



META-ANALYSIS THE EFFECTS OF LONELINESS ON DEPRESSION IN ELDERLY

Muhammad Zainul Arifin^{1*}, Hasdianah Hasan Rohan²

¹Institut Teknologi Sains dan Kesehatan Insan Cendekia Medika Jombang, Jl. Kemuning No.57A, Candi Mulyo, Jombang, East Java 61419, Indonesia

²Universitas Dr. Soetomo, Jl. Semolowaru No.84, Menur Pumpungan, Kec. Sukolilo, Surabaya, East Java 60118, Indonesia

*m.zainul.arifin.2018@gmail.com

ABSTRACT

The impact loneliness on health and well-being is recognized globally as a public health problem. Loneliness can be experienced at any age, especially in the elderly. This study aimed to analyze and estimate the influence of loneliness on depression in the elderly. This type of research is meta-analysis and was carried out according to the PRISMA flow chart and the PICO model. P: elderly, I: loneliness, C: not lonely, O: depression. Search for articles in this study through databases that include PubMed, ProQuest, and Springer Link with keywords "Loneliness"[Mesh] OR "Lonely" [tiab] OR "social isolation" [tiab] AND "Depression"[tw] OR "stress" AND "Elderly" OR "older people" [tiab] AND "Multivariate analysis" [Mesh] [tiab]. The data were analyzed using the Review Manager software (RevMan 5.3). The result showed that elderly people who experience loneliness will increase the incidence of depression by 1.65 times compared to elderly people who are not lonely, this showed that loneliness is a risk factor for depression in the elderly, and its statistically significant (aOR= 1.65; 95% CI= 1.13 to 2.42; p= 0.010).

Keywords: depression; elderly; loneliness

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INTRODUCTION

Elderly is the final stage of development in the human life cycle. The age limit according to Law Number 13 of 1998, is someone who has reached the age of 60 years and over. Elderly people can be categorized based on their ability to earn a living which is divided into two types, namely potential elderly if they are able to do work or activities that can produce goods or services, and non-potential elderly if they are powerless to make a living so their lives depend on the help of others (Kemenkes RI, 2019). Globally the elderly population continues to increase, currently the population in 11 member countries of the World Health Organization (WHO), in the Southeast Asian region who are over 60 years old and over, is 142 million. Today in the largest ASEAN countries are Singapore 9%, Thailand 7%. In Indonesia, it is predicted to increase higher than the elderly population in the Asian region and globally after 2050. Numerous studies have highlighted the prevalence of loneliness and depression among the elderly population. Older adults may experience loneliness due to factors such as the loss of a spouse, reduced social interactions, physical limitations, and living alone. Depression, characterized by persistent feelings of sadness, hopelessness, and a loss of interest in activities, is a common mental health issue among the elderly. Loneliness and depression often coexist and can have a mutually reinforcing relationship, exacerbating the negative impact on overall well-being (Gilmour and Ramage-Morin, 2020).

Campagne (2019) stated that loneliness is a public health problem that is recognized globally and is one of the causes of people's welfare. Loneliness can have a significant impact on the mental, emotional health especially loneliness often leads to feelings of sadness, depression, and anxiety among the elderly. They may experience a sense of emptiness, helplessness, and a lack of purpose in life. Prolonged loneliness can contribute to cognitive decline and increase the risk of developing conditions like dementia. On physical health loneliness can negatively affect physical health in several ways. Elderly individuals who feel lonely are more likely to have poor sleep patterns, experience fatigue, and have a weakened immune system. They may also engage in unhealthy behaviors such as poor nutrition, sedentary lifestyles, and neglecting self-care, which can lead to various health issues. Loneliness also reduces quality of life, because can significantly diminish the overall quality of life for the elderly. It can lead to a decreased sense of happiness, life satisfaction, and overall well-being. Various psychosocial and biological mechanisms have been proposed to explain the relationship between loneliness and depression among the elderly. Psychosocial factors include reduced social support, diminished social engagement, and a lack of emotional intimacy, which can contribute to feelings of loneliness and subsequently increase the risk of depression. Additionally, loneliness can trigger negative cognitive patterns, such as rumination and self-criticism, which are associated with depressive symptoms (Conde-Sala et al. 2020).

Loneliness and depression are two significant challenges faced by the elderly population, particularly as they age and experience changes in their social networks and support systems. Understanding the relationship between loneliness and depression is crucial for developing effective interventions and support programs that can improve the mental well-being of older adults. This research background provides an overview of the existing literature on the effect of loneliness on depression among the elderly (Hegeman et al., 2018). Understanding the complex relationship between loneliness and depression is critical to implementing effective interventions and support systems that enhance the mental well-being of older adults. By overcoming loneliness and improving social relationships, health professionals and communities can contribute to the welfare and quality of life of the elderly population, this study aimed to see how much influence loneliness has on depression in the elderly.

METHOD

The research design was a systematic review and meta-analysis of cross-sectional studies examining the effects of loneliness on depression in the elderly. The article searches for this study used the Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA) guidelines. A comprehensive article search was conducted to find relevant articles from an electronic database published in 2014 to 2023, which are articles in English and Indonesian. The electronic databases used include PubMed, ProQuest, and Springer Link. An article search was conducted to identify studies on the effect of loneliness on depression in the elderly. The initial search was carried out based on the PICO framework (population, intervention, comparison and outcome) with the keywords used were "Loneliness"[Mesh] OR "Lonely" [tiab] OR "social isolation" [tiab] AND "Depression"[tw] OR "stress" AND "Elderly" OR "older people" [tiab] AND "Multivariate analysis" [Mesh] [tiab]. The inclusion criteria for this meta-analysis were, articles that reported an aOR and a 95% CI, articles would be excluded if they did not contain an outcome of recurrence and did not include an aOR and a 95% CI. Furthermore, the data were analyzed using the Review Manager software (RevMan 5.3).

RESULTS

Table 1.
PICO description in the primary study article on the effect of loneliness on depression in the elderly

Author (Year)	Countries	Sample	P	I	C	O
Liu et al. (2016)	China	320	Elderly people (age ≥ 60 years) from six cadre’s sanitariums in China	Social support, loneliness.	Low social support, and not loneliness.	Depression.
Domènech-Abella. (2017)	Spain	353	Elderly aged 50 years and over from Spain	Loneliness	Not loneliness	Depression
Igbokwe et al. (2020)	Nigeria	1104	Elderly aged 60 years and above.	Loneliness, anxious.	Not-loneliness, without anxious.	Depression
Hao et al. (2017)	Africa	422	Men and women aged 50 years.	Loneliness	Not loneliness	Depression
Peerenboom et al. (2015)	Netherlands	125	Persons 60 years and older	Loneliness	Not loneliness	Depression
Santos-Orlandi et al. (2018)	Brazil	341	Elderly caregivers enrolled in Family Health Units	Loneliness, anxious.	Not-loneliness, without anxious.	Depression
Palgi et al. (2020)	Israel	1059	Elderly on COVID-19 pandemic era.	Loneliness	Not loneliness	Depression, anxiety.
Holvast et al. (2015)	Netherlands	285	Elderly 60–90 years with a diagnosis of major depression	Loneliness	Not loneliness	Depression, remission.
Widhowati et al. (2020)	USA	323	Older women living alone	Loneliness	Not loneliness	Depression.

Table 2
Adjusted Odd Ratio and 95% CI data in the primary study article on the effect of loneliness on depression in the elderly

Author (Year)	aOR	95% CI	
		Lower Limit	Upper Limit
Liu et al. (2016)	0.45	0.24	0.65
Domènech-Abella et al. (2017)	6.66	4.99	8.99
Igbokwe et al. (2020)	1.19	0.84	1.69
Hao et al. (2017)	1.63	1.08	2.58
Peerenboom et al. (2015)	1.82	0.85	3.88
Santos-Orlandi et al. (2018)	4.60	1.40	14.0
Palgi et al. (2020)	1.62	1.35	1.94
Holvast et al. (2015)	0.61	0.12	1.11
Widhowati et al. (2020)	1.54	1.01	2.34

Table 1 showed a description of each primary study on the effect of loneliness on depression in the elderly, there are 9 articles spread from several continents namely Asia (China, Israel), Europe (Spain, Netherlands), Africa (Nigeria, Africa), and America (Brazil, USA). The

population counted in this study was 4,332 elderly, with the largest number of samples being the study conducted by Igbokwe et al. (2014) with a total of 1104. Table 2 showed a description adjusted odd ratio (aOR) and 95% CI data of each primary study on the effect of loneliness on depression in the elderly, with the largest number of aOR being the study conducted by Domènech-Abella et al. (2017) with aOR= 6.66.

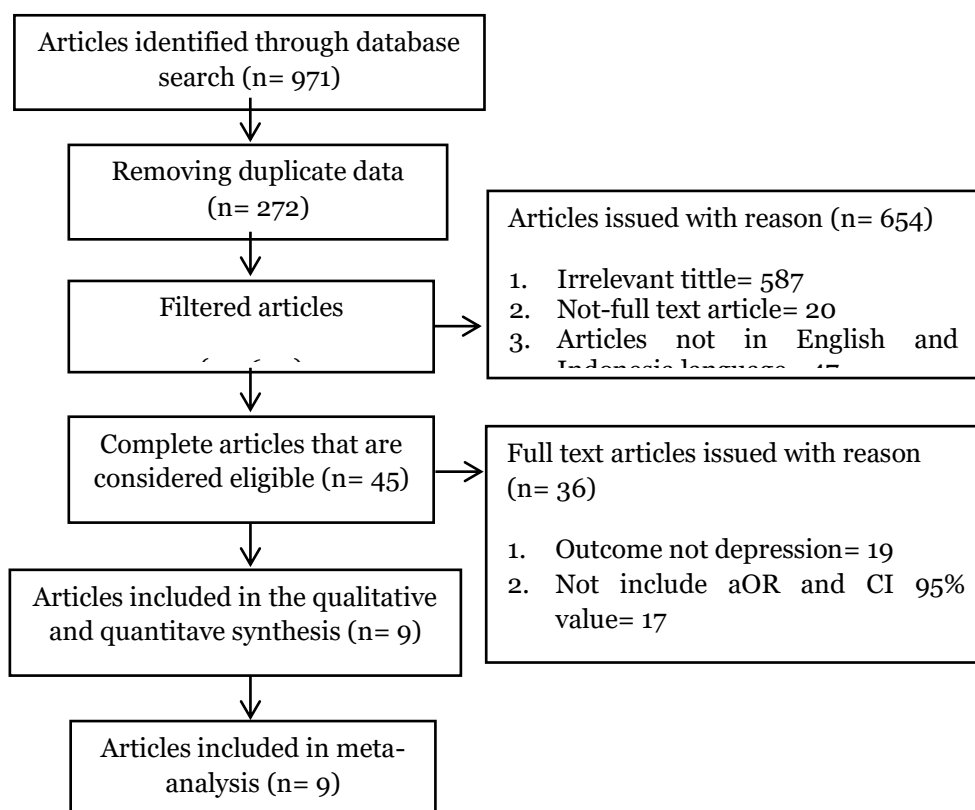


Figure 1. PRISMA flow diagram

A total of 971 articles collected from online databases, including PubMed, Science direct, and Springer Link, were articles published from 2014 to 2020. After removing duplicate data, 699 articles were obtained for review. After the article review, there were 654 articles that were excluded with the reasons that the title did not match, the article was not full text, and the article was not in Indonesian and not in English. Furthermore, there were 9 articles that met the inclusion criteria to be included in the meta-analysis. Figure 1 is a PRISMA flowchart of the article selection process.

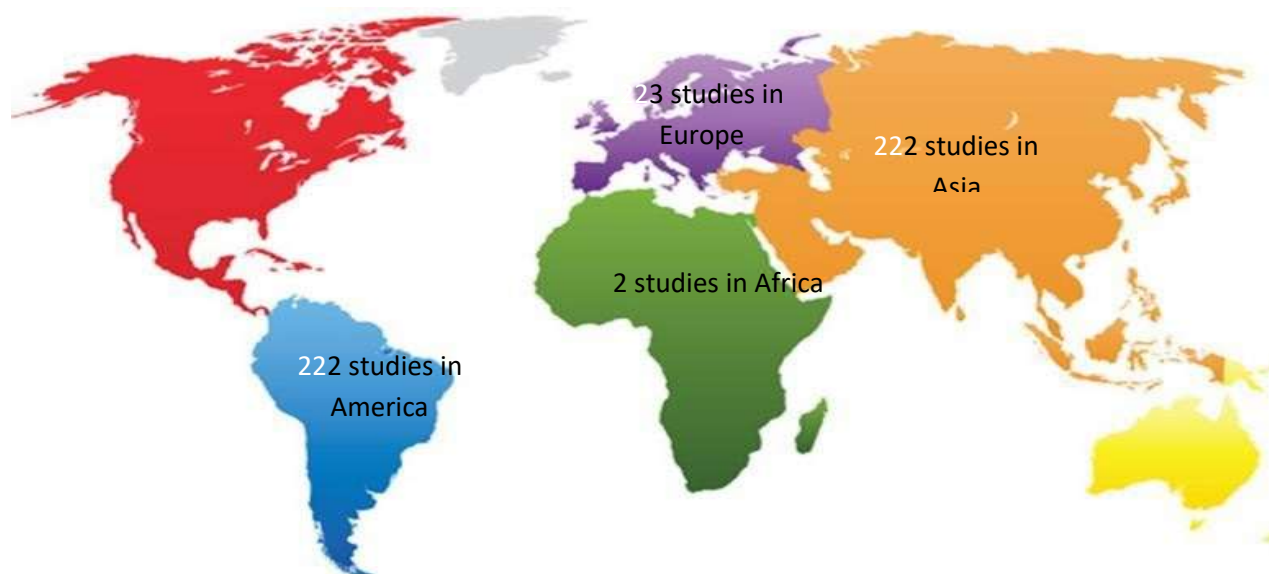


Figure 2. Research distribution map of the primary study article on the effect of loneliness on depression in the elderly

Figure 2 shows the distribution of primary articles included in the meta-analysis, there are 2 articles from the Asian continent (China and Israel), 2 articles from the African continent (Nigeria, Africa), 3 articles from the European continent (Spain, Netherlands), and 2 articles from the America (Brazil and USA).

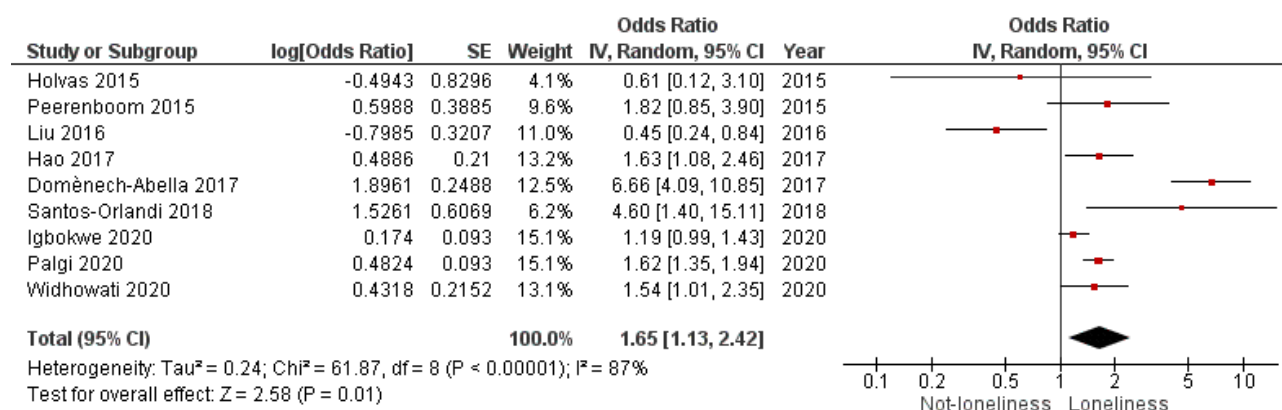


Figure 3. Forest plot of the effect of loneliness on depression in the elderly

The results of the forest plot (figure 3) from a cross-sectional study, show that elderly people who experience loneliness will increase the incidence of depression by 1.65 times compared to elderly people who are not lonely, this shows that loneliness is a risk factor for depression in the elderly, and statistically significant (aOR= 1.65; 95% CI= 1.13 to 2.42; p= 0.010). The forest plot also shows high data heterogeneity (I²= 87%), thus the approach is carried out using a random effect model.

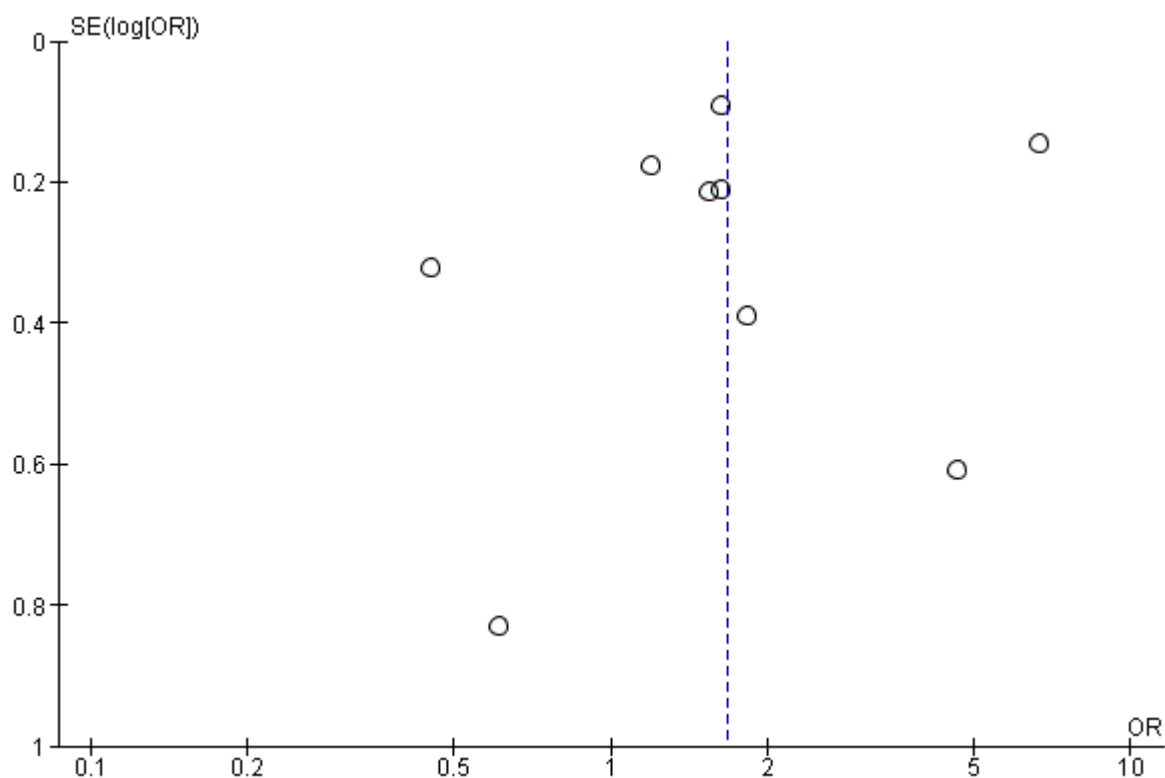


Figure 4. Forest plot of the effect of loneliness on depression in the elderly

The results of the funnel plot (figure 4) from the case-control study, it can be seen that the asymmetric effect distribution. The effect estimates are more distributed to the right vertical line rather than to the left, this indicates publication bias. Since the distribution of effect estimates is mostly located to the right of the same vertical line as the location of the average effect estimate (diamond shape) which is also located to the right of the vertical line in the forest plot description, the publication bias tends to overstate the true effect (over estimates).

DISCUSSION

The present study aimed to investigate the effect of loneliness on increasing the risk of depression among the elderly population. The findings provide valuable insights into the relationship between these two variables and have important implications for understanding and addressing the mental well-being of older adults. The results of the study confirm previous research indicating a strong association between loneliness and depression among the elderly. Consistent with existing literature, our findings suggest that loneliness acts as a significant risk factor for the development and exacerbation of depressive symptoms in this population. The experience of loneliness among older adults is influenced by various factors, including changes in social networks, loss of significant relationships, and physical limitations. These factors contribute to feelings of isolation, a lack of social support, and a diminished sense of belonging, ultimately increasing the vulnerability to depression (Hegeman et al., 2018; Widiyanto, 2020).

In this era, the research about risk factor affected depression is important to do, many countries are experiencing a significant demographic shift with an increasing proportion of elderly individuals in the population. As the aging population grows, understanding the factors that influence mental health becomes crucial for effective healthcare planning and

provision (Hussain et al., 2016). There is growing recognition of the importance of mental health and well-being across all age groups. The impact of mental health issues, including depression, on individuals, families, and societies is now widely acknowledged. Research on the link between loneliness and depression among the elderly contributes to this broader understanding and highlights the specific challenges faced by this population (Stokes et al., 2021; Widiyanto, 2022). Evidence-based research on the effect of loneliness on depression among the elderly is essential for informing policy decisions and developing effective interventions. By understanding the underlying mechanisms and risk factors, policymakers and healthcare providers can implement targeted strategies to prevent and address loneliness and depression in the elderly population. Research in this area not only sheds light on the challenges faced by the elderly but also emphasizes the importance of promoting mental well-being and social connectedness to enhance the overall quality of life in later years (Ermer and Proulx, 2019).

Psychosocial mechanisms play a critical role in understanding the relationship between loneliness and depression. The absence of social connections and meaningful relationships can lead to a negative self-perception and a sense of helplessness, which are common features of depression. Loneliness may also heighten the impact of other risk factors for depression, such as chronic health conditions and functional limitations. Moreover, the experience of loneliness often triggers negative cognitive patterns, including rumination and self-criticism, which are known to contribute to the development and maintenance of depressive symptoms (Tu and Zhang, 2015). Biological mechanisms also appear to be involved in the relationship between loneliness and depression among the elderly (Brown et al., 2018). Loneliness has been associated with dysregulation of stress hormones, increased inflammation, and disrupted sleep patterns, which are known factors in the etiology of depression (Li et al., 2020). These biological factors may act as mediators between loneliness and the onset or exacerbation of depressive symptoms.

O'rouke (2018) stated that the findings of this study have significant implications for healthcare providers, policymakers, and community organizations involved in promoting the mental well-being of the elderly. Interventions targeting loneliness and depression should be multifaceted and encompass both psychosocial and biological aspects. Psychosocial interventions can focus on enhancing social support networks, promoting community engagement, and providing opportunities for meaningful social interactions (Gardiner et al., 2018). Group activities, support groups, and mental health counseling can also play a crucial role in mitigating the adverse effects of loneliness and preventing the onset of depression. Additionally, addressing the biological aspects associated with loneliness and depression is equally important (Hakulnen et al., 2018). Interventions that reduce stress, promote healthy sleep patterns, and manage inflammation may help alleviate depressive symptoms among lonely elderly individuals. Collaborative efforts between healthcare professionals, community organizations, and policy-makers are needed to develop comprehensive strategies that effectively address loneliness and depression among the elderly.

This study supports the existing body of research indicating that loneliness increases the risk of depression among the elderly population. The findings highlight the importance of recognizing and addressing loneliness as a significant risk factor for mental health problems in older adults. By implementing targeted interventions that focus on psychosocial and biological aspects, healthcare providers and communities can help reduce the burden of loneliness and improve the mental well-being of the elderly (Blazer, 2020). By conducting research on the effect of loneliness on depression among the elderly, we can gain a deeper

understanding of the issue, identify effective interventions, and promote mental health and well-being in this vulnerable population. This research is crucial in guiding policies, healthcare practices, and community initiatives to support the mental well-being of older adults and ensure healthy aging in our society.

CONCLUSION

This study shows the influence of loneliness which increases the incidence of depression in the elderly with mental disorders on four continents. Thus, the need for the role of the family in assisting family members who experience mental disorders so that these findings highlight the importance of recognizing and overcoming loneliness as a significant risk factor for mental health problems in the elderly. By implementing targeted interventions that focus on psychosocial and biological aspects, health care providers and the community can help reduce the burden of loneliness and improve the mental well-being of the elderly. Relapse intensity will decrease and the patient's psychological condition will improve.

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