

Loneliness as a disturbing factor in health and well-being

Sağlık ve iyi oluştta olumsuz bir faktör olarak yalnızlık

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Abstract

This study analyses how loneliness influences health and social well-being among older people who living alone, and whether the effect of loneliness is invariant between men and women. Empirical evidence was gathered with a mail survey using multistage random sampling. The data included 425 older Finnish adults living alone. Using multi-item measures for loneliness, social network, satisfaction related to current social relationships, and self-evaluation of well-being, a research model was tested using structural equation modelling with a multigroup approach in order to test gender differences. The results indicate that loneliness has a negative effect on health, cognitive ability, and relationship satisfaction, and affects social networks. A multigroup comparison between genders revealed that the relationships between loneliness and indicators of health and social well-being are similar among men and women. Loneliness and especially its side effects on well-being could be eliminated by developing supportive actions. The results demonstrate that the social care system, working together with health authorities, has a huge opportunity to develop service strategies that respond to loneliness.

Keywords: Older people, living alone, loneliness, health, social well-being

Özet

Bu çalışmada, yalnızlığın, yalnız yaşayan yaşlı insanların sağlık ve sosyal iyi oluşlarını nasıl etkilediği ve bu etkinin kadın ve erkeklerde bir farklılık oluşturup oluşturmadığı incelenmiştir. Veriler tesadüfi örnekleme yöntemi kullanılarak posta yoluyla toplanmıştır. Katılımcıları yalnız yaşayan 425 Finlandiyalı yetişkin oluşturmaktadır. Araştırmada, yalnızlık, sosyal ağlar, mevcut sosyal ilişkilerden duyulan memnuniyet ve öz-değerlendirmeye dayalı iyi oluş değişkenleriyle ilgili olarak veriler toplanmıştır. Sonuçlar yalnızlığın, sağlık, bilişsel yetenek, ilişki doyumu ve sosyal ağlar üzerinde negative yönde etkili olduğunu ortaya koymuştur. Araştırma sonuçları, yalnızlığın kadın ve erkeklerin sağlık ve iyi oluşlarına benzer şekilde etki ettiğini ortaya koymuştur. Yalnızlığın iyi oluş üzerindeki olumsuz etkileri destekleyici etkinliklerle giderilebilir. Sonuçlar, sosyal güvenlik sistemi ve sağlık birimlerinin birlikte çalışmasının yalnızlığa karşı stratejiler geliştirmede önemli imkanlar sağlayacağını göstermiştir.

Anahtar Kelimeler: Yaşlı insanlar, yalnız yaşama, yalnızlık, sağlık, sosyal iyi oluş

Introduction

Loneliness is the subjective experience of social ill-being and it is a risk factor for well-being (Wong & Waite, 2015; Hawkey & Cacioppo, 2007; Sintonen & Pehkonen, 2014). Considering that individuals living alone are not necessarily lonely and lonely people are not necessarily socially isolated (De Jong-Gierveld & Havens, 2004; Prince et al., 1997) makes loneliness a very complicated concept for research. In addition, loneliness is culture-bound (Bai, 2014; Perlman & Peplau, 1981), and living alone is not necessarily an individual choice (Hawkey & Cacioppo, 2007). Living alone or having no family does not directly express the breakup of social relations

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(Zhang & Li, 2015), because the individual may have chosen to live alone as a way of life (Gallie & Paugam, 2000; Paugam & Russell, 2000).

Five sets of factors have been addressed that are consistently associated with loneliness (De Jong-Gierveld, 1998; Prince et al., 1997): (1) Sociodemographic attributes: living alone, being female, not having any surviving children, living arrangements, being 75 years old or more. (2) Material circumstances: poverty, limited education, and low income. (3) Health resources: disability, self-assessed health, mental health, cognitive function, anxiety and depression. (4) Social resources: size of social network, isolation, time alone, and presence of a confidant. (5) Life events: recent bereavement and admission of a relative/spouse into care. These issues are interrelated. The following sections discuss the linkage between loneliness and the selected dimensions of well-being.

Perceptions of health vary among different social groups and depend very much on age and experience, and thus self-assessments can be very individual and eccentric (Blaxter, 1990). However, self-rated health is considered to be a concept that refers to individual responses to physical, mental, and social effects of illness on daily living (Vaez, Kristenson & Laflamme, 2004; Hawkey et al. 2003; Wong & Waite, 2015). Self-assessed health status is a major factor determining if, when, and where care is sought (Leinonen, 2011; Sintonen & Pehkonen, 2014). Poor subjective health, decreased health status, or impaired quality of life has been found to be associated with loneliness in several studies (Victor et al. 2005; Tiikkainen, 2006; Steptoe et al. 2004; Ervasti & Saari, 2011). Several studies (Prince et al. 1997; Heikkinen & Kauppinen, 2004) have showed loneliness to be associated with poor sleep, hypertension and abnormal stress responses. Good mental health, sociality and openness, and extroversion are features that have been found to be typical in people who are happy with their lives (Veenhoven, 1996; Raijas, 2011; Uusitalo, 2011).

Health problems may also express themselves as psychological ill-being. As researchers has shown, depression and loneliness in older people are strongly associated and often co-occur (Heikkinen & Kauppinen, 2004; Cacioppo, Hawkey & Ernst, 2006). In addition, loneliness is a consistent and strong risk factor for depression (Prince et al., 1997). It is noteworthy that health and welfare gaps do not accumulate one-dimensionally for all social groups; instead, some gaps are more typical of people living alone and some other gaps of others. In addition to the medical dimension, the social and psychological dimensions can also be distinguished from health; therefore, the definition of health encompasses all aspects of a human being.

There are three dimensions of social relations (Paugam & Russell, 2000; Ochieng, 2011; Pehkonen, 2009; Stephens et al., 2011): primary, secondary, and tertiary relations. Primary relations are direct family and household relations and secondary relations are contacts with friends and relatives outside the family. Tertiary relationships are social relations acquired through participation in organizations or associations. In terms of well-being direct relations within the family are the most important of these, and they can act as protective resources in stressful situations (Litwin, 2000; Ochieng, 2011; Stanley et al., 2010). Lack of social relations and support are also health risks and present a gap in welfare (Hunter, Neiger & West, 2011; Wong & Waite, 2015). The sense of belonging, social interaction and positive forms of caring, are central parts of welfare (Stephens et al., 2011; Pessi & Seppänen, 2011). According to Rowe and Kahn (1997), social relationships and social engagement in later life are important factors in the model of successful ageing.

Research (Cacioppo & Hawkey, 2005; Murray et al., 2003) has also shown that lonely individuals tend to form more negative social impressions of others, and their expectations, attributional reasoning, and actions toward others tend to be less charitable than shown by non-lonely individuals. It has been discovered that being married, having good relations with one's children and social contacts have a clear connection to subjectively perceived contentment in life

(Helliwell, 2001; Mowbray et al., 2005). By directing the focus onto social relationships and defining social disability as the degree of inability to maintain and establish social relationships.

In addition to creating and maintaining social relationships, the existing relationships can be evaluated in terms of satisfaction and the quality of the relationship. According to Victor et al. (2002), the perceived quality of social relationships seems to be a more important determinant of loneliness than the size of one's social network. Low correlations between loneliness and social network size and also the frequency of contacts with network members (Hughes et al., 2004; Prince et al., 1997) suggests that the focus should be directed to the quality instead of the quantity of social interaction. For instance, the perceived quality of the relationship with children may have more impact on loneliness than the number of contacts with them (Hawkley & Cacioppo, 2007). Poor social support or experienced dissatisfaction with social contacts has been found to be a more powerful predictor of poor outcome than the actual number of contacts (Tomaka, Thomson & Palacios, 2006).

Additionally, people may place a different value on their relationships with friends and neighbours than with their children and family. Parents may feel that children keep in touch partly because it is obligatory, whereas friends and neighbours may be sincerer in the relationship. In addition, friends of a similar age may share values, past experiences, and culture, and older people may not want to be a burden to their children (McInnis & White, 2001; Routasalo & Pitkälä, 2003). According to Schnittker (2007) the elderly tend to adjust to a declining network size if the remaining social relationships are satisfactory. This is important when considering the linkage between social isolation and loneliness, and how loneliness influences the social behaviour of individuals. As strong associations have been found between loneliness and satisfaction with personal relationships (Mellor et al., 2008).

Studies that have assessed the relationships between cognitive functions and social well-being have found twofold results. Yeh & Liu (2003) found that social support is associated with good cognitive functioning, but the relationship between loneliness and cognitive function is limited. On the other hand, research (Tilvis et al., 2012) has also indicated that loneliness is a potential risk factor for cognitive decline. According to Tilvis et al. (2012), the subjective experience of loneliness could over time result in greater cognitive decline in the elderly than in people who are not lonely. In a longitudinal study, loneliness has been associated with a lower level of cognition at the baseline with more rapid cognitive decline during follow-up (Wilson et al., 2007). Wilson et al. (2007), analysed the association between loneliness and Alzheimer's Disease. They found the risk for developing Alzheimer's dementia was substantially increased in those who were lonely as compared to those who are not lonely.

Gender differences have been found related to loneliness among the elderly. A population study conducted in Finland found that the self-reported loneliness was most common in men living alone (Tilvis et al., 2012). On the other hand, women report loneliness more commonly than men (Qereshi & Walker, 1989). Prince et al. (1997), found that women were more likely to be lonely than men, and subjects aged over 82 experienced higher rates of loneliness than lower age groups. According to Luanaigh & Lawlor (2008), a greater likelihood of being widowed and depression, are all more common in women as well as being individually associated with loneliness. In addition, there is also a gender bias in self-disclosure – men may be less likely to admit feelings of loneliness.

Some studies have considered being married had a statistically significant protective effect only for men (House, Robbins & Metzner, 1982). A number of studies show both age and sex effect the sense of loneliness and social interaction (Antonucci & Akiyama, 1987; Jones & Hebb, 2003). Widowed and divorced persons were found to feel lonelier than married persons, and childlessness was found to increase feelings of loneliness (Wenger et al., 1996). In several studies,

childless persons tended also to receive emotional and social support from their relationships with other family members, neighbours, and friends (Mullins & Mushel, 1992).

Women's social network interactions fulfil feminine social role supportive behaviours, whereas men conform to masculine role norms, for example, independence and instrumentality. Women have larger and more multifaceted networks than men, and provide and receive more support from members of their network than do men. Women's friendship focus on intimacy and disclosure, and men's emphasize sociability and task orientation. Men tend to commit to intimate relationships with only a few people and primarily their spouses (Buhrke & Fuqua, 1987; Rubin, 1986). Therefore, men care about fewer people than women, and are emotionally affected by only the few people to whom they are closest. These gender differences in patterns of social support appear to be fairly consistent across the adult life span (Shye et al., 1995).

The purpose of this article is to analyse how loneliness influences health and social well-being among older people who live alone, and whether the effect of loneliness is invariant between men and women. Additionally, the analysis will include a comparison between genders to test how it moderates the relationships between loneliness and well-being indicators. The specific research questions are:

- 1) How loneliness affects self-assessed health among elderly people living alone?
- 2) How loneliness affects satisfaction with social relationships and social networks among elderly people living alone?
- 3) How loneliness affects cognitive ability among elderly people living alone?
- 4) What kind of differences occur in the relationships between loneliness and well-being indicators across genders?

However, considering that we focused on the age-related aspects of loneliness. It was very important to see whether there would be some for gender-differences and how holistically loneliness affects among older people who live alone.

Purpose

The main objective of the present study is, using a cross-sectional design, to analyse the effect of perceived loneliness on several dimensions of personal well-being among elderly and middle-aged people who live alone. Two concepts, social disability and relationship satisfaction were selected so as to cover the aspect of social well-being. The part of well-being that relates to health was also approached with two concepts, self-rated health and cognitive ability. The key concepts are briefly defined in Table 1.

Table 1. *Central Concepts Of The Study*

Concept	Definition
Self-rated health	The degree to which the individual perceives their own well-being in terms of overall health status and mobility.
Social network	The degree of problems in maintaining and establishing relationships.
Relationship satisfaction	How satisfying and reliable the individual perceives their current relationships.
Cognitive ability	The perception of the individual's ability to remember, learn and concentrate.
Loneliness	The degree to how threatening the individual regards loneliness.

Based on the previous discussion and literature, we propose the following research model illustrated in Fig. 1. The aim is to model the simultaneous effect that loneliness has on the selected indicators of well-being. We set the following hypotheses: Loneliness is expected to have a negative influence on self-evaluation of health (H1). The inability to maintain and create new relationships is hypothesized to have a positive relationship with loneliness (H2). Considering social relationships and their quality, it is assumed that loneliness is negatively related to the satisfaction with current relationships (H3). Finally, it is hypothesized that loneliness has a negative influence on cognitive ability (H4). By testing these hypotheses, it is possible to compare well-being and distinguish which aspect of well-being loneliness has the greatest effect. The effect of gender will also be analysed, and therefore, we propose a hypothesis that loneliness has a stronger negative effect on well-being and more strongly increases social disability among males living alone (H5).

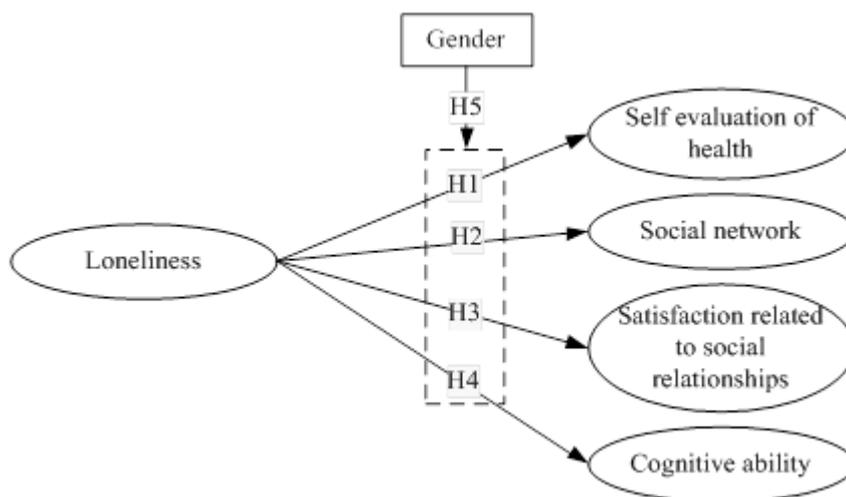


Figure 1. *Research model*

Although the modelling in the present paper concentrates on how loneliness affects the dimensions of well-being, it is necessary to keep in mind that these relationships could often be bidirectional and have circulating effects.

Method

Participants and Procedure

The empirical evidence for the present study was collected using a mail survey as part of a larger research project. The sample consisted of individuals in the age range 55 to 79. The sample was based on the year of birth, divided into five year groups that were of equal size. With these specifications, a random sample of 3,000 people was drawn from the Finnish Population Register Centre covering the continental part of Finland. The questionnaire was carefully designed for the target group, and a pretest of the questionnaire was conducted so as to make sure that all the

questions were understandable from the respondent's perspective. Some modifications were made based on the feedback before the mass mailing was carried out.

Ethical considerations were taken into account with the cover letter, where the focus was placed on issues of privacy, anonymity, and confidentiality. In addition, it was made clear that responding to this questionnaire was voluntary.

The final number of responses was 1,677 producing a response rate of 56 percent. As the purpose of the article is to analyse the elderly living alone, the respondents who were living alone were separated and their share was 27.4 percent. Because of incomplete answers in the questionnaire, the effective sample of respondents living alone was 425. Fig. 2 illustrates the age distribution of the elderly living alone as well as differentiating the distribution by gender. The oldest group has more than double the number of respondents compared to the youngest age group. Analysed by gender, those living alone included 72.8 percent of females. By marital status, the elderly living alone included widowed persons (41.4 percent), divorced (34.3 percent) and the minority were unmarried (24.3 percent). From the respondents 30.6 percent did not have any education, and a bit over third of the respondents had finished vocational education (34.8 percent). University and polytechnical level of education was represented by 34.6 percent of the respondents. A clear majority of the respondents (69.3 percent) had a monthly income less than 1 500 euros.

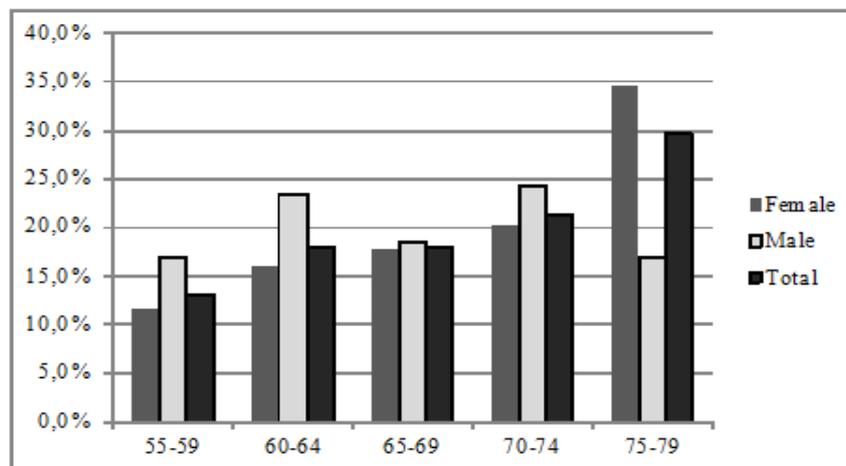


Figure 2. Age distribution of the elderly living alone

Statistical Analysis

Besides simple descriptive analysis, structural equation modeling is used as a tool for analysing the data. Modelling uses polychoric correlations and asymptotic covariances as an input data for the estimation of the structural model owing to the ordinal nature of the variables (Olsson, 1979; Rigdon, 1998). The estimation method was unweighted least squares, which has no assumptions of the distribution of the observed variables (Long, 1983). The concepts and their measurements were analysed with confirmatory factor analysis and evaluated with composite reliability and

average variance extracted (Diamantopoulos & Siguaaw, 2000; Fornell & Larcker, 1981). Because of the complexity of the model and the number of observed variables, the structural analysis was conducted with summated scales. This approach takes into account the information of multi-item measurement that was verified with confirmatory factor analysis. Summated scales are thus formed based on the measurement model taking into account the measurement error and they are used as single-item indicators of the latent concepts (see e.g. Childers et al., 2001; Fisher & Price, 1992). The complexity of the model arises from the multigroup analysis approach that estimates the suggested model for both groups (aged living alone or with someone).

Measurement Model

The measurement of the central concepts of the study were measured with multi-item scales. Table 2 gives details of the items that were used as indicators. All the measurement items applied a seven-point Likert scale; however, because of the formulation of the questions, not all of them were measured with equal scales.

The first item of **the self-evaluation of well-being** is based on the global measure for self-rated health (Jelicic & Kempen, 1999; Vaez, Kristenson & Laflamme, 2004). This measure of self-rated health is a non-comparative measure that indicates the perception of current state of health, and it is widely used in research on self-rated health. To increase the power in the measurement, the dimension of perceived health status was complemented with the perception of the state of the person's mobility.

Instead of measuring the **social network** in quantitative terms, i.e. numbers of social contacts, a more qualitative aspect was desired. Therefore social network had two indicators that were developed in order to measure the inability to maintain existing relationships and inability to create new relationships. The measurement for social network thus has a negative tone in the wording of the items.

Satisfaction related to social relationships concerned the satisfaction a person feels with their current state of social relationships and how stable the relationships are. The respondents were asked to rate their satisfaction and reliability with current relationships using a scale ranging from 1=extremely poor to 7=extremely good.

The measurement items selected to cover the level of **cognitive ability** were modified from the cognitive factor of the Zung Self-Rating Depression Scale (Passik et al., 2000). Three items reflecting the state of cognitive function were targeted to gather information related to the respondents' perception of memory, learning, and concentration.

Loneliness was measured using two items that captured how uncomfortable the person perceived living and being alone. Instead of asking how lonely a person feels, this approach selected because a person can feel lonely, but it does not necessary interfere the life quality. The purpose of the measurement items was therefore to capture the negative aspect of loneliness in everyday life and living.

Table 2. *Measurement Items*

Concept	Questions and items	Scale
Self-evaluation of health	How would you evaluate the following issues in your life? -Overall health status -Mobility	1 = Very poor 7 = Extremely good
Social network	To what extent do you have problems in the following areas? -Maintaining social relationships -Creating social relationships.	1 = No difficulties 7 = Extremely difficult
Relationship satisfaction	Please indicate your current life status related to the following issues. -Satisfaction regarding current relationships. -Reliability of current relationships.	1 = Very poor 7 = Extremely good
Cognitive ability	To what extent do you agree or disagree with the following statements? -My memory works well. -I can handle different things as easily as ever before. -I can think as clearly as ever before.	1 = Totally disagree 7 = Totally agree
Loneliness	How threatening do you consider the following eventualities in your life? -Living alone -Being alone	1 = Not at all 7 = Very much

A multigroup analysis was applied in order to confirm that the measurement is invariant across genders. This means that the confirmatory factor analysis was conducted simultaneously for both groups (Byrne, 1998). The procedure included phases of 1) structural invariance (composition of the measurement model is the same in both groups), 2) metric invariance (equal factor loadings in both groups), and 3) factor variance invariance (Atienza, Balaquer & Garcíá-Merita, 2003; Byrne & Miller, 2009). After achieving measurement invariance, the reliability of the measurement was verified by computing the composite reliability coefficient (suggested limit .70) and the coefficient of average variance extracted (suggested limit .50) (Diamantopoulos and Siguaw, 2000). All concepts under concern had an excellent level of reliability for both men and women, thus supporting the invariance of the measurement. The good level of measurement reliability and invariance made the analysis of structural invariance possible.

Table 3 summarizes the measurement of key concepts, the descriptive statistics of summated scales (average score of the items) separately for male and female respondents, as well as the level of measurement reliability in terms of composite reliability and average variance extracted. In addition, the mean difference across genders was assessed with a t-test, showing that the level of social disability is higher among men, and the relationship satisfaction is higher among female respondents.

Table 3. Summary of The Measurements of Key Concepts

Measured concept	Scale	N of items		Female	Male
Self-evaluation of health	Evaluation of current state of health and mobility. 1 = Very poor 7 = Extremely good	2	Mean	5.157	4.955
			Std. Dev.	1.379	1.463
			CR	0.833	0.833
			AVE	0.715	0.715
Social network*	Difficulty related to maintaining and obtaining social relationships. 1 = Low difficulties 7 = Extremely difficult	2	Mean	1.422	1.779
			Std. Dev.	0.995	1.283
			CR	0.835	0.873
			AVE	0.717	0.776
Relationship satisfaction	Level of satisfaction related to current social relationship. 1 = Very poor 7 = Extremely good	2	Mean	5.526	5.221
			Std. Dev.	1.306	1.356
			CR	0.825	0.785
			AVE	0.701	0.650
Cognitive ability	Statements related to memory and learning. 1 = Totally disagree 7 = Totally agree	3	Mean	5.262	5.217
			Std. Dev.	1.164	1.119
			CR	0.875	0.739
			AVE	0.702	0.586
Loneliness	Statements related to loneliness. 1 = Totally disagree 7 = Totally agree	2	Mean	1.855	1.780
			Std. Dev.	1.460	1.382
			CR	0.764	0.753
			AVE	0.620	0.607

*Groupwise difference significant at $p < .05$

Results

The research model in Fig. 1 was tested with structural equation modeling using a multigroup analysis approach. The multigroup modelling is applied for testing whether the structural paths in the model are invariant across the groups or not. The first step was to estimate the model

separately for both groups simultaneously, meaning that the path coefficients were estimated independently for males and females (referred to as the base model). The estimation of the full model for both groups produced a good fit to the data. The goodness of fit index was also assessed for both groups, indicating a good fit for both genders. The fit of the model was assessed with chi square, root mean square of approximation (RMSEA), normed fit index (NFI) non-normed fit index (NNFI) and goodness of fit index (GFI). According to literature, NFI, NNFI and GFI should exceed .9 for a good fit, RMSEA should be lower than .05 and chi square insignificant (see e.g. Hair et al., 1998; Kelloway, 1998). Subsequently, all paths in turn were forced to be identical across the groups (referred to as the restricted models) and the chi-square change compared to the base model was used as an indicator of the significance of the change. Table 4 summarizes the results of the analysis. The standardized path coefficients from the base model are represented for both genders separately. The last column of the table provides the information on the change in the model fit after each of the paths was restricted (i.e. forced to be identical across the groups).

Table 4. Results of The Structural Multi-Group Analysis

Path	Female		Male		Restricted (ddf=1)	
	beta	p	beta	p	dkhi	p
Loneliness → Self-evaluation of health	-.795	***	-.805	***	.44	ns
Loneliness → Social network	.766	***	.837	***	.38	ns
Loneliness → Relationship satisfaction	-.821	***	-.971	***	.25	ns
Loneliness → Cognitive ability	-.461	*	-.668	***	.37	ns

Base model goodness of fit

$\chi^2=6.12$ (df=13, p=.943), RMSEA = .010, NFI = .991, NNFI = 1.016, GFI = .992 (women) / .979 (men)

*p < .05, **p < .01, ***p < .001, ns = not significant

Starting from the base model, all the path coefficients were statistically significant for both groups. In addition, the directions of the relationships were the same as expected. Starting from the first hypothesis (H1), loneliness has a rather high negative influence on self-evaluated health. The effect is slightly stronger for males. The next hypothesis (H2) suggested that loneliness has a positive relationship with social network. This was supported by the analysis, and as social network here refers to the inability to maintain and create relationships, it can be concluded that stronger loneliness is disabling the maintenance of social networks. The third hypothesis (H3) links loneliness to relationship satisfaction. As proposed, loneliness has a negative influence on relationship satisfaction for both males and females. The fourth hypothesis related to the baseline

model (H4) is also supported, indicating that loneliness has a decreasing effect on cognitive ability. For both genders, this relationship is weakest, although statistically significant.

The second part of the study was to assess the influence of gender (Hypothesis 5). The multigroup analysis suggests that loneliness affects the well-being of men and women in the same way. The model did not deteriorate significantly even when forcing any of the path coefficients to be identical. A little deterioration occurred, but it appears to be insignificant with the change of one degree of freedom in the model. This therefore makes an interesting contribution to the research field. However, there is a slight difference in the strengths of the relationships in the expected direction in our hypothesis that males would have stronger relationships between loneliness and well-being indicators. This might be partly explained because the level of loneliness felt by different genders is the same, whereas the level of social disability and relationship satisfaction differs among the two groups.

Discussion

The specific focus of this study was to examine how loneliness is associated with health and social well-being for older people and middle-aged people living alone. The empirical analysis verified a model that takes into account the simultaneous effect of loneliness on several indicators of well-being, in other words, the model that was proposed and tested succeeded in analysing how loneliness influences the entity of health and social well-being. To conclude, the results showed that loneliness has a negative impact on people's perceptions related to health status and cognition. In addition, loneliness negatively affects the satisfaction with relationships, despite increasing the level of social networks. This means that people with high loneliness have problems in maintaining and establishing relationships, and that the nature of the relationships currently evolving is unstable and more temporary. In the present study, loneliness reduces the satisfaction with social relationships that arises possibly from the psychological factors including expectations regarding relationships and satisfaction with current relationships (Jones & Hebb, 2003; Pessi & Seppänen, 2011; Stephens et al., 2011). Social relationships play an essential role in health, and well-being and may be particularly important during older age (Holt-Lundstad, Smith & Layton, 2010). When people feeling lonely change their behaviour and deliberately begin to avoid social contacts, the perceived social network becomes higher. Loneliness can, therefore, be related to stronger motivations to avoid negative social outcomes and weaker motivations to approach positive social outcomes, and also poses strong expectations of negative social outcomes and minor expectations for positive social outcomes (Gable, 2006).

Cognitive functioning has been suggested to be closely attached to health and lifestyle issues and motivation (Yeh & Liu, 2003). Decreases in cognition might be one response to loneliness, because, apart from illness, physical, physiological, and social activities are also related to information processing capabilities as a central part of cognition. The association of loneliness and cognitive ability has been discovered in previous literature; for instance, the review of Cacioppo and Hawkley (2009) revealed that loneliness is a risk factor for poorer overall cognitive performance and faster cognitive decline.

Conclusion

Research has indicated that institutionalization is more likely for elderly women and men living alone (Miller & Weissert, 2000). In addition, indications have been found suggesting that living alone is an important predictor of receiving home help (Hyllen, 1997), and therefore highlighting that one role of home care and social work relates to the absence of social contacts. However, the associations of loneliness and dimensions of well-being and their causes are difficult to approach. The probable circular effects of physical and mental health, cognition, and social abilities, however, make conclusions of the role on loneliness rather difficult. Reciprocal relationships are one important aspect that should be of concern if we examine health and social well-being as an entity. Despite that, loneliness is challenging to conceptualize and measure (McWhirter, 1990). If loneliness with its severe consequences could be detected, it could prevent social isolation and could slow down the circulation where the limitations in, for instance, health lead to reductions in social contacts, which eventually lead to loneliness and decreasing social ability, and so on. The social care system working together with health authorities has a huge opportunity to develop the service strategies that respond to loneliness. Older people present a significant challenge and opportunity for social work. Social work relates to the provision and management of different kinds of social support to them, and it plays a major role in reaffirming the resilience and power of these individuals. Our findings like Geroni et al. (2017) suggest the importance of the support that elderly people receive from social relationship. According to Courtin & Knapp (2015) loneliness and social care service use by older people is also under-researched and future research should link the evidence on risk factors for loneliness. Our study findings are challenging to develop innovative forms of social support against the loneliness of the older people who living alone.

The results of our study has some limitations. First, self-reported data has itself some well known limitations. The second our findings cannot be generalized directly in all countries. The third, considering the research model, our approach did not include any other explanatory variables for well-being indicators, because we only wanted to focus on the consequences of loneliness. Despite this, however, the results have important implications for the research field. Our findings of the relationship between loneliness and health is in line with the results of Stephens et al. (2011) who found that loneliness contributes to both physical and mental health. Considering self-evaluated health, the perception of health is strongly related to functioning (Johnson & Wolinsky, 1999), but the broadest definitions consider health as a subjective experience to be situational (Blaxter, 1990) and self-evaluation of health to be a response to physical, mental, and social effects of illness on daily living and therefore an important part of the quality of life (Vaez, Kristenson & Laflamme, 2004; Veenhoven, 1996; Raijas, 2011; Uusitalo, 2011). According to Idler and Benyamini (1997), self-rated health reflects the presence or absence of resources that can attenuate a decline in health. Besides the individual's own resources, these resources are partly provided by the external environment (e.g. social networks). Suggestions that perceived health predicts the need for care (Fielding & Li, 1997) makes loneliness as a risk for health a very noteworthy issue.

Compliance with Ethical Standards:

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Ethical approval: This article does not contain any studies with human participants or animals performed by any of the authors.

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