Development of Questionnaires for Assessing Anxiety, Sleep Quality, and Quality of Life in the Elderly for Nursing Practice

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Article Info	ABSTRACT
	The elderly face complex and interrelated health challenges, including anxiety, sleep disturbances, and decreased quality of life, which can affect their physical and psychological well-being. In nursing, screening using valid and reliable questionnaires can help nurses identify mental health problems early, prevent complications, and provide appropriate interventions. Therefore, assessment scales such as the Elderly Anxiety Questionnaire (EAQ), Elderly Sleep Quality Questionnaire (ESQQ), and Elderly Quality of Life Questionnaire (EQLQ) were developed to assess anxiety, sleep quality, and quality of life in the elderly according to current conditions and needs. This study aims to develop and validate the EAQ, ESQQ, and EQLQ as initial screening tools for clinical and community practice nurses. The method used a qualitative approach; questionnaires were distributed to 60 elderly participants selected based on inclusion and exclusion criteria, followed by statistical validity and reliability tests. The results showed that the r-count value for the three questionnaires was more significant than the r-table (0.254), indicating good item validity. The reliability test using Cronbach's alpha also showed that the three questionnaires had high reliability. In conclusion, EAQ, ESQQ, and EQLQ are practical tools for detecting the mental condition of the elderly and supporting the role of nurses in providing comprehensive care. This study contributes significantly to nursing practice by providing tools for initial screening, data collection, and analysis to improve the quality of care for the elderly. Further research with a larger sample size is recommended to strengthen these findings. **Keywords:** Elderly, Anxiety, Sleep Quality, Quality of Life, Questionnaires, Nursing Practice

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1. INTRODUCTION

The increase in life expectancy and the rapid growth of the elderly population have made attention to mental health and quality of life among the elderly a global health priority (Banerjee, 2020; Extermann et al., 2021; Søvold et al., 2021). According to the World Health Organization, the number of people aged 60 and above is expected to double by 2050, reaching 2.1 billion (Xi et al., 2022). This demographic shift presents unique challenges, particularly in addressing the mental and physical well-being of the elderly. Older adults face a range of complex and often interconnected health challenges, including anxiety, sleep disturbances, and declining quality of life (Berkley et al., 2020; Casagrande et al., 2022). These conditions can significantly impact the physical and psychological well-being of the elderly and often require a more structured and measurable approach for effective management.

Anxiety is a common but frequently underdetected mental health issue among the elderly (Atchison et al., 2024; Kvalbein-Olsen et al., 2023). It is often triggered by health changes, loss of loved ones, uncertainty about the future, or transitions in living environments. According to research by Cho et al. (2021), with a sample of 655 elderly people, the prevalence of anxiety was found to be 39.4%, so it is

necessary to improve services for the elderly through screening. In addition, research data by Javaid et al. (2023) shows that the occurrence of anxiety disorders has been increasing steadily over the past 30 years. According to Ribeiro et al. (2020) and Wilmer et al. (2021), symptoms such as excessive worry, tension, and persistent discomfort can significantly impact older adults' overall quality of life and well-being. Szuhany & Simon (2022) added that anxiety disorders not only affect mental health but also contribute to physical health deterioration.

Similarly, according to Wuthrich et al. (2021), sleep disturbances, including insomnia, difficulty falling asleep, or non-restorative sleep, are prevalent among the elderly and often co-occur with anxiety. Poor sleep quality exacerbates anxiety symptoms, creating a vicious cycle that negatively affects both mental and physical health (Hamilton et al., 2021). According to Leng et al. (2020) and Zhao et al., (2021), sleep disturbances have been associated with cognitive decline, increased fatigue, and reduced quality of life. Poor sleep can worsen both mental and physical health conditions and slow the recovery process from other health issues. The quality of life in older adults can be directly influenced by their levels of anxiety and sleep disturbances.

Quality of life is a multidimensional concept that encompasses physical, social, and emotional well-being (Costa et al., 2021; Rodrigues et al., 2020). Anxiety and sleep disturbances are critical factors that influence this construct (El Sayed et al., 2021; Lee et al., 2021). Older adults with severe anxiety and significant sleep disturbances often experience reduced social interactions, diminished physical abilities, and lower life satisfaction. Low quality of life is linked to higher risks of both mental and physical health problems, compounding the challenges faced by this population.

Despite the recognition of these issues, there is a lack of integrated assessment tools specifically designed for the elderly that simultaneously evaluate anxiety, sleep quality, and quality of life. Existing tools often address these dimensions in isolation, limiting their utility in providing a comprehensive understanding of the interconnected challenges older adults face. According to Brouwers et al. (2020), developing a robust, validated questionnaire that integrates these aspects is crucial for enhancing research and clinical practice. Such a tool would not only enable the detection of health condition changes and monitor progression but also guide the development of individualized interventions tailored to the unique experiences of the elderly.

This study aims to fill this gap by developing a comprehensive and accurate questionnaire to assess anxiety, sleep quality, and quality of life among the elderly. The tool will provide valuable insights into the needs by capturing the nuanced interplay between these dimensions. The goal of developing these questionnaires is to identify the anxiety experienced by the elderly, the sleep disturbances they encounter, and their quality of life to understand their needs better. This enables developing and implementing more effective intervention strategies, contributing to improved quality of life, reduced anxiety, and better sleep among the elderly. Overall, this supports older adults' mental and physical health and helps them lead healthier and higher-quality lives. The development of practical assessment tools is essential in research contexts and everyday clinical practice. It is a key component in efforts to improve the well-being of the elderly and ensure that they receive care tailored to their needs.

2. METHOD

This study uses a quantitative approach with a purposive sampling technique to test the validity and reliability of the developed questionnaire (Ranganathan et al., 2024). Participants in this study were elderly individuals living in Semarang Regency, Central Java, Indonesia. The number of samples in this study was 60 people, selected based on two criteria, and the study was conducted from June 20 to July 28, 2024. Respondents were selected based on two criteria: inclusion and exclusion. Inclusion criteria include: 1) Elderly aged 50 to 70 years living in Semarang Regency, Central Java. 2) Elderly who experience sleep disorders, anxiety, and decreased quality of life identified through initial interviews or initial screening. 3) Elderly who do not suffer from severe mental disorders such as schizophrenia that can affect the measurement results. 4) Elderly who do not have chronic diseases that significantly affect physical or cognitive function. Exclusion criteria include: 1) Elderly with severe mental disorders (e.g., schizophrenia, bipolar disorder), 2) Elderly who suffer from chronic diseases that can interfere with their ability to participate in filling out the questionnaire independently, 3) Elderly who are receiving intensive care in the hospital.

The validity used a content validity test (Tavakol & Wetzel, 2020), which involved an assessment by experts in psychology and elderly health to ensure that the items in the questionnaire covered aspects relevant to sleep disorders, anxiety, and quality of life in the elderly. In addition, construct validity testing is used through factor analysis to ensure that the questionnaire items measure the constructs being studied (Sun et al., 2020).

Empirical validity testing is done by looking at the r-count and r-table Product Moment values (Purwati & Kustiningsih, 2023). The r-table value is calculated based on the number of samples (60 participants) and the level of significance used (0.05). If the r-count exceeds the r-table, the relationship between the questionnaire items is considered statistically significant and valid. The use of r count in this analysis aims to determine the validity of the questionnaire by comparing the correlation results between

the questionnaire items with the total questionnaire score. In addition, the r-table test is used as a significance limit to assess whether the relationship found between variables in this study has sufficient strength to be accepted as a valid result. The reliability test uses an internal consistency test through Pearson correlation and is calculated using Cronbach's Alpha. The Cronbach's Alpha value is expected to be above 0.7 to indicate that the questionnaire has good internal consistency.

The questionnaire developed in this study assessed anxiety, sleep disturbances, and quality of life of the elderly in an integrated manner. These three questionnaires will be tested for validity and reliability through the steps described to ensure that this measuring instrument can be relied on to provide an accurate description of the mental and physical health conditions of the elderly.

2.1. Elderly Anxiety Questionnaire (EAQ)

This questionnaire aims to explore the level of anxiety experienced by the elderly, consisting of 30 questions using a Likert scale ranging from 1 to 5, where 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always. The total score ranges from 36 to 180, categorized as follows: 0-36 = no anxiety, 37-72 = low anxiety, 73-108 = moderate anxiety, 109-144 = high anxiety, and 145-180 = panic.

2.2. Elderly Sleep Quality Questionnaire (ESQQ)

This questionnaire aims to assess the sleep quality of the elderly, consisting of 20 questions with response options using a Likert scale from 1 to 5, where 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always. The total score ranges up to 100, with the following categories: 0-33 = poor sleep quality, 34-66 = normal sleep quality, and 67-100 = high sleep quality.

2.3. Elderly Quality of Life Questionnaire (EQLQ)

This questionnaire aims to assess the quality of life of the elderly, consisting of 30 questions with response options using a Likert scale from 1 to 5, where 1 = never, 2 = rarely, 3 = sometimes, 4 = often, and 5 = always. The total score ranges up to 100, with the following categories: 0-33 = low quality of life, 34-66 = normal quality of life, and 67-100 = high quality of life.

3. RESULTS AND DISCUSSION

3.1. Results

This study involved respondents who were elderly and had various demographic characteristics. These characteristics include age, gender, marital status, place of residence, education level, and employment status. This data aims to comprehensively describe the respondents' backgrounds as a basis for further analysis. Details of each category are presented in Table 1 below.

Table 1
Characteristics of Research Respondents

Demographics		Frequencies	Percentage
Age			
	50 - 60	15	25
	60 - 74	45	75
	Total	60	100
Gender			
	Male	33	55
	Female	27	45
	Total	60	100
Married Status			
	Married	36	60
	Widow/Widower	24	40
	Total	60	100
Living			
	Alone	0	0
	With children	24	40
	With spouse	36	60
	Total	60	100
Education Level			
	Junior High School	12	20
	Senior High School	39	65
	University	9	15
	Total	60	100

Employment			
Not Working		39	65
Working		21	35
	Total	60	100

From Table 1, the characteristics of the respondents are as follows: the majority are aged 60-74 years (75%), more males than females (55%), most are married (60%), live with their spouse (60%), have a higher education level with more having completed high school (65%), and 65% are not currently employed.

Table 2
Validity Results

Questionnaire items	R-Table (60 Respondents)	EAQ Questionnaire (30 item)		EQLQ Questionnaire (30 item)		ESQQ Questionnaire (20 item)	
		r-count	results	r-count	results	r-count	results
1	0.254	0.312	Valid	0.318	Valid	0.328	Valid
2	0.254	0.310	Valid	0.309	Valid	0.362	Valid
3	0.254	0.304	Valid	0.303	Valid	0.314	Valid
4	0.254	0.320	Valid	0.304	Valid	0.311	Valid
5	0.254	0.305	Valid	0.308	Valid	0.316	Valid
6	0.254	0.304	Valid	0.307	Valid	0.342	Valid
7	0.254	0.310	Valid	0.332	Valid	0.332	Valid
8	0.254	0.317	Valid	0.331	Valid	0.301	Valid
9	0.254	0.337	Valid	0.315	Valid	0.313	Valid
10	0.254	0.303	Valid	0.338	Valid	0.321	Valid
11	0.254	0.321	Valid	0.330	Valid	0.301	Valid
12	0.254	0.337	Valid	0.349	Valid	0.312	Valid
13	0.254	0.301	Valid	0.323	Valid	0.303	Valid
14	0.254	0.310	Valid	0.300	Valid	0.318	Valid
15	0.254	0.305	Valid	0.310	Valid	0.301	Valid
16	0.254	0.309	Valid	0.329	Valid	0.335	Valid
17	0.254	0.312	Valid	0.318	Valid	0.308	Valid
18	0.254	0.314	Valid	0.374	Valid	0.313	Valid
19	0.254	0.326	Valid	0.304	Valid	0.302	Valid
20	0.254	0.322	Valid	0.313	Valid	0.316	Valid
21	0.254	0.302	Valid	0.329	Valid		
22	0.254	0.309	Valid	0.338	Valid		
23	0.254	0.305	Valid	0.326	Valid		
24	0.254	0.311	Valid	0.319	Valid		
25	0.254	0.332	Valid	0.352	Valid		
26	0.254	0.338	Valid	0.309	Valid		
27	0.254	0.316	Valid	0.316	Valid		
28	0.254	0.322	Valid	0.325	Valid		
29	0.254	0.308	Valid	0.338	Valid		
30	0.254	0.355	Valid	0.303	Valid		

From Table 2, it can be seen that the item scores on the EAQ, EQLQ, and ESQQ questionnaires show that the calculated values (r-count) for all three questionnaires are greater than the critical value (r-table) of 0.254. This indicates that the items in these questionnaires are valid and suitable for distribution.

Table 3
Reliability Results

Types of Questionnaires	Cronbach's Alpha	Results
Elderly Anxiety Questionnaire (EAQ)	0.986	Reliable
Elderly Sleep Quality Questionnaire (ESQQ)	0.976	Reliable
Elderly Quality of Life Questionnaire (EQLQ)	0.981	Reliable

From Table 3, it can be seen that the reliability test values for the EAQ, EQLQ, and ESQQ questionnaires indicate that all three questionnaires are reliable for use.

3.2. Discussion

Measurement instruments are tools designed to collect data or information about specific research or clinical practice variables (Streiner et al., 2024). These instruments can include questionnaires, tests, scales, or observational tools used to measure phenomena or constructs that cannot be directly observed. In the context of psychology and social sciences, these instruments are often used to assess attributes such as anxiety, sleep quality, and quality of life (Olsen & Misajon, 2020; Tavakol & Wetzel, 2020). Questionnaire validity refers to the extent to which a questionnaire accurately measures its intended construct. Validity is crucial to ensure that the results obtained from the questionnaire are accurate and relevant to the research or evaluation objectives (Allen et al., 2022). Internal reliability assesses the consistency of items within a questionnaire. A high Cronbach's alpha coefficient, typically $\geq$ 0.7, indicates that the items in the questionnaire measure the same aspect of the intended construct (Hayes & Coutts, 2020). Aithal & Aithal (2020) emphasize that high internal reliability is essential for obtaining consistent and reliable results.

The development of questionnaires to assess anxiety, sleep quality, and quality of life in the elderly using the Elderly Anxiety Questionnaire (EAQ), Elderly Sleep Quality Questionnaire (ESQQ), and Elderly Quality of Life Questionnaire (EQLQ) is a crucial step in enhancing elderly healthcare. The validity and reliability of these questionnaires are key to ensuring the effectiveness of measurement tools in clinical practice. The Elderly Anxiety Questionnaire (EAQ) is designed to measure anxiety, which is often overlooked but has a significant impact on the health and quality of life of the elderly. Andreescu & Lee (2020) indicate that anxiety measurement tools must be sensitive to symptoms that may differ from those in younger populations. The validity and reliability of the EAQ are critical for early detection and effective intervention planning.

The ESQQ measures the sleep quality of older adults, which is often affected by anxiety and other health problems. Fabbri et al. (2021) suggested that sleep quality questionnaires can differentiate between different levels of sleep disturbance. Poor sleep quality can worsen anxiety symptoms and affect the physical and mental health of older adults. In addition, recent research by Perez-Pozuelo et al. (2020) confirmed that sleep disturbances in older adults could be closely related to cognitive decline and the risk of neurodegenerative diseases, reinforcing the urgency of addressing this issue through accurate measurement tools.

The EQLQ evaluates the quality of life of older adults from multiple dimensions, including physical, social, and emotional aspects. Ferreira et al. (2021) highlighted the importance of including multiple dimensions of quality of life in a questionnaire. Older adults with high levels of anxiety and sleep disturbances often face decreased physical and social functioning and reduced life satisfaction, which impacts overall quality of life. Untreated anxiety could worsen the quality of life of older adults (Voros et al., 2020), especially in social and emotional aspects, affecting their social interactions and increasing feelings of loneliness.

The results of this study are very relevant to nursing practice, especially in the context of elderly care. Nurses, as health workers, have an important role in identifying, treating, and supporting older adults who experience anxiety disorders, poor sleep quality, and decreased quality of life. Using the EAQ, ESQQ, and EQLQ questionnaires will allow nurses to be more precise in designing interventions based on valid and reliable data. Li et al. (2020) stated that nurses are early detectors of patient conditions in nursing practice. Therefore, nurses need to use valid and reliable measuring instruments (Oldland et al., 2020) when identifying patients' mental and physical health problems so that nurses can intervene quickly and appropriately. In addition, nurses can integrate the results of the validity and reliability of this questionnaire to design more targeted interventions, such as behavioral therapy to overcome anxiety or sleep management programs that involve relaxation techniques and changes in sleep behavior, especially for the elderly. The instruments developed in this study provide the necessary data and allow nurses to provide more holistic and evidence-based care.

The novelty of this study lies in developing an instrument tailored to the specific needs of the elderly, who often experience different symptoms compared to younger populations, both in terms of intensity and cause. A questionnaire that measures anxiety, sleep quality, and quality of life in an integrated manner offers a new, more comprehensive approach to assessing the mental and physical health of the elderly. This study links three often separate dimensions (anxiety, sleep quality, and quality of life) in one instrument, enriching the understanding of the complex relationships between these factors. This study fills a gap in the literature regarding the holistic assessment of the mental and physical condition of the elderly, which can be used for research and daily nursing practice. In addition, this study contributes significantly to nursing practice by providing tools for initial screening, data collection, and analysis to improve the quality of care for the elderly.

4. CONCLUSION

Developing the EAQ, ESQQ, and EQLQ questionnaires is important in comprehensively assessing anxiety, sleep quality, and quality of life in the elderly. The high validity and reliability of these three questionnaires ensure that the results obtained can be relied on for intervention planning and monitoring the health conditions of the elderly more precisely and effectively. With the right measuring instrument, health workers, especially nurses, can design and implement more targeted and evidence-based interventions so that they can improve the quality of life of the elderly holistically. In addition, using this questionnaire also allows nurses to detect mental and physical health disorders early, which is an important step in preventing the deterioration of the health conditions of the elderly.

However, this study has several limitations. First, the relatively small sample size (60 participants) is limited to the Semarang Regency, Central Java, Indonesia, which may affect the generalizability of the findings of this study to the broader elderly population in Indonesia or other countries. Second, this study has not included other variables that may affect anxiety, sleep quality, and quality of life in the elderly, such as social and economic factors, which could be areas for further research. The implication of these findings is the need for further development and validation of the questionnaire by involving more extensive and more diverse samples and considering external factors that affect the quality of life of the elderly. Thus, this study's results can contribute significantly to nursing practice by providing tools for initial screening, data collection, and analysis to improve the quality of care for the elderly.

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