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Prediction of quality of life among the elderly based on level of depression and spirituality

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A B S T R A C T

Introduction: Quality of life (QoL) in the elderly is shaped by physical, psychological, and spiritual factors. Depression commonly affects older adults and is linked to poorer QoL, while spirituality can offer resilience. However, the combined impact of depression and spirituality on elderly QoL is seldom explored.

Purpose: This study aims to investigate the relationship between depression, spirituality, and QoL among elderly individuals in nursing homes, examining how these factors influence their physical, social, and mental well-being.

Methods: This study used a cross-sectional study design conducted on nursing home residents. The study population was elderly living in nursing homes, with a sample size of 73 people selected by convenience sampling and calculated using G*power software. Quality of life (QoL) was measured using the SF-36 questionnaire, spirituality was measured using the Spiritual Well-Being Scale (SWBS), and depression was measured using the Beck Depression Inventory-II (BDI-II). Data analysis was performed using multiple logistic regression to analyze the relationship between the study variables.

Results: Mean scores for physical and mental components of QoL were 50.06 (±6.80) and 50.22 (±8.73), respectively. Spirituality was positively associated with QoL, especially in social (AOR 1.15) and mental health (AOR 1.06) dimensions ($p < 0.05$). Depression was negatively related to vitality (AOR 1.11) and mental health (AOR 1.09), showing that greater spirituality aligns with higher QoL, while depression correlates with poorer QoL.

Conclusion: Spiritual well-being and depression significantly impact elderly QoL, particularly in social, vitality, and mental health aspects.

INTRODUCTION

Quality of life (QoL) is a multidimensional concept reflecting an individual's perception of life within cultural, social, and environmental contexts. It is closely tied to personal goals, expectations, and standards.[1] QoL encompasses key domains such as physical health, psychological well-being, social relationships, and environmental factors.[2] Physical health includes fitness and disease management, while psychological well-being involves emotional health, life satisfaction, and resilience to stress, anxiety, and depression.[3] Declines in QoL due to depression are well-documented, with studies showing a moderate negative correlation.[4]

Depression, characterized by symptoms such as sadness, loss of interest, and changes in appetite or sleep, significantly impacts QoL, especially in older adults.[5] It affects 7.5-8% of women and 5.5-6.5% of men over 50.[6] Factors include demographics, socioeconomic status, biological influences, and psychosocial elements like emotional state and self-esteem.[7] Spiritual well-being is also crucial in promoting peace and self-acceptance and plays a key role in mental health.[8,9] Spirituality, as part of the biopsychosocial-spiritual model, helps individuals find meaning and hope, especially when facing health challenges.[10,11]

A study showed that increasing spiritual well-being can reduce depression and improve overall QoL. Spirituality gives older adults a sense of purpose and helps them cope with stressful situation.[12] Other studies identified spirituality as a source of strength and calmness that directly impacts mental and physical health.[13] This study addresses this gap by investigating the combined effects of spirituality and

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depression on QoL in older adults in nursing homes, providing a new and broader perspective on how these factors influence well-being.[14-16] Unlike previous studies that often explore depression or spirituality independently, this study emphasizes the combined effects of both, which may provide insights for developing more effective interventions tailored to improve QoL in older adults.

Previous studies have explored the relationships between depression, spirituality, and QoL. However, no previous studies have combined these two variables with QoL in older adults. Therefore, this study aims to fill this gap by exploring the relationships between depression, spirituality, and quality of life among older adults. In addition, our study examines the components of quality of life in detail. By understanding the complex relationships between these three variables, it is hoped that more advanced strategies will improve older adults' well-being.

METHOD

Study *Design*

This study used a cross-sectional design.[17]

Setting *and* Respondents

This study was conducted in four nursing homes in Malang and Lawang, East Java, Indonesia, with data collection conducted from September to October 2024. The study population was the elderly living in four nursing homes, with a sample of 70 older adults used in this study. Each individual who met the inclusion criteria was included sequentially until the sample size was met. Inclusion criteria included age 60 years and above, being cooperative and able to communicate, and having lived in the nursing home for over a month. Exclusion criteria included elderly with physical conditions that hinder communication or cognitive impairment, such as severe dementia. The sampling technique used was consecutive sampling, where each individual who met the inclusion criteria was included sequentially until the sample size was met.

The *Variables*, Instruments, and Measurement

The independent variables in this research are depression level and spirituality, while the dependent variable is QoL. The instruments used in this research include the 36-Item Short Form Survey (SF-36) for measuring QoL, which has strong validity and reliability with a Cronbach's alpha of 0.87 and high interscale correlations ($r > 0.70$).[18] Spirituality was measured using the Spiritual Well-Being Scale (SWBS), known for its high content validity and reliability (α between 0.82 to 0.94).[19] Depression was assessed with the Beck Depression Inventory-II (BDI-II), with the Indonesian version demonstrating good internal consistency and reliability ($\alpha = 0.89$) and item-to-total correlations ranging from 0.21 to 0.7.[20]

Data Analysis

Descriptive analysis was used to analyze sociodemographic data and key variables through frequency (%), mean (SD), and median (IQR). Multiple logistic regression was applied to examine the effect of spirituality and depression on QoL. Results were presented as odds ratio (OR) and adjusted odds ratio (AOR) with 95% confidence intervals (CI), $OR > 1$, and p-value < 0.05 indicated a statistically significant association. Model fit was evaluated using the Hosmer-Lemeshow test (p-value > 0.05), and Nagelkerke's R^2 was used to indicate the variance explained by the model.[21]

Ethical Consideration

This study obtained ethical approval from the Health Research Ethics Committee of the University of Muhammadiyah Malang (KEPK-Fikes), with approval number No. E.4.d/042/KEPK/FIKES-UMM/IX/2024.

RESULTS

The mean age of participants was 75.41 (±9.50) years, the majority had a high school level (31.43 %), and the length of stay in the nursing home was 3.03 (±3.37) years. The characteristics of demographics are outlined in detail in Table 1. The average physical component score (PCS) and mental component score (MCS) of the SF-36 summary scores were 50.06 (± 6.80) and 50.22 (± 8.73), respectively. Among the SF-36 sub-scores, the role-emotional (RE) domain had the highest mean score 98.63 (± 8.68). The majority of the elderly participants had high spiritual well-being (54.79%) and no depression (78.08%) based on the BDI-II scale (Table 2).

Table 1. Characteristics of Respondent (n=77)

Characteristic	Result
Age (years)	75.41 (±9,50)
Length of stay (years)	3.03 (±3.37)
Education level	
Elementary School	4 (5.71%)
Midle School	20 (28.57%)
High School	22 (31.43%)
College	14 (20%)
No Schooling	10 (14,29%)

Table 2. SF-36 Quality of Life, SWBS and BDI-II

Variable	Result
SF-36 summary scores	
Physical components	50.06 (± 6.80)
Mental components	50.22 (± 8.73)
SF-36 sub-scores	
Physical functioning	84.93 (± 27.02)
Role participation	97.60 (± 10.35)
Bodily pain	94.62 (± 11.51)
General health	90.96 (± 12.62)
Vitality	87.95 (± 16.03)
Social functioning	93.75 (± 13.60)
Role emotional	98.63 (± 8.68)
Mental Health	87.29 (± 18.47)
Spiritual Well-Being Scale	
Low	0 (0.0%)
Moderate	33 (45.21%)
High	40 (54.79%)
Depression	
No Depression	57 (78.08%)
Mild Depression	9 (12.33%)
Moderate Depression	7 (9.59%)
Severe Depression	0 (0.00%)

Based on the results of multiple logistic regression tests show a significant relationship between spirituality and mental health components (p <0.05), as well as the contribution of spirituality and depression to vitality and mental health. Participants with low spiritual well-being or high levels of depression experienced a significantly increased risk of decreased QoL in these components. The results also showed that the RP, MCS, and VT variables contributed 24.0%, 16.3%, and 14.5%, respectively, to QoL based on the Nagelkerke R^2 model (Table 3).

DISCUSSION

This study demonstrated that spiritual well-being plays a critical role in enhancing the QoL in older adults, specifically within the domains of RP and Mental Component Summary MCS. Elderly individuals with higher levels of spiritual well-being tend to have better QoL, particularly in social and mental aspects. In contrast, those experiencing depression often exhibit lower QoL, especially in vitality and mental health dimensions. This suggests that fostering spiritual well-being while managing depression can effectively improve older adults' QoL. Spiritual well-being has been shown to provide significant psychological and social support, helping elderly individuals navigate mental and emotional challenges.[14]

This is supported by a study that found that spirituality will make a significant contribution to the psychological domain of quality of life by emphasizing the values of optimism, inner strength, self-control, peace, and hope.[22] By fostering a more meaningful and optimistic outlook on life, spirituality strengthens mental resilience, enabling elderly individuals to better cope with stress and anxiety. In contrast, depression negatively affects QoL by reducing energy, limiting social engagement, and deteriorating mental health. The mechanisms behind these effects can be understood through psychological and social theories: spirituality fosters feelings of peace, self-acceptance, and purpose, foundational to emotional resilience.

Found that spirituality is a strong predictor for QoL among the elderly, aiding social connectivity and facilitating a positive response to life's challenges. Conversely, depression isolates older adults from social support, drains their energy, and thereby diminishes their QoL.[16] Emphasized that depression lowers vitality, exacerbates mental health issues, and negatively impacts the quality of life in this population. The findings of this study highlight that spirituality and depression are interrelated variables that affect various aspects of older adults' quality of life. These results are consistent with research, which found that older adults with higher levels of spirituality tend to experience milder symptoms of depression and better overall quality of life compared to those with lower spirituality.

Additionally, another study supports this finding, stating that spirituality provides protection against depression and contributes to an overall improvement in QoL.[23]Several other studies have also found that spirituality helps older adults cope with depressive symptoms, enhancing their ability to live more meaningful and fulfilling lives and ultimately improving their general quality of life.[24] Although other studies did not explicitly identify spiritual well-being and depression as primary factors influencing older adults' quality of life, it does highlight a significant correlation between these two variables and various aspects of life in the elderly.[25]

Table 3. Statistical Result of Influence of SWBS and BDI-II Toward Quality of Life

Variable	*QoL*	OR (95% CI)	AOR (95% CI)	p-value	R^2
Spiritual Well-Being Scale	PCS	1.01 (0.9-1.07)	1.02 (0.96-1.07)	0.66	0.004
	MCS	1.06 (1.00-1.12)	1.06 (1.00-1.12)	0.04	0.163
	PF	0.97 (0.97-1.02)	0.97 (0.92-1.02)	0.22	0.028
	RP	1.15 (1.00-1.32)	1.15 (1.00-1.33)	0.04	0.240
	BP	1.01 (0.95-1.07)	1.01 (0.95-1.08)	0.80	0.004
	GH	1.01 (0.95-1.06)	1.00 (0.95-1.06)	0.89	0.001
	VT	1.03 (0.98-1.09)	1.03 (0.97-1.09)	0.33	0.145
	SF	0.99 (0.93-1.06)	0.99 (0.93 -1.05)	0.70	0.053
	RE	1.01 (0.86-1.18)	1.02 (0.86-1.20)	0.86	0.156
	MH	1.02 (0.97-1.07)	1.01 (0.96-1.07)	0.64	0.121
Depression	PCS	1.00 (0.93-1.08)	1.00 (0.93-1.07)	1.00	0.004
	MCS	1.09 (1.01-1.18)	1.09 (1.01-1.19)	0.04	0.163
	PF	1.00 (0.93-1.07)	1.00 (0.93-1.08)	0.98	0.028
	RP	0.88 (0.69-1.12)	0.87 (0.69-1.12)	0.30	0.240
	BP	0.91 (0.90-1.08)	0.98 (0.90-1.08)	0.70	0.004
	GH	1.01 (0.94-1.08)	1.01 (0.94-1.08)	0.88	0.001
	VT	1.11 (1.02-1.20)	1.11 (1.02-1.20)	0.01	0.145
	SF	1.06 (0.98-1.15)	1.07 (0.99-1.16)	0.11	0.053
	RE	0.57 (0.18-1.82)	0.56 (0.17-1.87)	0.35	0.156
	MH	1.10 (1.02-1.20)	1.11 (1.02-1.20)	0.02	0.121

Exp: IV= Independent Variable; DV: Dependent Variable; OR= Odds Ratio; AOR= Adjusted Odds Ratio; Ref= Reference; 95% CI= 95% Confidence Interval; * significance at p-value < 0.05, data was analyzed using Multiple Logistic Regression; PCS= Physical components; MCS= Mental components; PF= Physical functioning; RP= Role participation; BP= Bodily pain; GH= General health; VT= Vitality; SF= Social functioning; RE= Role emotional; MH= Mental Health; R2: Nagelkerke's R2

These findings underscore the importance of addressing both spiritual well-being and depression in efforts to improve the QoL for older adults. Older individuals with stronger spirituality are better equipped to cope with depressive symptoms, which in turn enhances their quality of life, as supported by several other studies.[26-28]

The strengths of this study are as follows: The study was conducted in four different nursing homes. The statistical model used has a good fit based on the Hosmer-Lemeshow test, which shows that the regression model provides predictions following the existing data. No previous study has explored the effect of the combination of spirituality and depression on quality of life. However, although we calculated the sample size based on the effect size of the prior study, future studies need to involve more participants to obtain more robust research results.

CONCLUSIONS AND RECOMMENDATION

This study concluded that the level of spirituality can predict the QoL of the elderly. Higher spirituality significantly contributed to better QoL, particularly in the components of role participation and MCS. In addition, depression was associated with an increased risk of declining vitality and MCS, highlighting its negative impact on QoL. These findings underscore the importance of enhancing spiritual well-being and addressing depression in the elderly to improve their overall QoL. Recommendations for future research include exploring interventions targeting spirituality and mental health to optimize QoL outcomes and expanding studies to different populations and settings for a broader understanding of these relationships.

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