never*) to 8 (*daily contact or household member*). Our constructed variable daily network contact (yes/no) specified whether there was at least one person other than the individual's partner with whom they had daily contact. We added partner status (yes/no partner). Correlation with daily network contact was $r = -.07$. We also measured church attendance (1 = *yearly or less*, 5 = *weekly or more*).

To measure physical functioning, we asked six questions about activities of daily living, which were based on Katz, Ford, Moskowitz, Jackson, and Jaffe (1963). These included, for example, 'Can you walk up and down stairs?' The five possible answers were 1 (*not at all*), 2 (*only with help*), 3 (*with a great deal of difficulty*), 4 (*with some difficulty*), and 5 (*without difficulty*). Item scores were summed to obtain a score ranging from 6 (*poor*) to 30 (*good*). Cronbach's alpha was 0.86. We counted the number of self-reported chronic diseases from 0 to 7. The seven chronic conditions we counted included the following: (a) chronic nonspecific lung disease, (b) cardiac disease, (c) peripheral arterial disease, (d) diabetes mellitus, (e) cerebrovascular accident or stroke, (f) arthritis, and (g) malignancies. Cognitive functioning was measured using the Mini Mental State Examination of 20 items (Folstein, Folstein, & McHugh, 1975), with scores ranging from 0 to 30. Higher scores indicated better cognitive functioning.

To measure sensorial functioning, self-reported vision and hearing were assessed. Vision was measured by asking respondents to report their ability to read small letters in a newspaper and to recognize someone's face at 4 m. These reflected near and far sight, respectively. We measured visual ability both with and without using glasses (or lenses). A total score for visual ability was computed by taking the highest score across the questions with or without aid, and taking the average of the score for near and far sight. The values ranged from 1 (*no, cannot*) to 4 (*yes, without problems*). Hearing was measured by asking respondents to report their ability to follow a conversation with four people and their ability to have a conversation with one person, both with and without hearing aids. Similar to vision, the four questions for hearing were combined into one score.

We also incorporated gender and educational level between 5 and 18 years (the minimum number of years it takes to complete the obtained level of education) as demographic and sociostructural characteristics, respectively.

Procedure

We employed a multilevel regression random-effects model. All independent variables were entered as fixed effects, similarly to regression parameters in ordinary regression analysis. A random effect at the respondent level was included to control for the dependency between person-year observations from the same individuals. To disentangle aging and cohort differences, we took into account the age variable, which specified the age of a respondent at the time of interview and the cohort variable, which measured birth date as a continuous variable. The tolerance of the two variables was .41. All variables were centered around the grand mean to avoid multicollinearity in interaction terms and to allow for a more straightforward interpretation of the results. In a first step, as a descriptive analysis, we investigated whether there are cohort and age differences in our dependent and independent variables by employing multilevel regression analyses of each variable separately, incorporating age and cohort as predictors. In a second step, we determined cohort-differences in loneliness using multiple linear multilevel regression analyses. In order to test whether older adults in later-born cohorts were less lonely than those in earlier-born cohorts (H_{1a}), we incorporated age at interview and cohort as linear terms. To determine curvatures in age-related change, we added a quadratic age term in Model 1a. We also included an interaction between cohort and age at time of interview to determine cohort differences in age-related trajectories of loneliness (H_{1b}; Model 1b). Model 2 added mastery and self-efficacy as time-varying predictors to assess whether they explained differences in loneliness between birth cohorts (H_2). We tested whether the cohort term was significantly reduced in size after including mastery and self-efficacy by calculating the z statistic (Brame, Paternoster, Mazerolle, & Piquero, 1998), which was t distributed. With Model 3 we investigated whether the impact of mastery and self-efficacy were larger in later-born cohorts by adding interactions between mastery and self-efficacy and cohort (H_3). Finally, we entered all other covariates into Model 4. To illustrate effect sizes, we calculated the change in loneliness at the 10th–90th percentile scores of independent continuous variables. We calculated effect size d as the difference between two point estimates of loneliness scores divided by the standard deviation in the pooled observations.

Results

The descriptive statistics for five 10-year birth cohorts at baseline have been presented in Table 1. These raw values are not controlled for age at the interview, and the birth cohorts had different ages at baseline (55–64 years, 1928–1957, 65–74 years, 1918–1927, and 75–84 years 1908–1917). To allow for a purer comparison between birth cohorts, we tested for cohort differences in predictors and covariates by employing multilevel regression analyses of each variable separately incorporating age and cohort as predictors. Older adults are less lonely in later-born cohorts ($B = -.01$, $p < .05$). Also, all other birth cohort effects were

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Table 1
Description of Means and Proportions of the Sample at Baseline

Variable	Total sample (N = 4,480	Cohort, 1908–1917 (N = 970)	Cohort, 1918–1927 (N = 926)	Cohort, 1928–1937 (N = 975)	Cohort, 1938–1947 (N = 991)	Cohort, 1948–1957 (N = 1,018)
Loneliness (0–11)	1.86	2.51	1.93	1.63	1.74	1.52
Cohort (year of birth)	1933	1913	1923	1932	1943	1952
Age at the interview (years)	66.04	80.07	70.14	60.35	59.94	60.34
Mastery (5–25)	17.79	16.80	17.32	17.98	18.12	18.67
Self-efficacy (14–60)	42.80	40.81	41.98	42.87	43.42	44.78
Network size (0–79)	14.96	11.94	13.06	14.60	14.47	20.41
Network diversity (0–12)	4.20	3.53	3.81	4.24	4.38	4.97
Daily network contact	.56	.51	.54	.61	.57	.58
Having partner	.74	.53	.72	.81	.84	.81
Church attendance	2.96	3.46	3.36	3.17	2.59	2.30
Physical functioning (6–30)	28.11	25.68	28.07	29,16	28.69	28.91
Chronic diseases (1–6)	.90	1.21	.98	.67	.80	.83
Cognitive functioning (6–30)	27.49	26.09	27.42	27.93	27.87	28.12
Vision (1–4)	2.79	2.63	2.69	2.75	2.89	3.00
Hearing (1–4)	3.84	3.68	3.85	3.89	3.90	3.88
Educational level attained (5–19 years)	9.75	8.40	8.73	9.46	10.39	11.63
Female	.52	.49	.53	.52	.53	.52

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

significant ($p < .001$). Our results showed that older adults in later-born cohorts reported higher mastery ($B = .02$), higher self-efficacy ($B = .07$), a larger network (B = .17), a larger diversity in social roles occupied in the network ($B = .03$), and they more often had a daily network contact ($B = .01$) and a partner ($B = .01$). Church attendance declined across birth cohorts ($B = -.04$). In later-born cohorts, physical functioning was lower ($B = -.05$), there were more chronic diseases ($B = .02$), cognitive functioning was better ($B = .01$), hearing was worse ($B = -.001$), and vision was better ($B = .01$). Older adults from subsequent birth cohorts attained a higher level of education ($B = .08$).

Results of the multilevel regression analyses have been displayed in Table 2. In Model 1, we included linear and quadratic age at interview and cohort. Adding a quadratic age term improved model fit compared with a model including only a linear age term. Supporting H_{1a}, respondents in later-born cohorts were less lonely ($B = -.01$, $p < .05$), while older respondents were more lonely. The quadratic age term was positive, showing that when individuals became older, the increase in loneliness became larger. The trajectories for five cohorts have been illustrated in Figure 1. For each subsequent cohort the lines of predicted loneliness scores were below the preceding cohort. However, cohort effects are small in size. For example, at Age 75, the estimated loneliness score for a respondent born 1908–1917 was 2.5, while for a respondent born 1938–1947, it was 2.2 ($d = .11$). At Age 65, the estimated loneliness scores for a respondent born 1918–1927 was 2.0, while for a respondent born 1948–1957 it was 1.7 ($d = .11$). The age effects are stronger in size than the cohort effects, particularly among the oldest. For example, in the earliest-born Cohort 1908–1917 the estimated loneliness score increased from 2.4 at Age 75 to 4.5 at age 95 ($d = .83$). In the Cohort 1938–1947, the estimated loneliness score increased from 1.9 at Age 55 to 2.4 at age 78 ($d = .21$). We also estimated a model that included an interaction between linear and quadratic age and cohort to determine whether age-related increases in loneliness were slower in later-born cohorts. This reduced model fit (Bayesian information criterion [BIC] = 66,210.3), so we rejected H_{1b}. Interaction terms were, therefore, dropped from further models.

In Model 2, we added mastery and self-efficacy. Older adults with higher mastery ($B = -.13$) and self-efficacy ($B = -.04$) were less lonely. In the descriptive analyses, we observed that mastery and self-efficacy were higher in later-born cohorts. After taking into account mastery and self-efficacy, cohort difference in loneliness became insignificant; however, the reduction in size was not significant ($z = -1.6$). As we found that mastery and self-efficacy were higher in later-born cohorts, we found support for H_2, suggesting that cohort differences in mastery and self-efficacy explain cohort differences in loneliness. The positive linear age term remained significant but was reduced in size ($z = 2.4$, $p < .05$). Mastery and self-efficacy were thus related to reductions in cohort and age differences in loneliness.

We used Model 3 to test for interactions between cohort and mastery and self-efficacy to assess whether mastery and self-efficacy were more important for explaining differences in loneliness in later-born cohorts (H_3). Model fit did not improve (BIC = 65,367.1). Hence, H_3 was rejected. Interactions between mastery and self-efficacy and cohort were not considered further.

In the final Model 4 (see Table 2), we included all other covariates. Respondents were less lonely when they had a larger and more diverse network, daily network contact, a partner, more frequent church attendance, better physical and cognitive functioning, better hearing, and if they were female. The effect of cohort was insignificant and reduced in size from Model 1 to Model 4 ($z = -3.0$, $p < .01$). Our covariates explained linear and quadratic age-related changes in loneliness. The linear age term reduced significantly in effect size and became insignificant ($B = -.003$, $z = 7.4$, $p < .001$), while the quadratic age term reduced significantly in effect size ($z = 4.2$, $p < .001$).

Those at the 90th percentile score in mastery (those with a score of 21) had a 1.0 lower loneliness score than those at the 10th

Table 2
Linear Multilevel Regression of Loneliness

Variable	Model 1		Model 2		Model 4	
	B	*SE B*	*B*	*SE B*	*B*	*SE B*
Fixed effects						
Constant	2.038***	.032	2.024***	.030	1.986***	.028
Cohort (years)	−.009***	.003	−.003	.003	.002	.003
Age (years)	.040***	.003	.029***	.003	−.004	.003
Age^2	.002***	.000	.002***	.000	.000*	.000
Mastery (5–25)			−.129***	.006	−.120***	.006
Self-efficacy (14–60)			−.042***	.004	−.035***	.004
Network size (0–79)					−.018***	.002
Network diversity (0–12)					−.103***	.011
Daily network contact					−.194***	.032
Having partner					−1.426***	.047
Church attendance					−.040***	.012
Physical functioning (6–30)					−.036***	.005
Chronic diseases (1–6)					.018	.019
Cognitive functioning (6–30)					−.026***	.007
Vision (1–4)					−.189***	.051
Hearing (1–4)					−.009	.028
Educational level attained (5–19 years)					.002	.009
Female					−.260***	.057
Random part respondent level						
Intercept	3.779***	.104	3.195***	.092	2.565***	.077
Slope	.032***	.005	.035***	.005	.033***	.004
Intercept-slope covariance	.008***	.001	.007***	.001	.006***	.001
Random part observation level						
Intercept	1.973***	.029	1.962***	.029	1.890***	.028
BIC (Bayesian information criterion)	66,203.1		65,352.5		64,122.1	

Note. $N_{respondents}$ = 4,480; $N_{observations}$ = 15,883.
* $p < .05$. ** $p < .01$. *** $p < .001$.

percentile (those with a score of 13). The effect size for self-efficacy was smaller but still substantial. Comparing self-efficacy scores between those at the 10th percentile (those with a score of 36) and those at the 90th percentile (those with a score of 49) resulted in a .4 difference in loneliness scores. As stated when we presented results from the descriptive analyses (see Table 1), we observed that older adults in later-born cohorts had better cognitive functioning, a larger and more diverse network, and more often had a daily network contact and a partner. In addition to mastery and self-efficacy, cohort differences in these factors explain cohort differences in loneliness. Partner status, network characteristics, and mastery had the largest effect sizes. The effect size of mastery (1.0) was almost similar to the total impact of the network (the impact of size, diversity in social roles and having daily network

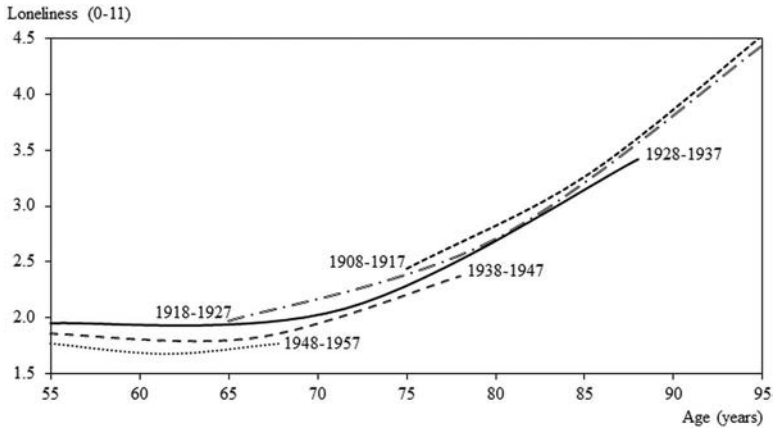


Figure 1. Age-related developments in loneliness for five birth cohorts: Older adults are less lonely in later-born cohorts. Effect sizes are in the small range (e.g., at Age 75 comparing cohorts 1908–1917 and 1938–1947, d = .11). Increasing levels of mastery and self-efficacy across birth cohorts explained the observed cohort-related decline in loneliness ($N_{respondents}$ = 4,480; $N_{observations}$ = 15,883).

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

contact was .4, 0.5 and 0.2, respectively), and having a partner (1.4). Health characteristics, with .3 as the highest for physical functioning, and church attendance (0.2) had small effect sizes. Women scored 0.3 lower than men.

Discussion

In contrast to the idea of the assumed loneliness epidemic, we observed that older Dutch adults in later-born cohorts were actually less lonely, although the effect size is small. Age effects clearly outweigh cohort effects in size, with the older being lonelier than the younger. Our findings show support for the idea that resources and opportunities to gain and maintain satisfying social ties have increased across birth cohorts. Mastery and self-efficacy, partner status, and network characteristics, such as network size and diversity in roles, provide the main explanatory factors for why older adults in later-born cohorts were less lonely.

Until now, cohort changes in mastery and self-efficacy have not been linked to loneliness. We found support for H_2, which suggested that cohort differences in mastery and self-efficacy explain cohort differences in loneliness. Changes in mastery and self-efficacy explain why older adults are less lonely in later-born cohorts. Mastery and self-efficacy serve as major psychological resources, helping older adults to believe that they can change their situations for the better, thus likely stimulating their use of active coping strategies to counter loneliness. Higher loneliness among those with low mastery and self-efficacy might partially be an outcome of less active relationship behavior and less positive subjective evaluations of social contacts earlier in the life course. Disadvantages in social contact in those with lower mastery and self-efficacy might accumulate across the life course (Dannefer, 2003), causing particularly pronounced differences in loneliness in old age. It is possible that the effects of mastery and self-efficacy on social network outcomes and loneliness could be observed as early as adolescence and young adulthood, when many social contacts are established, and the groundwork for the social network is laid. But as already suggested in the theoretical framework, the directionality of this effect may be reversed. Feelings of loneliness are likely to undermine an individual's confidence in their capacity to engage in relationship behaviors and to establish good outcomes, thereby lowering self-efficacy and mastery across the life course.

At the outset of the study, we had no hypothesis on the relative importance of mastery and self-efficacy for understanding differences in loneliness. We observed that mastery had a larger effect on loneliness than self-efficacy. We speculated on the reason for this finding. As mastery hints at the control individuals feel they can exercise over situations and life in general, high levels of mastery may directly result in engaging in many active coping strategies to counter loneliness. Those with high mastery might try over and over again, even when attempts fail. Self-efficacy, the feeling that an individual's efforts will give rise to a certain desired outcome, likely also results in participation in active coping strategies but might be less stable over time. Failed efforts to counter loneliness could diminish the belief that later efforts will result in the preferred outcome. Therefore, over time, failed efforts might negatively impact all three dimensions of self-efficacy, that is, initiative, effort, and persistence on loneliness coping.

In contrast to H_3, we did not find that mastery and self-efficacy were more important for explaining loneliness across birth cohorts. We expected that when people were less rooted in traditional communities, mastery and self-efficacy would be more important. However, the strength of associations remained similar in magnitude across birth cohorts. Thus, having high mastery and self-efficacy is as imperative for loneliness in today's society as it has been previously. Furthermore, the effects of mastery and self-efficacy are on a par with the main factors that explain loneliness differences, such as partner status and network characteristics. Mastery and self-efficacy are more strongly associated with loneliness than health measures often included in gerontological research, like physical and cognitive functioning. Our findings have, therefore, highlighted the significance of incorporating psychological resources in explanations of loneliness in future studies, rather than relying mostly or solely on social network and health characteristics.

Limitations and Outlook

The present study had various limitations. First, we were not able to test the mechanisms by which mastery and self-efficacy influence loneliness directly. The more active coping style used by those with high mastery and self-efficacy might explain their lower levels of loneliness (Schoenmakers et al., 2015). Second, we employed general indicators of mastery and self-efficacy with regard to social relationships rather than domain-specific measures. Incorporating domain-specific measures of psychological traits may increase the content validity of the study. Third, our study used ego-centered social network data. Therefore, we were not able to investigate to what degree homophily, that is, similarity in traits between network members, played a role in explaining cohort differences in loneliness. Much like some diseases, loneliness has been shown to be structured and spread within social networks (Cacioppo, Fowler, & Christakis, 2009). This is partly due to network members having similar traits and partly due to the contagiousness of moods, feelings, and behavior. It would therefore be fruitful to study whether network members of older individuals who score low on mastery and self-efficacy have similar disadvantageous psychological or other traits and whether they also experience higher levels of loneliness. Fourth, we were not able to investigate whether and how societal changes have influenced relationships expectations, and to what extent these changes can explain the cohort differences in loneliness. Finally, future studies could investigate whether certain groups are particularly at risk for loneliness in later life in contemporary society. Individuals' needs for active relationship management is likely to have gone up as traditional communities provide less protection, and ICTs change rapidly and demand more cognitive skills. Therefore, groups that cannot keep up with these changes are likely to run an increased risk of loneliness. Examples of such groups include, but are not limited to, people having mild intellectual disability and/or the lowest level of education.

Our study hints at the importance of stimulating mastery and self-efficacy to reduce loneliness. As stated above, although we were not able to measure coping strategies directly, the substantial effects of mastery and self-efficacy on loneliness suggests that stimulating active coping strategies is vital to reduce loneliness. Therefore, it would be wise to invest in intervention programs that

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

aim to increase control beliefs, as well as active rather than passive coping strategies. A good example of such a program is the "Grip and Glans" course (this can be translated as follows: The Self-Management of Well-Being) performed in the Netherlands (Steverink, 2009). In this program, issues such as taking initiative and finding ways to improve feelings of control are discussed with and taught to participants. As people's behavior is reinforced, for example by successful attempts to form new friendships, their sense of mastery will increase.

To conclude, the current study showed that older people today are, on average, less lonely than their peers of similar ages from earlier-born cohorts. The higher mastery and self-efficacy experienced by older adults in later-born cohorts could explain this change. Thus, living in a society that puts more emphasis on individual efforts to nurture social ties is not detrimental to older adults' subjective social position. Rather, it might actually be empowering.

References

Aartsen, M., & Jylhä, M. (2011). Onset of loneliness in older adults: Results of a 28 year prospective study. *European Journal of Ageing, 8,* 31–38. http://dx.doi.org/10.1007/s10433-011-0175-7

Allan, G. (2001). Personal relationships in late modernity. *Personal Relationships, 8,* 325–339. http://dx.doi.org/10.1111/j.1475-6811.2001.tb00043.x

Arsenijevic, J., & Groot, W. (2018). Does household help prevent loneliness among the elderly? An evaluation of a policy reform in the Netherlands. *BMC Public Health, 18,* 1104. http://dx.doi.org/10.1186/s12889-018-6004-6

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84,* 191–215. http://dx.doi.org/10.1037/0033-295X.84.2.191

Bauman, Z. (2003). *Liquid love: On the frailty of human bonds*. Cambridge, UK: Polity Press.

Beck, U. (1992). *Risk society: Towards a new modernity*. London, UK: Sage.

Bosscher, R. J., & Smit, J. H. (1998). Confirmatory factor analysis of the General Self-Efficacy Scale. *Behaviour Research and Therapy, 36,* 339–343. http://dx.doi.org/10.1016/S0005-7967(98)00025-4

Brame, R., Paternoster, R., Mazerolle, P., & Piquero, A. (1998). Testing for the equality of maximum-likelihood regression coefficients between two independent equations. *Journal of Quantitative Criminology, 14,* 245–261. http://dx.doi.org/10.1023/A:1023030312801

Cacioppo, J. T., Fowler, J. H., & Christakis, N. A. (2009). Alone in the crowd: The structure and spread of loneliness in a large social network. *Journal of Personality and Social Psychology, 97,* 977–991. http://dx.doi.org/10.1037/a0016076

Cacioppo, J. T., Hawkley, L. C., Ernst, J. M., Burleson, M., Berntson, G. G., Nouriani, B., & Spiegel, D. (2006). Loneliness within a nomological net: An evolutionary perspective. *Journal of Research in Personality, 40,* 1054–1085. http://dx.doi.org/10.1016/j.jrp.2005.11.007

Cacioppo, J. T., Hawkley, L. C., & Thisted, R. A. (2010). Perceived social isolation makes me sad: 5-year cross-lagged analyses of loneliness and depressive symptomatology in the Chicago Health, Aging, and Social Relations Study. *Psychology and Aging, 25,* 453–463. http://dx.doi.org/10.1037/a0017216

Caprara, G. V., & Steca, P. (2005). Affective and social self-regulatory efficacy beliefs as determinants of positive thinking and happiness. *European Psychologist, 10,* 275–286. http://dx.doi.org/10.1027/1016-9040.10.4.275

Cohen, S., Doyle, W. J., Skoner, D. P., Rabin, B. S., & Gwaltney, J. M., Jr. (1997). Social ties and susceptibility to the common cold. *JAMA: Journal of the American Medical Association, 277,* 1940–1944. http://dx.doi.org/10.1001/jama.1997.03540480040036

Cohen-Mansfield, J., & Parpura-Gill, A. (2007). Loneliness in older persons: A theoretical model and empirical findings. *International Psychogeriatrics, 19,* 279–294. http://dx.doi.org/10.1017/S1041610206004200

Cornwell, E. Y., & Waite, L. J. (2009). Social disconnectedness, perceived isolation, and health among older adults. *Journal of Health and Social Behavior, 50,* 31–48. http://dx.doi.org/10.1177/002214650905000103

Dahlberg, L., Agahi, N., & Lennartsson, C. (2018). Lonelier than ever? Loneliness of older people over two decades. *Archives of Gerontology and Geriatrics, 75,* 96–103. http://dx.doi.org/10.1016/j.archger.2017.11.004

Dannefer, D. (2003). Cumulative advantage/disadvantage and the life course: Cross-fertilizing age and social science theory. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences, 58,* S327–S337. http://dx.doi.org/10.1093/geronb/58.6.S327

de Jong Gierveld, J. (1998). A review of loneliness: Concept and definitions, determinants and consequences. *Reviews in Clinical Gerontology, 8,* 73–80. http://dx.doi.org/10.1017/S0959259898008090

de Jong Gierveld, J., & Kamphuis, F. H. (1985). The development of a Rasch-type loneliness-scale. *Applied Psychological Measurement, 9,* 289–299. http://dx.doi.org/10.1177/014662168500900307

de Jong Gierveld, J., & van Tilburg, T. (2010). The De Jong Gierveld short scales for emotional and social loneliness: Tested on data from 7 countries in the UN generations and gender surveys. *European Journal of Ageing, 7,* 121–130. http://dx.doi.org/10.1007/s10433-010-0144-6

Drewelies, J., Deeg, D. J. H., Huisman, M., & Gerstorf, D. (2018). Perceived constraints in late midlife: Cohort differences in the Longitudinal Aging Study Amsterdam (LASA). *Psychology and Aging, 33,* 754–768. http://dx.doi.org/10.1037/pag0000276

Dykstra, P. A., van Tilburg, T. G., & de Jong Gierveld, J. (2005). Changes in older adult loneliness: Results from a seven-year longitudinal study. *Research on Aging, 27,* 725–747. http://dx.doi.org/10.1177/0164027505279712

Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state." *Journal of Psychiatric Research, 12,* 189–198. http://dx.doi.org/10.1016/0022-3956(75)90026-6

Fry, P. S., & Debats, D. L. (2002). Self-efficacy beliefs as predictors of loneliness and psychological distress in older adults. *The International Journal of Aging & Human Development, 55,* 233–269. http://dx.doi.org/10.2190/KBVP-L2TE-2ERY-BH26

Giddens, A. (1990). *The consequences of modernity*. Cambridge, UK: Polity Press.

Giddens, A. (1992). *The transformation of intimacy: Sexuality, love, and eroticism in modern societies*. Cambridge, UK: Polity Press.

Hawkley, L. C., & Cacioppo, J. T. (2010). Loneliness matters: A theoretical and empirical review of consequences and mechanisms. *Annals of Behavioral Medicine, 40,* 218–227. http://dx.doi.org/10.1007/s12160-010-9210-8

Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: A meta-analytic review. *Perspectives on Psychological Science, 10,* 227–237. http://dx.doi.org/10.1177/1745691614568352

Holwerda, T. J., van Tilburg, T. G., Deeg, D. J. H., Schutter, N., Van, R., Dekker, J., . . . Schoevers, R. A. (2016). Impact of loneliness and depression on mortality: Results from the Longitudinal Ageing Study Amsterdam. *The British Journal of Psychiatry, 209,* 127–134. http://dx.doi.org/10.1192/bjp.bp.115.168005

Huisman, M., Poppelaars, J., van der Horst, M., Beekman, A. T., Brug, J., van Tilburg, T. G., & Deeg, D. J. (2011). Cohort profile: The Longitudinal Aging Study Amsterdam. *International Journal of Epidemiology, 40,* 868–876. http://dx.doi.org/10.1093/ije/dyq219

Hülür, G., Drewelies, J., Eibich, P., Düzel, S., Demuth, I., Ghisletta, P., . . . Gerstorf, D. (2016). Cohort differences in psychosocial function over 20

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

years: Current older adults feel less lonely and less dependent on external circumstances. *Gerontology, 62,* 354–361. http://dx.doi.org/10.1159/000438991

Inglehart, R. (1997). *Modernization and postmodernization: Cultural, economic, and political change in 43 societies*. Princeton, NJ: Princeton University Press.

Katz, S., Ford, A. B., Moskowitz, R. W., Jackson, B. A., & Jaffe, M. W. (1963). Studies of illness in the aged. The index of ADL: A standardized measure of biological and psychosocial function. *JAMA: Journal of the American Medical Association, 185,* 914–919. http://dx.doi.org/10.1001/jama.1963.03060120024016

Killeen, C. (1998). Loneliness: An epidemic in modern society. *Journal of Advanced Nursing, 28,* 762–770. http://dx.doi.org/10.1046/j.1365-2648.1998.00703.x

Laslett, P. (1991). *A fresh map of life: The emergence of the third age*. Cambridge, MA: Harvard University Press.

Lawton, M. P., Moss, M., Hoffman, C., Grant, R., Ten Have, T., & Kleban, M. H. (1999). Health, valuation of life, and the wish to live. *The Gerontologist, 39,* 406–416. http://dx.doi.org/10.1093/geront/39.4.406

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.

Martinson, M., & Minkler, M. (2006). Civic engagement and older adults: A critical perspective. *The Gerontologist, 46,* 318–324. http://dx.doi.org/10.1093/geront/46.3.318

Mathers, C. D., Stevens, G. A., Boerma, T., White, R. A., & Tobias, M. I. (2015). Causes of international increases in older age life expectancy. *The Lancet, 385,* 540–548. http://dx.doi.org/10.1016/S0140-6736(14)60569-9

Newall, N. E., Chipperfield, J. G., Clifton, R. A., Perry, R. P., Swift, A. U., & Ruthig, J. C. (2009). Causal beliefs, social participation, and loneliness among older adults: A longitudinal study. *Journal of Social and Personal Relationships, 26,* 273–290. http://dx.doi.org/10.1177/0265407509106718

Nicolaisen, M., & Thorsen, K. (2012). Impairments, mastery, and loneliness: A prospective study of loneliness among older adults. *Norsk Epidemiologi, 22,* 143–150. http://dx.doi.org/10.5324/nje.v22i2.1560

Nyqvist, F., Cattan, M., Conradsson, M., Näsman, M., & Gustafsson, Y. (2017). Prevalence of loneliness over ten years among the oldest old. *Scandinavian Journal of Public Health, 45,* 411–418. http://dx.doi.org/10.1177/1403494817697511

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19,* 2–21. http://dx.doi.org/10.2307/2136319

Perlman, D., & Peplau, L. A. (1982). Theoretical approaches to loneliness. In L. A. Peplau & D. Perlman (Eds.), *Loneliness: A sourcebook of current theory, research and therapy* (pp. 123–134). New York, NY: Wiley-Interscience.

Schoenmakers, E. C., van Tilburg, T. G., & Fokkema, T. (2012). Coping with loneliness: What do older adults suggest? *Aging & Mental Health, 16,* 353–360. http://dx.doi.org/10.1080/13607863.2011.630373

Skinner, E. A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology, 71,* 549–570. http://dx.doi.org/10.1037/0022-3514.71.3.549

Steverink, N. (2009). Gelukkig en gezond ouder worden: Welbevinden, hulpbronnen en zelfmanagementvaardigheden. [Happy and healthy aging: Well-being, resources and self-management abilities]. *Tijdschrift voor Gerontologie en Geriatrie, 40,* 244–252. http://dx.doi.org/10.1007/BF03088518

van Tilburg, T. (1998). Losing and gaining in old age: Changes in personal network size and social support in a four-year longitudinal study. *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences, 53B,* S313–S323. http://dx.doi.org/10.1093/geronb/53B.6.S313

Victor, C., Scambler, S. J., Shah, S., Cook, D. G., Harris, T., Rink, E., & De Wilde, S. (2002). Has loneliness amongst older people increased? An investigation into variations between cohorts. *Ageing & Society, 22,* 585–597. http://dx.doi.org/10.1017/S0144686X02008784

Wang, H., & Wellman, B. (2010). Social connectivity in America: Changes in adult friendship network size from 2002 to 2007. *American Behavioral Scientist, 53,* 1148–1169. http://dx.doi.org/10.1177/0002764209356247

Weiss, R. S. (1973). *Loneliness: The experience of emotional and social isolation*. Cambridge, MA: The MIT Press.

Weiss, R. S. (2005). Retirement, marriage, and social isolation. *Illness, Crisis, & Loss, 13,* 75–84. http://dx.doi.org/10.1177/105413730501300107

Received September 28, 2018
Revision received March 27, 2019
Accepted March 29, 2019 ■

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.