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Original Article

Loneliness in Retirement

Emeklilikte Yalnızlık

Alen GREŠ[1], Nika SPASIĆ[2], Dijana STAVER[3]

[1]University Hospital Center Zagreb, Department of Psychiatry and Psychological Medicine, Zagreb, Croatia
[2]General Hospital Pula, Clinic of Psychiatry, Zagreb, Croatia
[3]University Psychiatric Hospital Vrapče, Zagreb, Croatia

ABSTRACT

Objective: Loneliness has been identified as a subjective unpleasant feeling of emptiness and distress, affecting diverse age groups, particularly retirees. Retirement is a major life event characterized by the cessation of professional activities and the loss of regular income. These phenomena are often combined and their relationship can be complex.

Methods: The research encompassed 75 randomly selected outpatients at the University Hospital Center Zagreb, Department for Psychiatry and Psychological Medicine in Zagreb Croatia with an anxiety disorder who were in remission and met the inclusion criteria. The participants were divided into three groups of 25 respondents: five years before retirement, one year before retirement, and one year after retirement. The participants were tested once using psychological tests: The University of California, Los Angeles (UCLA); and the Mini International Neuropsychiatric Interview.

Results: This study examined loneliness among 75 participants across retirement phases. UCLA Loneliness Scale scores increased significantly from pre to post-retirement ($p<0.001$), peaking one year after retirement. Emotional loneliness, particularly feelings of isolation, rose sharply, while social loneliness increased gradually. A One-Way Analysis of Variance confirmed a significant effect of retirement on loneliness, $F(2.72)=24,561$, $p<0.001$, with an impact level of $\eta^2=0.405$. A substantial impact is observed on emotional and social well-being.

Conclusions: Study results indicate a significant increase in loneliness among retired individuals. Transition to retirement can have an impact on individuals' emotions and social interactions. There is a need to support retirees in establishing new daily routines.

Keywords: Loneliness, retirement, anxiety disorder, social interactions, support

ÖZ

Amaç: Yalnızlık, başta emekliler olmak üzere çeşitli yaş gruplarını etkileyen, öznel ve hoş olmayan bir boşluk ve sıkıntı hissi olarak tanımlanmıştır. Emeklilik, mesleki faaliyetlerin sona ermesi ve düzenli gelirin kaybı ile karakterize edilen önemli bir yaşamsal olaydır. Bu olgular genellikle bir arada görülür ve aralarındaki ilişki karmaşık olabilir.

Yöntemler: Araştırma, Hırvatistan'ın Zagreb kentindeki Zagreb Üniversite Hastanesi Psikiyatri ve Psikolojik Tıp Bölümü'nde anksiyete bozukluğu için ayakta tedavi gören ve remisyonda olan ve dahil edilme kriterlerini karşılayan rastgele seçilmiş 75 hastayı kapsamaktadır. Katılımcılar emeklilikten beş yıl önce, emeklilikten bir yıl önce ve emeklilikten bir yıl sonraki gruplar olarak 25'er kişilik üç gruba ayrılmışlardır. Katılımcılar psikolojik testler [California Üniversitesi, Los Angeles (UCLA) yalnızlık ölçeği ve Mini Uluslararası Nöropsikiyatrik Görüşme] kullanılarak bir kez test edilmişlerdir.

Bulgular: Bu çalışmada, 75 katılımcı arasında emekliliğin aşamalarındaki yalnızlık incelenmiştir. UCLA Yalnızlık Ölçeği puanları emeklilik öncesinden emeklilik sonrasına önemli ölçüde artmış ($p<0,001$) ve emeklilikten bir yıl sonra zirveye ulaşmıştır. Duygusal yalnızlık, özellikle de izolasyon hissi keskin bir şekilde yükselirken, sosyal yalnızlık kademeli olarak artmıştır. Tek yönlü varyans analizi, emekliliğin yalnızlık üzerinde anlamlı bir etkisi olduğunu doğrulamıştır [$F(2,72)= 24.561$, $p<0,001$, etki düzeyi $\eta^2=0,405$]. Duygusal ve sosyal refah üzerinde de önemli bir etki gözlenmiştir.

Sonuçlar: Çalışma sonuçları, emekli bireyler arasında yalnızlıkta önemli bir artış olduğunu göstermektedir. Emekliliğe geçiş, bireylerin duyguları ve sosyal etkileşimleri üzerinde etkili olabilir. Emeklilerin yeni günlük rutinler oluşturmalarında desteklenmeleri gerekmektedir.

Anahtar kelimeler: Yalnızlık, emeklilik, aksiyete bozukluğu, sosyal etkileşimler, destek

INTRODUCTION

"... how hard it is to be weak. How hard it is to be alone and to be old, yet so young!"

Tin Ujević

Loneliness can be defined as a subjective experience of social isolation based on frustrated needs for belonging and a sense of dissonance between the expected and the actually existing quality of social relationships[1]. It is a truly universal experience, which means that every person will encounter loneliness at some point in their

Address for Correspondence: A. Greš, MD, University Hospital Center Zagreb, Department of Psychiatry and Psychological Medicine, Zagreb, Croatia
E-mail: alengres@gmail.com **ORCID ID:** orcid.org/0009-0003-7189-9340

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life[2]. The concept of loneliness has been discussed since Ancient Greece. Aristotle himself emphasized that a person who is not social cannot be anything other than a beast or a god; *i.e.*, he cannot be a fully human being. There are many classifications of loneliness, but the most renowned one is the Weiss typology of loneliness, which distinguishes between emotional and social loneliness[3,4]. Recent reasearchs claims that loneliness can manifest itself through a number of different dimensions of human existence. On a biological level, loneliness can be characterized as internal stress. On the psychological level, it creates a subjective feeling of rejection and pain. On a deeper spiritual level, it affects questions of meaning[5].

Loneliness has become an epidemic problem in contemporary society, which we cannot ignore, because it has produced serious psychological and health consequences[6]. In the European context, loneliness disproportionately affects the elderly. The significance of this issue is accentuated by Europe's large and growing elderly population. The increase in life expectancy has contributed to later retirements. The phenomenon of individuals working full-time or part-time in retirement has become increasingly prevalent in the 21st century[7,8].

Loneliness is not the same as solitude. Solitude is an objective indicator that a person does not have other people around him or her, while loneliness is a subjective experience of insufficient or deficient relationships with other people[9]. The positive aspect of loneliness can be beneficial. Furthermore, it encourages a person to seek and establish relationships. Importantly, the study discovers and eliminates its psychological causes[10].

In contrast, severe or prolonged episodes of loneliness can act as chronic stressors that damage well-being and health. Addressing this issue requires a substantial investment in social relationships[11]. As individuals age, there is an increasing probability of encountering health limitations and illnesses that may impede their capacity for social engagement[12].

Retirement represents the culmination of a phase in the life of every individual who no longer has professional activities, loses regular salary for the work performed, and brings the working life to a definitive conclusion. According to many experts, retirement is characterized by elevated stress levels and the dissolution of previously held roles and responsibilities[13]. Before the advent of globalization, modern technology, and an organized pension system, people worked as long as their health allowed them. There was no limit that marked when a person was ready for retirement[14].

There are two categories of retirement: voluntary and involuntary. Voluntary retirement refers to an employee's decision to leave their position prior to reaching the statutory retirement age. Involuntary retirement is caused by external factors, not by personal choice. It has been shown to negatively affect depression, life satisfaction, and stress levels[15]. In the retirement phase, an individual ceases to be an active member of the working world. This period of life is often accompanied by a sense of mortality and a fear of death[16]. It is not possible to assert that the process is the same for everyone because we do not all age in the same way, influenced by a combination of psychological, biological, and social factors. The spirit and nature of each individual is the foundation of their unique identity[17].

Despite numerous medical discoveries and achievements of the modern era, death still eludes human control. The terms "illness" and "death" are commonly associated with old age and retirement[18,19]. As indicated by the biological aspect of aging, individuals experience a decline in physical strength and an increase in physical dependence on others. The social institution creates structures to govern the dependence of people considered helpless[20]. The notion of retirement can evoke a concept that sounds scary and intimidating to any of us. A significant proportion of retirees have adult children who themselves have their own families, which is a common occurrence concomitant with retirement[21].

Assuming that an individual is in good health when entering the third age upon retiring, they will have a significant amount of free time at their disposal. After many years of work, these situations can have a negative effect on the transition to retirement[22]. Prejudices are frequently correlated with advanced age: a tendency to get sick, being unproductive, impaired cognitive function, depression, and express dissatisfaction[23]. In addition to the fears that accompany the transition to retirement, older adults must confront prejudicial attitudes that are prevalent in society[24].

The study hypothesizes that loneliness increases significantly during the transition to retirement, with the highest levels observed post-retirement. The objective of this study was to examine the effects of retirement on the degree of loneliness experienced by individuals with anxiety disorders.

MATERIALS and METHODS

Study Design

A 12-week December 5th, 2024-March 4th, 2025 randomized controlled trial was carried out at the University Hospital Center Zagreb, Department for Psychiatry and Psychological Medicine in Zagreb, Croatia. A total of 75 outpatient participants who met the inclusion criteria were randomly assigned to three age groups, with 25 participants per group. Five years before, one year before, and one year after involuntary retirement.

Inclusion criteria required the following: Participants to have a diagnosed anxiety disorder, be aged 55-66 years, and have stable remission maintained for ≥6 months. Exclusion criteria comprised: Psychotic decompensation, antipsychotics, current depression, antidepressants, suicide attempts, or substance/alcohol use within the preceding 6 months.

All participants underwent psychiatric examination, including general questionnaires and psychological testing including the University of California, Los Angeles (UCLA) test to measure loneliness levels and the Mini International Neuropsychiatric Interview (MINI) to exclude depression and psychosis.

Measuring Instruments

1. General questionnaire (sociodemographic and medical data).

Gender: m/f, level of education (elementary, high school, university), marital status-married, widowed, divorced, single, offspring yes/no, if yes, how many children, employment status: employed or unemployed. Family history, suicide attempt, diagnosis.

2. The short form of the UCLA Scale was used to measure loneliness[25]. This scale quantifies loneliness as a unidimensional construct. It has seven items with five points. Participants were instructed to indicate on a five-point rating scale how much each statement applied to them, ranging from 1 (does not apply to me at all) to 5 (completely applies to me). The total score is derived as a linear combination of the scores from all seven items, with higher scores indicating greater levels of loneliness. The UCLA scale was utilized in a Croatian sample comprising different age groups. The scale has been found to possess satisfactory discriminant validity[26].

3. MINI was utilized to rule out the presence of depressiveness and psychoticism, as it is a structured interview according to the criteria from the Diagnostic and Statistical Manual of Mental Disorders. The psychiatric interview is consistent with a biopsychosocial approach to mental disorders, and it is crucial to grant the patient the opportunity to articulate in his own words his experiences and concerns. The formulation of a diagnosis and the acquisition of additional pertinent data are facilitated by specific questions. This comprehensive approach enables a thorough evaluation of the patient's condition and the development of a tailored treatment plan. The patient must be informed of the rationale behind the psychiatric interview, such as diagnosis, research, treatment determination, or the assessment of capacity to work or disability, along with any other pertinent rights[27].

Statistical Analysis

The statistical methods used for data analysis of this study were descriptive statistics: numbers, percentages, means, and means and standard deviations (SDs). Statistical analyses were conducted using IBM SPSS version 19.0. tables and figures were created in MS Excel.

Ethical Approval

This study was approved by the Ethical Committee of the University Hospital Center Zagreb, Croatia, class: 8.1-24/266-2, number: 02/013 AG, dated December 4th, 2024, before recruitment of the first participant. Participants were provided with a detailed explanation of the study protocol, and written informed consent was obtained from each individual. All procedures were carried out in accordance with the ethical principles outlined in the Declaration of Helsinki.

RESULTS

Demographic Characteristics

The final sample included 75 participants. Women comprised the majority at 54.7%, while men accounted for 45.3%. The majority of participants (68%) were younger than 65 years, while 32% were 65 years or older. As anticipated, the analysis revealed a statistically significant difference in the distribution of age groups. The result was significant ($p<0.001$) because all retired participants belonged to the older age group.

Over half of the participants were married (56%), while 32% were divorced, 9.3%, were single, and a minority (2.7%) were widowed. Importantly, marital status was evenly distributed across all age groups ($p=0.49$). Education level was also well distributed across groups ($p=0.40$), with the majority (50.7%) having completed high school, 32% holding a university degree, and 17.3% having finished elementary school.

As shown in Table 1, 60% of participants were employed, while 33.3% were retired and 6.7% were unemployed. Given the structure of the sample, it was expected that the employment distribution would not be equal (p<0.001). The majority of participants (89.3%) had children, while 10.7% were childless. However, no statistically significant difference was observed between the groups in this regard (p=0.37).

Psychiatric diagnoses were evenly distributed among the three groups (p=0.80), with 50.7% diagnosed with F41 disorders and 49.3% diagnosed with F43.2 disorders. Regarding the hereditary aspect of psychiatric illness, 24% of participants reported having a family member with a mental illness, with the difference between groups is approaching statistical significance (p=0.07). Only one person had a history of a suicide attempt.

Table 1. Demographic characteristics.

Category	Subcategory	p-value
Sex	Female: 54.7%	0.42
	Male: 45.3%	
Age	<65: 68%	<0.001*
	≥65: 32%	
Marital status	Single: 9.3%	0.49
	Married: 56%	
	Divorced: 32%	
	Widowed: 2.7%	
Education	Elementary: 17.3%	0.40
	High school: 50.7%	
	University: 32%	
Employment	Unemployed: 6.7%	<0.001*
	Employed: 60%	
	Retired: 33.3%	
Children	Yes: 89.3%	0.37
	No: 10.7%	
Diagnosis	F41: 50.7%	0.80
	F43.2: 49.3%	
Family history	Yes: 24%	0.07*
	No: 76%	
Suicide attempt	Yes: 1.3%	0.36
	No: 98.7%	

*As indicated by the symbol

This indicates a statistically significant difference or association when compared between the studied categories and other categories. The p-value for that specific category is statistically significant, typically at a threshold of p<0.05.

University of California, Los Angeles Loneliness Scale Analysis

As seen in the descriptive statistics for the UCLA total score in Table 2, the mean UCLA loneliness score increased across the three groups. The lowest mean score was observed five years before retirement (M=13.32, SD=3.26), followed by one year before retirement (M=15.20, SD=2.55), with the highest mean score found one year post-retirement (M=18.96, SD=2.83).

A One-Way Analysis of Variance (ANOVA) revealed a significant effect of retirement on loneliness levels, F (2, 72) = 24.561, p<0.001, with a large effect size η^2=0.405, indicating that approximately 40.5% of the variance in loneliness scores can be explained by retirement status. This strong effect size suggests a substantial increase in feelings of loneliness after retirement.

Post-hoc Tukey honestly significant difference (HSD) analysis indicated that loneliness scores one year after retirement were significantly higher than both one year prior (p<0.001) and five years prior to retirement (p<0.001). Notably, the difference between five and one year prior to retirement was not statistically significant (p=0.07).

Further analysis of item-level UCLA loneliness responses revealed differences across time points. UCLA item 3, "I feel isolated from others," showed the largest increase, with mean scores rising from M=2.3 (five years before) to M=2.5 (one year before) and peaking at M=2.8 (one year after retirement). Similarly, UCLA item 4, "I feel alone," increased from M=2.2 to M=2.4 before reaching M=2.7 after retirement. These results suggest that emotional loneliness, characterized mainly by feelings of isolation, post-retirement, is the most affected aspect of loneliness.

Social loneliness also increased but more gradually. UCLA item 1, measuring lack of companionship, rose from M=1.9 (five years before) to M=2.1 (one year before) and M=2.4 (one year after). A similar trend was observed

Table 2. UCLA total score descriptive statistics.

Group	N	Mean	SD	Minimum	Maximum
5 years before	25	13.32	3.262	9	23
1 year before	25	15.2	2.55	8	20
1 year after	25	18.96	2.835	11	22

SD: Standard deviation, UCLA: University of California, Los Angeles

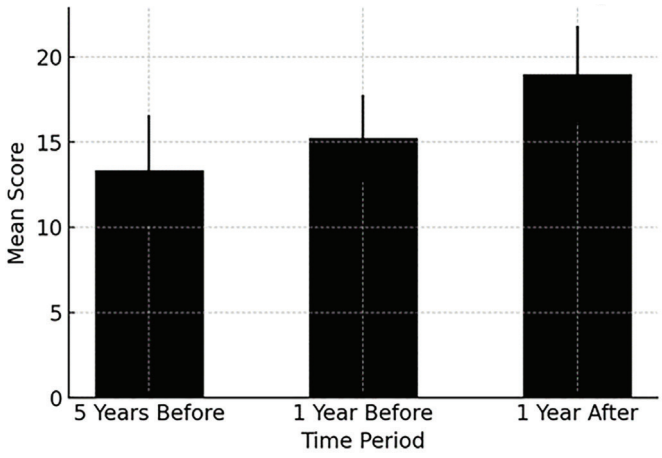

Figure 1. Mean UCLA total score across groups.
UCLA: University of California, Los Angeles

in UCLA item 2, assessing feelings of being left out (M=2.0→M=2.2→M=2.5). These findings suggest retirees maintain social interactions, but experience a gradual decline in social belonging.

Lastly, perceived social support slightly declined. Items four, five, and six increased by 0.2 points from five years before to one year after retirement. Notably, UCLA item 7, "There are people who really understand me," saw a larger rise (M=2.2→M=2.5), indicating a rising sense of emotional detachment.

DISCUSSION

The objective of the present study was to assess the likelihood of increased loneliness in patients prior to and following retirement. Our results suggest that emotional loneliness characterized by feelings of isolation, loneliness, or misunderstanding increases more sharply after retirement than social loneliness, which is defined as a lack of companionship and feelings of being left out.

Sociodemographic Data

The final sample included 75 participants. Women comprised the majority (54.7%), while 45.3% were men. The majority of participants (68%) were younger than 65 years, while 32% were 65 years or older. Over half of the participants were married (56%), while 32% were divorced, 9.3% were single, and a minority (2.7%) were widowed. Importantly, marital status was evenly distributed across all age groups (p=0.49). Education level was also evenly distributed across groups (p=0.40), with the majority (50.7%) having completed high school, 32% holding a university degree, and 17.3% having finished elementary school.

Psychiatric diagnoses were evenly distributed among the three groups (p=0.80), with 50.7% diagnosed with F41 and 49.3% diagnosed with F43.2. Regarding the hereditary aspect of psychiatric illness, 24% of participants reported having a family member with a mental illness, with the difference between groups approaching statistical significance (p=0.07). Only one person had a history of suicide attempt.

Analysis of the University of California, Los Angeles Loneliness Scale

The mean UCLA loneliness score increased gradually from five years prior to retirement to one year prior to retirement, peaking one year after retirement, according to the UCLA total score shown in Table 2. Findings indicate a notable increase in emotional loneliness post-retirement. Retirement has a statistically significant impact on loneliness levels [F (2.72)= 24,561, p<0.001], according to the results of the one-way ANOVA, with a substantial effect size (η^2=0.405). According to the research, loneliness was significantly higher after retirement, underscoring the necessity of focused interventions like social support networks.

The results showed significantly higher scores one year after retirement compared to pre-retirement levels (p<0.001). Post-hoc Tukey HSD tests confirmed that loneliness levels were significantly higher after retirement. However, the difference between five and one year before retirement was not statistically significant (p=0.07), indicating that loneliness is a result of the transition itself. These results emphasize the necessity of focused assistance in early retirement to lessen emotional and social difficulties.

In a study by Hawkley et al.[28], researchers examined data from two surveys involving adults older than 50 years in the ultrasonography. The researchers' findings indicated that after the age of 50, which was the earliest age of participants in their study, loneliness tended to decrease until about age 75, after which it began to increase again[28]. In our study, we had a sample ranging in age from 55 to 66 years. The present study focused on the phenomenon of loneliness, highlighting the impact of major life transitions and identifying fluctuations in loneliness.

Interestingly, the same part of the brain (the anterior insula) is activated during experiences of pain and loneliness, which points to a similar emotional quality in both experiences[29].

Carr and Fang [30] conducted a study exploring the qualitative experiences of existential loneliness among

80 older adults residing in retirement communities in the United Kingdom and Australia. The study provided substantial insight into the inner lives of older people. The study identified several core themes, including the loss of close relationships, absence of physical touch and intimacy, declining physical health, and the lack of an emotional vocabulary to articulate experiences of existential loneliness. The study concluded that transition to retirement living is linked to the experience of existential loneliness[30].

Our study further examined loneliness in the context of retirement. We identified emotional loneliness (*e.g.*, feelings of isolation) as a key component, contributing to a deeper understanding of loneliness in eldery population and retirees.

Research by Shin et al.[31] found that involuntary retirement is linked to higher levels of loneliness. However, the study also indicated that involuntarily retired individuals with strong positive social support had relatively lower levels of loneliness. The findings suggested that social support may alleviate the negative impacts of involuntary retirement. No one can be forever young or healthy, and just as caring for children is considered a family obligation, so is caring for the elderly and infirm[31].

Guthmuller et al.[32] study indicates that individuals can adapt to retirement by increasing their activity levels. This leads to a reduction in feelings of loneliness and social isolation. The heterogeneity analysis indicates that this phenomenon is particularly evident among the more highly educated[32].

The results in our study also indicate that more highly educated individuals were less lonely prior to retirement. As individuals grow older, very often, their social circle tends to contract. Friends and family live far away. This can create some difficulties in maintaining social connections and establishing new relationships, particularly if health issues restrict their ability to stay active and mobile.

Sharma and Prince[33] research, had a sample of 600 retired people. The results indicated that loneliness has a negative and significant impact on the health of retired individuals. While self-esteem and physical activity have a positive and significant impact on their health, further studies are needed to understand the mechanisms involved. The study demonstrated a negative association between health and loneliness, indicating that increased loneliness contributes to a decline in both quality of life and overall health among adults[33].

Both studies emphasize that retirement is a critical period where the loss of structured social interactions and emotional support can lead to increased loneliness. They also emphasize the need for interventions to address these challenges. These findings are comparable to ours.

Findings from the study by Chen and Feeley[34] indicated that emotional support from a spouse or partner, as well as from friends, played a significant role in alleviating feelings of loneliness. In a survey conducted by Hajek et al.[35], regression analyses revealed that loneliness increased with advancing age; transitions from being married and cohabiting with a spouse or registered partner to other marital statuses; reductions in log income; declines in self-rated health and functional ability; increases in depressive symptoms; and decreases in cognitive functioning. Notably, loneliness was not associated with changes in the presence of chronic diseases. The data were drawn from Waves 5 to 7 of the Survey of Health, Ageing and Retirement in Europe, comprising an analytical sample of 101.909 observations[35].

Loneliness in retirement can have significant effects on both mental and physical health. Current research is mainly focused on the connection of loneliness with mortality, mental, and cardiovascular health. It is more likely that lonely people will resort more often to unhealthy behaviors like alcohol consumption, smoking, substance abuse, or excessive food intake and use them as psychological relief mechanisms[36,37].

The study by Jutengren and Ståhl[38] included a sample of 601 job-retired, community-dwelling older adults (386 females and 215 males) aged between 65 and 97 years. The results indicated that the mediation model provided a substantially better fit to the data compared to the main effects regression model. These findings suggest that emotional expressivity plays a mediating role in the relationship between social loneliness and its previously identified predictors[38].

The present study shares certain parallels with other research in the field. Loneliness was observed among retired individuals, and furthermore, the impact of retirement on social connectedness was highlighted. It is imperative to acknowledge the emotional and social dimensions of loneliness. Additionally, there is a need for interventions to address loneliness in retired individuals.

Contribution

The primary contribution of our research is its strong statistical significance. Furthermore, the present study provides valuable insights that enable a deeper

exploration of loneliness. It highlights retirement-specific loneliness dynamics, differentiation of loneliness types (emotional and social loneliness), and providing practical implications. Given the inherently subjective nature of loneliness, future studies could benefit from incorporating qualitative methods such as open-ended questions or in-depth interviews to provide richer insights.

Study Limitations

The present study was subject to several limitations. Firstly, the relatively modest sample size may have reduced the study's power. Secondly, the study did not incorporate additional laboratory tests. The absence of a control group and cross-sectional design are important limitations of the study. Consequently, future research should prioritize expanding the sample size in order to achieve better statistical power.

CONCLUSION

The transition to retirement represents a critical life event, as it often initiates significant changes across multiple domains of an individual's life. Newly retired individuals frequently report heightened feelings of loneliness during this period. Loneliness, particularly emotional loneliness, spikes after retirement, while social loneliness increases more gradually. They may feel as though they don't have any social roles and may have less contact with other people. This is a serious health problem. Further research is needed to enhance retirees' quality of life.

Ethics

Ethics Committee Approval: This study was approved by the Clinical Hospital Center Zagreb Ethics Committee (approval no: 02/013 AG, date: 04.12.2024).

Informed Consent: Participants were provided with a detailed explanation of the study protocol, and written informed consent was obtained from each individual.

Foonotes

Authorship Contributions

Concept: A.G., N.S., D.S., Design: A.G., N.S., D.S., Data Collection or Processing: A.G., N.S., D.S., Analysis or Interpretation: A.G., N.S., Literature Search: A.G., N.S., D.S., Writing: A.G., N.S., D.S.

Conflict of Interest: No conflict of interest was declared by the authors.

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REFERENCES

1. Cacioppo JT, Cacioppo S. Loneliness in the modern age: An evolutionary theory of loneliness. Exp Soc Psychol. 2018;58:127-97.
2. Kaplan D, Berkman B. The Oxford handbook of social work in health and aging. 2nd ed. New York: Oxford University Press; 2016.
3. Lacković-Grgin K. Usamljenost: fenomenologija, teorije i istraživanja. 1st ed. Jastrebarsko: Naklada Slap; 2008.
4. Šolak R, Dragičević J. Efekti percipirane socijalne podrške na usamljenost. CIVITAS. 2021;11:46-61.
5. Spitzer M. Usamljenost: Neprepoznata bolest. Zagreb: Naklada Ljevak; 2019.
6. Nuyen J, Tuithof M, de Graaf R, et al. The bidirectional relationship between loneliness and common mental disorders in adults: Findings from a longitudinal population-based cohort study. Soc Psychiatry Psychiatr Epidemiol. 2020;55:1297-310.
7. Das A. Is loneliness adaptive? A dynamic panel model study of older U.S. adults. J Gerontol B Psychol Sci Soc Sci. 2021;76:1430-40.
8. World Health Organization. Social isolation and loneliness among older people: Advocacy brief [Internet]. 2021. Available from: https://www.who.int/publications/i/item/9789240030749
9. Cohen-Mansfield J, Hazan H, Lerman Y, Shalom V. Correlates and predictors of loneliness in older-adults: a review of quantitative results informed by qualitative insights. Int Psychogeriatr. 2016;28:557-76.
10. Marčinko D, et al. Usamljenost i depresija. 1st ed. Zagreb: Medicinska naklada; 2024.
11. Huxhold O, Fiori KL, Windsor T. Rethinking social relationships in adulthood: the differential Investment of Resources Model. Pers Soc Psychol Rev. 2022;26:57-82.
12. Huxhold O, Fiori KL, Windsor TD. The dynamic interplay of social network characteristics, subjective well-being, and health: The costs and benefits of socio-emotional selectivity. Psychol Aging. 2013;28:3-16.
13. Giné-Garriga M, Jerez-Roig J, Coll-Planas L, et al. Is loneliness a predictor of the modern geriatric giants? Analysis from the survey of health, ageing, and retirement in Europe. Maturitas. 2021;144:93-101.
14. Repetti M. Retirement. In: Handbook on migration and ageing. 1st ed. Cheltenham: Edward Elgar Publishing; 2023. p.35-44.
15. van der Heide I, van Rijn RM, Robroek SJ, Burdorf A, Proper KI. Is retirement good for your health? A systematic review of longitudinal studies. BMC Public Health. 2013;13:1180.
16. Ong AD, Uchino BN, Wethington E. Loneliness and health in older adults: A mini-review and synthesis. Gerontology. 2016;62:443-9.
17. Hawkley LC, Browne MW, Cacioppo JT. How can I connect with thee? Let me count the ways. Psychol Sci. 2005;16:798-804.
18. Greš A, Staver D, Šakić B, Radovančević LJ. Thanatological perspectives in geriatrics and gerontopsychiatry. Scr Med. 2023;54:297-9.
19. Greš A, Staver D, Radovančević L. Dysthanasia. Scr Med. 2025;56:201-4.
20. Bara M, Podgorelec S. Društvene teorije umirovljenja i produktivnog starenja. Etnološka tribina. 2015;45:58-71.

21. Štifanić M. Društveni aspekti starenja i obolijevanja. Diacovensia. 2018;26:505-27.

22. Sharma P, Asthana H, Gambhir IS, Ranjan JK. Death anxiety among elderly people: Role of gender, spirituality and mental health. Indian J Gerontol. 2019;33:240-54.

23. Erber J. Aging and Older Adulthood. 3rd Chichester: Wiley-Blackwell; 2013.

24. Mali J. Ana Štambuk: Stavovi starijih osoba prema smrti i umiranju. Rev Za Soc Polit. 2019;26:267-9.

25. Allen RL, Oshagan H. The UCLA loneliness scale: Invariance of social structural characteristics. Pers Individ Differ. 1995;19:185-95.

26. Lacković-Grgin K, Nekić M, Penezić Z. Usamljenost žena odrasle dobi: Uloga percipirane kvalitete bračnog odnosa i samostišavanja. Suvremena Psihologija. 2009;12:7-22.

27. American Psychiatric Association. DSM-5: Dijagnostički i statistički priručnik za duševne poremećaje. 5th ed. Jukić V, Arbanas G, translators. Zagreb: Naklada Slap; 2013.

28. Hawkley LC, Wroblewski K, Kaiser T, Luhmann M, Schumm LP. Are U.S. older adults getting lonelier? Age, period, and cohort differences. Psychol Aging. 2019;34:1144-57.

29. Lam JA, Murray ER, Yu KE, et al. Neurobiology of loneliness: A systematic review. Neuropsychopharmacology. 2021;46:1873-87.

30. Carr S, Fang C. A gradual separation from the world: A qualitative exploration of existential loneliness in old age. Ageing Soc. 2023;43:1436-56.

31. Shin O, Park S, Amano T, Kwon E, Kim B. Nature of retirement and loneliness: The moderating roles of social support. J Appl Gerontol. 2020;39:1292-302.

32. Guthmuller S, Heger D, Hollenbach J. Werbeck A. The impact of retirement on loneliness in Europe. Sci Rep. 2024;14:26971.

33. Sharma E, Prince JB. Measuring the impact of loneliness, physical activity, and self esteem on the health of the retired people. Ment Health Soc Incl. 2024;28:893-909.

34. Chen Y, Feeley TH. Social support, social strain, loneliness, and well-being among older adults: An analysis of the health and retirement study. J Soc Pers Relat. 2014;31:141-61.

35. Hajek A, Gyasi RM, König HH. Factors associated with loneliness among individuals aged 80 years and over: Findings derived from the nationally representative "Old Age in Germany (D80+)" study. Arch Gerontol Geriatr. 2024;123:105443.

36. Mesar M, Domitrović A. Usamljenost starijih osoba na potresom pogođenom području Sisačko-moslavačke županije. Epoha zdravlja. 2023;16:27-8.

37. Murray J, Craigs CL, Hill KM, Honey S, House A. A systematic review of patient reported factors associated with uptake and completion of cardiovascular lifestyle behaviour change. BMC Cardiovasc Disord. 2012;12:120.

38. Jutengren G, Ståhl F. Determinants of social loneliness among older adults in job retirement and the role of emotional expressivity. Aging Ment Health. 2024;28:1153-61.