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PREVALENCE AND RISK FACTORS OF DEPRESSION AMONG OLDER PEOPLE LIVING IN NURSING HOMES IN INDONESIA: A CROSS-SECTIONAL STUDY

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Abstract: *Older people residing in nursing homes (NHs) experience challenging psychological, physiological, and social transformations that increase the prevalence of depression. The prevalence rates of depression among older people in NHs in Indonesia were indeterminate due to practical and data collection difficulties, as well as the limited research on depression and its related factors. This study aimed to determine the prevalence and risk factors of depression among older people living in NHs. This cross-sectional study was conducted from October to December 2023 and involved 183 older people aged 60 years or above living in NHs in Indonesia. Data was collected using the 15-Geriatric Depression Scale, the Physical Activity Scale for Older People, the UCLA Loneliness Scale, the Perceived Stress Scale, the Meaning in Life Questionnaire, the Multidimensional Scale of Perceived Social Support, and the IIUM Religiosity Scale. The data was analysed using the SPSS 22.0 version in the form of descriptive and inferential analysis. The study revealed that 69.9% of the participants had depression (48.1% mild, 18% moderate, 3.8% severe). The variables of physical activity (p= 0.000, r=-0.52), loneliness (p= 0.000, r=0.61), perceived stress (p= 0.001, r=0.25), meaningful existence (p= 0.000, r=-0.31), social support (p= 0.000, r=-0.69), and religiosity (p= 0.000, r=-0.59) were significantly associated with depression. The findings suggest that depression among older people living in NHs is influenced by a variety of factors, including physical activity, loneliness, perceived stress, meaningful existence, social support, and religiosity. Enhancing physical activity, social support, and religiosity, as well as addressing loneliness and perceived stress, may help in reducing depression in older people. Based on this study, healthcare professionals are recommended to consider the development*

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of preventative methods such as modifying risk factors, promoting education programs, and developing future treatments, which could be advantageous.

Keywords: *Depression, older people, nursing homes, prevalence, risk factors.*

Introduction

The global population of older people rose from 600 million in 2000 to 1 billion in 2020. It is projected to reach 1.2 billion by 2025 (Lee et al., 2021) and anticipated to reach 426 million by 2050 (Petrova & Khvostikova, 2021). Demographic trends indicating a growing older population have been attributed to improvements in healthcare, better nutrition, advanced medical technology, and declining birth rates. Most of these older people reside in low- and middle-income countries (Lu et al., 2023). Indonesia is ranked as having the fifth-largest ageing population globally and was rated third among the Asia-Pacific countries (Pramesona & Taneepanichskul, 2018). The proportion of older people in Indonesia increased from 9.8% in 2010 to 11.34% in 2020, and this is projected to rise to 19.2% by 2050 (Juanita et al., 2022; Roswiyani et al., 2020).

The rising population of older people and their extended lifespan, social reorganisation, and evolving lifestyles have fundamentally transformed family structures and roles. However, family caregivers capable of providing home-based long-term treatment for older people are limited (Yiengprugsawan et al., 2022). The responsibility of providing care for older people, once assured by familial support from within the community, is now administered through institutions such as nursing homes (NHs) (Bezerra et al., 2020). Older people residing in NHs encounter stressful settings and tense circumstances across three dimensions: psychological, physiological, and social (Aydın et al., 2020; Hajek et al., 2024) Psychological distress encompasses the loss of one's home and relational severance due to restricted engagement with familiar networks and groups (Hu et al., 2018). Furthermore, the physiological distress experienced by older people living in NHs may manifest itself through various disease-related symptoms such as sleep disturbances, incontinence, and cognitive decline. Additionally, social pain is often caused by physical and psychological ailments, including chronic illness, dementia, and Alzheimer's, leading to social disengagement and isolation (Berman et al., 2020). Transitioning to an institutional environment may result in the erosion of social identity and roles, potentially affecting mental health and overall well-being (Choolayil et al., 2023).

The diverse and numerous stressors encountered by older people in NHs have rendered mental health issues in later life more pronounced (Chuang et al., 2018). Depression is one of the most prevalent public mental health problems among older populations in NHs in numerous countries worldwide (Gunawan et al., 2020; WHO, 2016). Depression is a mood illness that varies from transient episodes of melancholy encountered in daily life to a clinical condition marked by enduring and severe symptoms that markedly diverge from the normal (Alowaydhah et al., 2024). The primary symptoms of depression include decreasing interest in previously enjoyed activities, insomnia, anhedonia, prolonged sorrow, alterations in sleep and food, anxiety, feelings of guilt, low self-esteem, impaired concentration, and compromised daily functioning lasting over two weeks (Barman et al., 2024; Hussenoeder et al., 2021). The World Health Organization (2017) reported that 322 million individuals globally experience depression. This figure was projected to increase by 18.4% during the following decade (Kalideen et al., 2022). The prevalence of depression among older people varies worldwide,

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depending on the study setting. According to studies, it has been assessed as 8%-16% in community dwellings (Chuang et al., 2018), 5%-10% in primary care outpatient settings (Giena et al., 2018), 10%-12% in hospitalisation settings, and 14%-67% in NHs (Yu et al., 2022; Goudarzian et al., 2020).

Various causes, encompassing physical, psychological, and sociocultural factors, can affect depression in older people (Petrova & Khvostikova, 2021). Physical factors can substantially influence depression due to chronic illnesses that induce persistent pain, fatigue, sleep disturbances, and restrictions in daily activities, resulting in feelings of helplessness and frustration, ultimately culminating in a loss of independence and social isolation (Bae, 2020). Moreover, psychological factors might significantly contribute to the onset of depression in older persons; for instance, cognitive decline, historical trauma, specific personality features, fear of mortality, loss of purpose, social isolation, and sorrow might contribute to depression (Bezerra et al., 2020). Moreover, sociocultural factors such as social isolation, cultural stigma, and economic and religious aspects can intensify emotions of loneliness and powerlessness (Lee et al., 2021).

Owing to insufficient data availability and challenges in data collection, there is a scarcity of recent reports on the psychological issues faced by older populations (Hajek et al., 2024), especially those living in NHS (Thomas et al., 2020). The relationship between psychological health and risk factors in older people requires further research, particularly in rapidly ageing countries that are experiencing fast-paced social and economic development. Although several studies have examined the prevalence of depression in Indonesia, these have not focused on West Sumatra. For example, research has been conducted by Roswiyani et al. (2020) in Jakarta, Luthfa et al. (2022) in Semarang, Azmi et al. (2021) in West Nusa Tenggara, and Sigalingging (2017) in Medan. However, most of these studies did not focus solely on older people residing in NHs.

Recent research has examined the psychological well-being of older people during public health emergencies or within specific demographics, such as empty nesters and older people with disabilities and chronic illnesses. A more rigorously designed study on the prevalence of depression is necessary to produce reliable results; notably, the exact rates of depression among older people in Indonesian NHs remain largely unknown (Yiengprugsawan et al., 2022). Given Indonesia's diverse ethnic composition, further research on depression among older people in nursing facilities is crucial. Consequently, understanding the risk factors associated with depression in this population can aid in identifying high-risk groups, mitigating these risks, and developing targeted interventions.

The purpose of this study was to determine the factors related to depression among older people living in NHs. The researchers expected to identify an association between depression in older people and the factors of sociodemographics, physical activity, loneliness, perceived stress, meaningful existence, social support, and religiosity.

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Methodology

Study Design

This study utilised a quantitative research methodology and implemented a cross-sectional design to examine the prevalence of and factors associated with depression among older people residing in NHs. A cross-sectional approach was chosen due to its practicality and efficiency. Collecting data at a single point enables researchers to capture a snapshot of this community's mental health status, eliminating the need for prolonged observation, which is particularly important given the potential time constraints, especially in settings like NHs where lengthy research may disrupt daily activities. Additionally, cross-sectional studies address the challenges related to participant drop-out and allow researchers to analyze extensive data from a diverse population in a short period.

Sample/Participants

The study population comprised 204 older people from two NHs in West Sumatra, Indonesia. The sample size was determined following the calculation formula devised by Naing et al. (2022), with detail Z = 1.96, d = 0.05, and P = 42.5% (Roswiyani et al., 2020). The inclusion criteria encompassed older NH residents aged 60 years or above who had been admitted to such facilities for a minimum of six months. This was because the incidence of depression is expected to manifest during a six-month observation period in a long-term care setting. The exclusion criteria were determined by cognitive impairment, as assessed by the Mini-Cog cognitive screening instrument (Borson et al., 2003). The research sample was selected using purposive sampling, with 183 older people chosen as respondents after passing the screening based on the established criteria.

Instruments

The research tools comprised sociodemographic characteristics and seven questionnaires. All the instruments were utilised with authorisation from the developers and tested in a pilot study. This involved 30 participants with characteristics similar to those of the participants in the final study. The pilot study findings confirmed that the instruments possessed satisfactory reliability.

Sociodemographic Characteristics. The respondents' biographical information, including their age, gender, marital status, number of children, previous occupation, current income, length of residence in an NH, and medical problem status, such as comorbid diagnosis, was collected for this section.

Geriatric Depression Scale (GDS). This questionnaire is extensively used among older populations in community, clinical, and NHs settings. The Indonesian version of the GDS was developed by Pramesona and Taneepanichskul (2018a). The pilot study results demonstrated that this tool is reliable, with the Cronbach's Alpha value being 0.824. The 15-item questionnaire required the participants to respond *yes* or *no* based on how they had felt the previous week. Standard scores vary from 0 to 4, with values of 5 to 8 signifying mild depression, scores of 9 to 11 denoting moderate depression, and values of 12 to 15 representing severe depression.

The Physical Activity Scale for Older People (PASE). This research utilised the Indonesian version of the PASE developed by Pertiwi and Sastrini (2020). The pilot study results stated that this instrument has a good level of reliability, with the Cronbach's Alpha value being 0.841.

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The PASE contains a 12-item assessment of leisure, household, and work-related physical activity over seven days, which is calculated by multiplying the frequency, duration, and assigned weight (Tao et al., 2016). This subjective metric assesses the length of time that older adults dedicate to light, moderate, and vigorous physical activity. Scores range from 0 to over 400; a score nearing 400 indicates that the individual is highly active and consistently participates in diverse physical activities.

The UCLA Loneliness Scale. The UCLA Loneliness Scale evaluates the frequency and intensity of loneliness-related experiences. It captures a three-dimensional representation of loneliness, reflecting short, intimate, relational, and collective attachments. This study employed the Indonesian version of the UCLA developed by Susanty et al. (2022). The pilot study results stated that this instrument has a good level of reliability, with the Cronbach's Alpha value being 0.854. The assessment comprises 20 self-report items rated on a four-point Likert scale, with scores ranging from 20 to 34 suggesting mild loneliness, scores from 35 to 49 signifying moderate loneliness, scores from 50 to 64 reflecting moderately high loneliness, and scores over 65 denoting high loneliness.

The Perceived Stress Scale (PSS). The PSS evaluates perceived stress using a ten-item questionnaire that assesses an individual's perception of the stress in their life. The PSS utilises a five-point scale from 0 (never) to 4 (always), reverse-scoring items 4, 5, 7, and 8 and aggregating all 10 elements to produce a score between 0 and 40. This study employed the Indonesian version of the PSS scale, which exhibited a Cronbach's Alpha of 0.860.

The Meaning in Life Questionnaire (MLQ). This instrument measures meaningful existence and consists of ten items within two subscales: the presence of meaning (MLQ-P) and the search for meaning (MLQ-S). The former subscale measures an individual's perception of the significance of their life. The latter subscale measures a person's motivation to find meaning in life (Lin et al., 2020). The potential scores for each subscale range from 5 to 35, with elevated scores signifying a greater presence or pursuit of meaning. The MLQ was employed in this study after being translated by the researcher into Indonesian.

The 12-item Multidimensional Scale of Perceived Social Support (MSPSS). The MSPSS was employed to evaluate the quality of social assistance received by older people from family members, relatives, close friends, and significant others. This study utilised the Indonesian version of the MSPSS developed by Susanty et al. (2022) to assess the social support of older people. The Cronbach's alpha for this Indonesian version was 0.852. The overall scores span from 12 to 84, with higher scores signifying greater perceived social support from all three sources.

The IIUM Religiosity Scale (IIUMRelS). Developed by Mahudin et al. (2016), the IIUMRelS consists of 10 items. The scores range from 10 to 40, with higher scores indicating greater religiosity. The development of this scale was drawn from the concept of *Tawheed* (Islam, *Iman*, *Ihsan*), which relates to the religious experiences, beliefs, and practices of Muslims, because all of the participants in this study are Muslim. The pilot study results stated that this instrument has a good level of reliability, with the Cronbach's Alpha value being 0.866.

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Data Collection

The data collection process was conducted from October to December 2023. The researcher performed face-to-face pre-screening of 214 older people to assess their eligibility, based on the inclusion and exclusion criteria. Ultimately, 183 older people were engaged in the data collection. A flowchart summarising the data collection procedure is displayed in Figure 1.

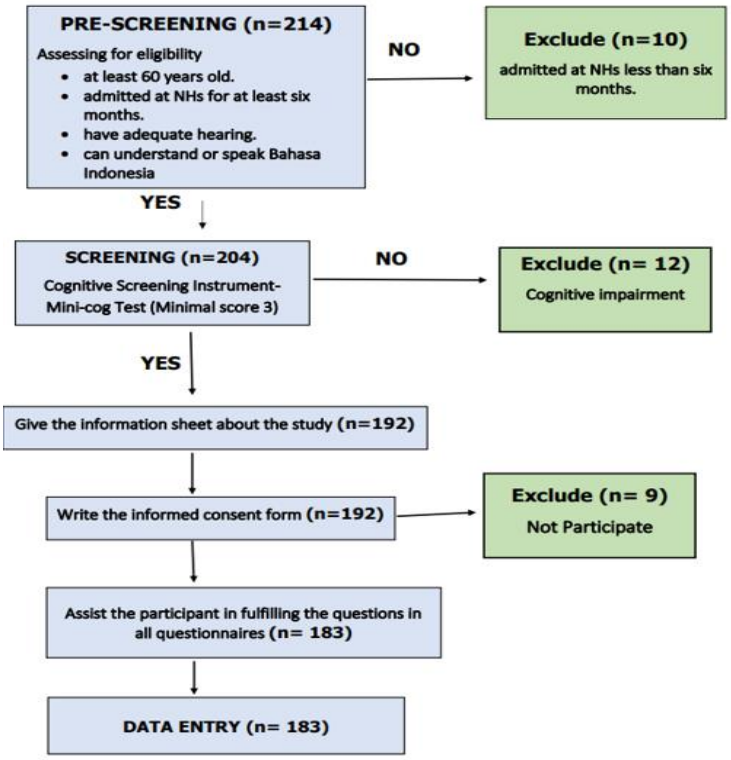

Figure 1 Data Collection Flow

Data Analysis

The collected information was analysed utilising the Statistical Package for the Social Sciences software (SPSS), version 28.0 (IBM Corporation, New York, USA). The findings are explained as frequencies, percentages for the categorical variables, and means and standard deviation for the continuous variables. Pearson's chi-squared tests were applied to identify the associations between the dependent and independent variables. In addition, Pearson's correlation tests were performed to describe the strengths and directions of the relationships between each pair of continuous variables. Furthermore, multiple linear regression analysis, as the multivariate analysis, was used to explore the determinant factors related to depression among older people living in NHs in Indonesia.

Ethical Considerations

The study received ethical approval from the International Islamic University Malaysia (IIUM): IIUM/504/14/11/2/IREC 2023-136. Furthermore, the study application obtained the Description of Ethical Approval (reference: 442/UN.16.2/KEP-FK/2023) from the Faculty of Medicine Andalas University Research Ethics Committee in Indonesia. The participants' involvement in the study was voluntary and for academic purposes only, and their right to withdraw from the study at any point was protected. The rights of the participants were

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protected, and the researchers kept the data confidential to preserve participant privacy and anonymity.

Results

Sociodemographic Characteristics

Table 1 Univariate analysis of sociodemographic characteristics

Characteristics	n	%	Mean	±SD
Age			**72.48**	**5.95**
Gender				
Man	**71**	**38.8**		
Woman	**112**	**61.2**		
Marital Status				
Married	**50**	**27.3**		
Divorced	**122**	**66.7**		
Single	**11**	**6.0**		
Number of children				
No Children	**18**	**9.8**		
1-3 Children	**113**	**61.7**		
4-6 Children	**46**	**25.1**		
More than 7 Children	**6**	**3.3**		
Previous Occupation				
Government	**15**	**8.2**		
Private Employer	**19**	**10.4**		
Self-employed	**92**	**50.3**		
Unemployed	**57**	**31.1**		
Current Income				
Lower than minimum wage	**162**	**88.5**		
Higher than minimum wage	**21**	**11.5**		
Length of residence				
Less than five years	**89**	**48.6**		
5-10 years	**55**	**30.1**		
More than ten years	**39**	**21.3**		
Comorbid disease				
No	**23**	**12.6**		
Yes	**160**	**87.4**		

Of all the participants, the mean age was 72.48, ranging from 60 to 86 years old. Most participants were women (approximately 61.2%), 66.7% had a marital status of divorced, 61.7% had between one and three children, 50.3% had a previous occupation of self-employed, 88.5% had a current income lower than the minimum wage (Rp. 2,750,000), 48.6% had stayed in an NH for less than five years, and 87.4% had a comorbid disease (see Table 1).

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Description of Depression and the Related Factors

Of the participants, 69.9% reported having depression. Among this group, 48.1% exhibited mild depression, 18.0% exhibited moderate depression, and 3.8% exhibited severe depression. Conversely, merely 30.1% exhibited no signs of depression. The mean values for the related factors are as follows: physical activity is 157.64, loneliness is 58.61, perceived stress is 23.48, meaningful existence is 43.69, social support is 41.13, and religiosity is 24.78 (see Table 2).

Table 2 Univariate analysis of depression and the related factors.

Characteristics	Categorical variables		Actual Score	Continuous variables	
	n	%		Mean	±SD
Depression			0 - 15	6.56	2.713
Depression					
No	55	30.1			
Yes	128	69.9			
Depression level					
No	55	30.1			
Mild	88	48.1			
Moderate	33	18.0			
Severe	7	3.8			
Physical activity			0 - 400	157.64	90.08
Loneliness			20 - 80	58.61	11.69
Perceived stress			0 - 40	23.48	6.137
Meaningful existence			10 - 70	43.69	8.081
Social support			12 - 84	41.13	10.93
Religiosity			10 - 40	24.78	4.957

Factors Related to Depression

There was a significant relationship between depression and sociodemographic factors. It is interesting to note that almost all the sociodemographic factors—such as gender (p=0.011), marital status (p=0.011), previous occupation (p=0.030), current income (p=0.004), length of residence (p=0.011), and comorbid disease (p=0.011)—were significantly associated with depression. In contrast, only the variable concerning the number of children (p=0.741) showed no association with depression among older people living in NHs (see Table 3).

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Table 3 Relationship between depression and sociodemographic characteristics

Variable	Depression				p-value
	YES		NO		
	n	%	n	%	
Gender					
Man	42	32.8	29	52.7	0.011*
Woman	86	67.2	26	47.3	
Marital Status					
Married	22	17.2	28	50.9	0.000*
Divorced	100	78.1	22	40.0	
Singe	6	4.7	5	9.1	
Number of children					
No Children	11	8.6	7	12.7	0.741
1-3 Children	80	62.5	33	60.0	
4-6 Children	32	25.0	14	25.5	
More than 7 Children	5	3.9	1	1.8	
Previous Occupation					
Government	12	9.4	3	5.5	0.030*
Employee	11	8.6	8	14.5	
Self-employed	72	56.3	20	36.4	
Unemployed	33	25.8	24	43.6	
Current Income					
Lower than minimum wage	119	93.0	43	78.2	0.004*
Higher than minimum wage	9	7.0	12	21.8	
Length of residence					
Less than five years	50	39.1	39	70.9	0.000*
5-10 years	44	34.4	11	20.0	
More than ten years	34	26.6	5	9.1	
Comorbid disease					
No	7	5.5	16	29.1	0.000*
Yes	121	94.5	39	70.9	

*Significant at $p<0.05$

Furthermore, Table 4 shows that all the independent variables were correlated with depression among older people living in NHs, as computed using Pearson's correlation coefficients. The results show that age (p=0.002, r=0.232) and perceived stress (p=0.001, r=-0.250) each have a positive minor association with depression. Furthermore, the variable of meaningful existence (p=0.000, r=-0.305) has a negative medium association with depression. Meanwhile, the variables of social support (p=0.000, r=-0.685), loneliness (p=0.000, r=0.612), religiosity (p=0.000, r=-0.585), and physical activity (p=0.000, r=-0.520) each show a major association with depression. Social support, religiosity, and physical activity are negatively associated. In contrast, loneliness is positively associated (see Table 4).

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Table 4 Relationship between depression and related factors

Variable	Depression	
	r	p-value
Age	**0.002**	**0.232****
Physical activity	**0.000**	**-0.520****
Loneliness	**0.000**	**0.612****
Perceived stress	**0.001**	**0.250****
Meaningful existence	**0.000**	**-0.305****
Social support	**0.000**	**-0.685****
Religiosity	**0.000**	**-0.585****

**Correlation is significant at the 0.01 level

Regression Analysis of Factors Influencing Depression

Before conducting the multiple regression analysis, conventional assumption examinations were performed, including autocorrelation, heteroscedasticity, multicollinearity, and normality. All the variables fulfilled the assumptions for linear regression, including normal distribution, linear relationships, and no multicollinearity. The results in Table 5 indicate that marital status (ß = 0.676, ρ = 0.001), length of residence (ß = 0.292, ρ = 0.020), comorbid disease (ß = -0.702, ρ = 0.045), physical activity (ß = -0.341, ρ = 0.000), loneliness (ß = 0.480, ρ = 0.000), social support (ß = -0.780, ρ = 0.000), and religiosity (ß = -0.843, ρ = 0.000) were significant predictors of depression among older people living in NHs. Moreover, religiosity has the highest correlation with depression among older people (-0.843). Furthermore, all the independent variables had a significant effect (at a level of 74.2%) on depression among older people living in NHs, with the remaining 25.8% influenced by other variables not examined in this study.

Table 5 Multiple regression analysis of the factor influencing depression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
Constant	14.794	2.143		6.904	0.000*		
Age	-0.28	0.027	-0.062	-1.630	0.290	.449	2.229
Gender	-0.424	0.260	-0.076	-1.061	0.105	.701	1.426
Marital Status	0.676	0.208	0.134	3.254	0.001*	.906	1.104
Number of children	0.048	0.066	0.031	.732	0.465	.874	1.144
Previous Occupation	-0.194	0. 155	-0.062	-1.250	0.213	.629	1.590
Current Income	0.164	0.380	0.008	.168	0.867	.767	1.303
Length of residence	0.292	0.039	0.138	2.341	0.020*	.442	2.260
Comorbid disease	-0.702	0.348	-0.086	-2.018	0.045*	.845	1.184

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Physical activity	-0.341	0.001	-0.261	-5.895	0.000*	.787	1.270
Loneliness	0.480	0.013	0.208	3.738	0.000*	.494	2.023
Perceived stress	-0.280	0.020	-0.064	-1.399	0.164	.745	1.343
Meaningful existence	-0.150	0.015	-0.045	-1.051	0.295	.824	1.214
Social support	-0.780	0.013	-0.316	-6.028	0.000*	.559	1.788
Religiosity	-0.843	0.025	-0.237	-5.132	0.000*	.721	1.386
R=0.861 **R^2**=0.742 **Adjusted R^2**= 0.720 **SE Est**=1.434 **F**= 34.451 **sig of F**=0,000							

Discussion

The findings revealed that 69.9% of the older people in this study experienced depression. This is slightly lower than the figure obtained in another local study (Azmi et al., 2021), which revealed that the prevalence of depression among older people in Indonesia was 73.3%. Meanwhile, previous research conducted in Bangladesh, a developing nation, indicated a depression prevalence of 81.7% (Tabassum et al., 2023). Moreover, these new findings correspond with a study in Malaysia, which indicated that the prevalence of depression among older people in institutional settings was 60.9% (Sajali et al., 2021).

Saleem et al. (2023) indicated that institutionalised older people exhibited moderate to severe depression, but older people living in care homes displayed nil to mild mood disturbances. Older people might experience enhanced psychological well-being when residing with family members. The previous study reveals that older people residing in institutional settings experience more severe levels of depression compared to those living at home with family members. In most countries, the incidence of depression in residential facilities is significantly greater than the level found among older people living in the community. This is attributable to several causes, such as physical disability, medical comorbidities, as well as loss of autonomy, independence, and control over daily activities. Moreover, institutional determinants include insufficient privacy and social support, experiences of loneliness, the absence of significant social engagement, and grieving related to loved ones or prior lifestyles (Aydın et al., 2020).

Interestingly, almost all the sociodemographic characteristics—including gender, marital status, prior occupation, current income, duration of residence, and comorbid conditions—demonstrated substantial correlations with depression. The study findings revealed that depression is more prevalent among women who are divorced, have a low current income, and suffer from comorbid conditions. Older women might encounter numerous adversities associated with ageing, gender, and poverty, including spousal bereavement leading to diminished social standing, insecurity, and economic hardship; an increased load of physical comorbidities may further exacerbate the reliance of older women on family support. The status of being widowed, separated, or divorced was a substantial contributor to depression; married participants exhibited lower levels of affliction (Tabassum et al., 2023). The findings corroborate those obtained by L. Lu et al. (2023), indicating that older people with three or more comorbidities are more prone to depression. Nonetheless, the statistical study revealed no significant correlation between the prevalence of depression and the number of children.

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Potential reasons for this include the significance of the quality of the relationships with their children compared to the quantity; the variability in the frequency and quality of interactions with their children; and the influence of cultural norms and societal expectations regarding family roles on the perceived importance and effects of having multiple children (Zhang et al., 2024).

Our study demonstrated that age and perceived stress were modestly positively correlated with depression, indicating that as participants age and their perceived stress increases, the likelihood of elevated depression levels among older people residing in NHs also rises. Our results share several similarities with the findings obtained by Nguyen et al. (2024), indicating that the incidence of depression is generally elevated in older people due to various factors: the presence of multiple chronic health conditions and cognitive deterioration, which may result in physical discomfort, disability, and a reduction in overall well-being; as well as psychological stressors, including retirement, bereavement, and relocation to a new living environment such as an NH (Berman et al., 2020). Furthermore, Banjongrewadee et al. (2020) mentioned that elevated levels of perceived stress are significantly correlated with heightened depression in older people because stress impacts both their mental and physical health. High perceived stress levels may result in feelings of helplessness and hopelessness; stress can influence cerebral function and hormonal balance; it may cause inadequate sleep, diminished physical activity, and detrimental dietary habits; and it can hinder cognitive function, contributing to depression.

Moreover, this study revealed a negative medium correlation between meaningful existence and depression; notably, the findings suggested that enhanced meaningful existence correlates with a reduced chance of elevated depression levels among older people residing in NHs. Older people who view their lives as meaningful are less susceptible to depression because a sense of purpose offers motivation and direction. This engagement diminishes feelings of emptiness or hopelessness. A meaningful existence enhances emotional resilience, enabling older individuals to manage stress and adversity better, thereby serving as a protective factor against depression. A meaningful existence offers psychological, social, cognitive, emotional, and physical advantages that jointly diminish the risk of depression in older people (Silva-Sauer et al., 2021).

Simultaneously, the factors of social support, loneliness, religiosity, and physical exercise exhibited strong correlations with depression. Social support, religiosity, and physical activity exhibit negative correlations; these results suggest that increased levels of social support, religiosity, and physical activity correspond to a diminished risk of elevated depression among older people residing in NHs. Conversely, loneliness is positively correlated, indicating that greater loneliness corresponds to an elevated risk of increased depression. This finding aligns with those of prior research: a meta-analysis by Wang et al. (2024) encompassing 48 studies concluded that the prevalence of depression is elevated among females, as well as those with inadequate income, comorbid conditions, functional disabilities, feelings of loneliness, low social support, diminished activities of daily living, and psychological stress.

Numerous studies have demonstrated an inverse correlation between social support and depression; insufficient social support heightens feelings of insecurity and loneliness, elevates the likelihood of social isolation, and exacerbates psychosocial stress, particularly depression. Receiving assistance enhances feelings of belonging, intimacy, social involvement, and integration in older people while reducing their discomfort; moreover, extensive utilisation of

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social support has been identified as a protective factor against depression (Lim et al., 2023). Social support is essential for alleviating depression. It offers emotional, practical, cognitive, and health advantages that collectively diminish the incidence of depression among older people living in NHs (Wahyuni et al., 2019). Establishing a caring and engaging atmosphere in an NH is crucial for enhancing the mental well-being of the residents.

Other factors that influence depression include physical activity, which can mitigate depression by fostering social contact and enhancing self-esteem and self-efficacy. An elevated intensity of physical activity correlates with enhanced self-esteem and positive emotions. An enhancement in mood directly influences life satisfaction, so physical activity can directly enhance one's psychological aspects, such as by diminishing stress, tension, and anxiety while augmenting a person's self-esteem and views of their physical capability, thus decreasing the prevalence of depression (Li et al., 2024). These findings are in line with prior studies indicating that the physical function of older people may be compromised, restricting their capacity to engage in daily activities and physical exercise. This potentially results in a diminished quality of life and an increased incidence of depression (Lu et al., 2023).

Moreover, older people who indicated feelings of loneliness demonstrated a greater incidence of depression. Loneliness inhibits individuals from expressing their emotions, fosters a sense of disconnection from others, and undermines their sense of purpose, thus elevating the probability of depression (Barman et al., 2024). Our results are synchronised with those obtained in a previous study (Zhao et al., 2018) which demonstrated a positive correlation between loneliness and depression; loneliness engenders feelings of isolation, exacerbates rumination on negative ideas, heightens emotional pain, and fosters a sense of hopelessness. However, a different study indicated that characteristics linked with loneliness were strongly correlated with elevated depression levels during follow-up. Loneliness is a significant predictor of variations in depression (Farhang et al., 2024).

The regression analysis identified marital status, length of residence, comorbid conditions, physical activity, loneliness, social support, and religiosity as important predictors of depression. In the current study, the absence of a religious affiliation was a risk factor for depression. Religiosity and spirituality significantly influence the mental health of older people, frequently serving as protective factors against depression. Participation in religious activities and possessing powerful spiritual beliefs can impart meaning, purpose, and hope, which are essential for mental well-being. Assistance from religious communities also alleviates feelings of loneliness and isolation. Religious practices, including prayer and meditation, function as useful coping strategies during periods of stress. The influence of religiosity on depression may differ according to cultural, social, and individual variables, with intrinsic religiosity typically linked to better mental health outcomes compared to extrinsic religiosity. This study has several limitations. The data was self-reported and reliant on the respondents' subjective evaluations and perceptions, which may have introduced the risk of information bias. Additionally, the respondents were older people, who may struggle to recall past events or experiences accurately. The lengthy questionnaires might have diminished the attention spans of some older participants, leading to fatigue and prolonging the data collection process.

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Conclusion

This study identified essential determinants of depression among older people living in NHs, including sociodemographic, physical, psychological, social, and spiritual health factors. This new data indicates that diminished physical activity, experiences of loneliness, and elevated levels of perceived stress are risk factors for depression. In contrast, robust social support networks, a significant sense of purpose, and elevated levels of religiosity serve as protective factors. These insights emphasise the necessity of holistic and comprehensive strategies in the prevention and treatment of depression among older people, incorporating physical, psychological, and social-spiritual therapies. Future studies should investigate the long-term effects of these variables and develop preventative interventions, such as modifying the risk factors and promoting education programmes to improve the mental well-being of older people.

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