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Relationship Between Anxiety Levels and Sleep Quality Among Older Adults at the West Java Elderly Social Service Center

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ABSTRACT

Sleep disturbance and anxiety are common among older adults, but evidence from residents of social care institutions in West Java remains limited. This study examined the association between anxiety levels and sleep quality among older adults residing at the West Java Elderly Social Service Center. A cross-sectional correlational study was conducted among 62 residents drawn from a source population of 160. Anxiety was assessed using the Indonesian version of the Geriatric Anxiety Scale (GAS), and sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). The association was evaluated using the Fisher-Freeman-Halton exact test, with Cramer's V used as a measure of effect size. Moderate anxiety was observed in 67.7% of participants, while 82.3% had good sleep quality. Good sleep quality was reported by 100% of participants with mild anxiety and 95.2% of those with moderate anxiety. Poor sleep quality was reported by 77.8% of participants with severe anxiety and all participants with panic-level anxiety. Anxiety level was significantly associated with sleep quality ($p = 0.001$; Cramer's $V = 0.786$). Higher anxiety categories were associated with a greater frequency of poor sleep quality, although the cross-sectional design did not establish causality. These findings provide institution-specific evidence for gerontological nursing and support the integrated assessment of anxiety and sleep quality among older adults in residential care.

Keywords: anxiety, Geriatric Anxiety Scale, older adults, residential care, sleep quality

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INTRODUCTION

Population aging has become an important global health issue. The World Health Organization reported that the number of people aged 60 years and older continues to increase and is projected to reach 2.1 billion by 2050 (World Health Organization, 2022). Indonesia has also entered the era of population aging, with older adults accounting for 11.75% of the total population in 2023 (Badan Pusat Statistik, 2023). A similar trend has been observed in West Java, where older adults represented 11.25% of the provincial population in 2024 (Badan Pusat Statistik Jawa Barat, 2024).

Aging is accompanied by changes in sleep architecture, circadian regulation, physical health, and psychosocial functioning. Older adults may experience reduced deep sleep, longer sleep latency, frequent nocturnal awakening, and shorter sleep duration (Ohayon, 2002; Foley et al., 2004). Recent evidence also emphasizes that sleep in later life is shaped by interacting biological, psychological, behavioral, and environmental factors rather than by age alone (Bragazzi et al., 2025). Poor sleep quality may contribute to fatigue, impaired concentration, falls, cognitive decline, and diminished quality of life.

Anxiety is another important concern among older adults. Declining physical health, chronic illness, bereavement, reduced social roles, loneliness, dependence, and uncertainty about the future may increase psychological distress. Residents of institutional care settings may face additional stressors, including separation from family, reduced autonomy, limited privacy, and adaptation to structured routines. Studies conducted in nursing homes have shown that anxiety and other psychological factors are closely related to sleep and broader well-being (Adawiyah et al., 2022; Hasan et al., 2025; Yuliati et al., 2026).

Anxiety and sleep quality are theoretically and empirically interconnected. Anxiety may increase cognitive and physiological arousal through persistent worry, muscle tension, and sympathetic nervous system activation, thereby interfering with sleep initiation and maintenance. Conversely, disturbed sleep may intensify emotional reactivity and anxiety symptoms. Indonesian studies have reported significant associations between anxiety and sleep quality among older adults in community and institutional settings (Latief et al., 2020; Basarewan et al., 2022; Sulkarnaen et al., 2022; Nurdin et al., 2024).

Roy's Adaptation Model provides a nursing framework for understanding this relationship. In this study, anxiety symptoms may be viewed as a focal stimulus, while physical decline, chronic illness, loneliness, family separation, and institutional routines represent contextual stimuli. Older adults respond through the regulator and cognator subsystems. When these processes are ineffective, maladaptive responses may occur in the physiological adaptive mode, including disrupted sleep, and in the self-concept mode, including persistent anxiety (Roy, 2009; Roy & Andrews, 1999).

Although anxiety and sleep quality among older adults have been studied previously, evidence specific to institutionalized older adults in West Java remains limited. Earlier Indonesian studies were largely conducted among community-dwelling populations, older adults with particular medical conditions, or residents of institutions outside West Java. Few studies have examined the full range of anxiety severity categories together with dichotomized PSQI sleep quality using an exact categorical analysis in a West Java social care institution. This study therefore provides setting-specific evidence relevant to gerontological nursing practice.

A preliminary assessment conducted in May 2026 at the center, which housed 160 residents, identified recurring complaints of difficulty initiating sleep, frequent nocturnal awakening, non-restorative sleep, excessive worry, tension, fatigue, and unexplained restlessness. The preliminary assessment was qualitative and did not record the number of residents with each complaint; therefore, no unsupported prevalence estimate was added.

Accordingly, this study aimed to examine the association between anxiety levels and sleep quality among older adults at the West Java Elderly Social Service Center in 2026.

METHODS

The study was conducted in 2026 at the UPTD Pusat Pelayanan Sosial Griya Lansia Jawa Barat, Ciparay, Bandung Regency, West Java. The institution provides residential social and health support for older adults. The cross-sectional design assessed anxiety and sleep quality at a single point in time; therefore, the findings indicate association rather than temporal or causal relationships.

The source population consisted of 160 residents. The protocol described a census-based recruitment approach in which all residents were considered for eligibility rather than a formal sample size calculation. A total of 62 residents met the study criteria, provided consent, completed both questionnaires, and constituted the final analytical sample. The source document did not provide a detailed screening flow or reasons for the non-inclusion of the remaining residents. The inclusion criteria were age 60 years or older, willingness to participate, ability to communicate and understand the questionnaire items, and ability to complete the questionnaires independently or with standardized assistance. Residents who were severely ill or unable to provide responses were excluded. No standardized cognitive screening instrument was used; functional ability to understand and answer the items was assessed during eligibility screening.

Anxiety was measured using the Indonesian version of the Geriatric Anxiety Scale (GAS). The study used the 25 scored items covering cognitive, somatic, and affective anxiety symptoms during the preceding week. Each item was scored from 0 to 3, yielding a total score ranging from 0 to 75. The operational categories applied in this study were 0–18 for mild anxiety, 19–37 for moderate anxiety, 38–55 for severe anxiety, and 56–75 for panic-level anxiety. The source instrument documentation reported an internal consistency of Cronbach's alpha = 0.905, while the original GAS validation demonstrated strong internal consistency and convergent validity (Segal et al., 2010). Reliability was not re-estimated in the present sample. Sleep quality was assessed using the Indonesian version of the Pittsburgh Sleep Quality Index (PSQI), comprising 19 self-rated items across seven components and yielding a global score ranging from 0 to 21. A score of 5 or lower was categorized as good sleep quality, whereas a score above 5 was categorized as poor sleep quality. The original PSQI reported Cronbach's alpha = 0.83, a test-retest reliability coefficient of 0.85, a sensitivity of 89.6%, and a specificity of 86.5% at the cutoff score of 5 (Buysse et al., 1989). The Indonesian validation study also reported acceptable reliability (Alim, 2015).

Data were collected using Indonesian-language questionnaires. Participants with visual limitations were offered large-print forms using approximately 16–18-point text. When a participant could not read or write independently, the researcher or a trained assistant read every item verbatim in a neutral tone and recorded the participant's spoken response. Questions were not paraphrased, interpreted, or accompanied by suggested answers. The same instructions were applied to all assisted participants to minimize interviewer bias, and short rest periods were provided when fatigue occurred.

The study received ethical approval from the Research Ethics Committee of STIKes Budi Luhur Cimahi (Ethical Clearance No. 003291/STIKes Budi Luhur Cimahi/2026). Before data collection, prospective participants received clear information about the study objectives, procedures, potential benefits, and their rights. Written informed consent was obtained before participation. Participation was voluntary, and participants could refuse or withdraw without penalty. Names were not recorded on the questionnaires; unique codes were used instead. Privacy and confidentiality were protected during data collection, storage, analysis, and reporting. Assistance for participants with reading or visual limitations was limited to the neutral, verbatim reading of questionnaire items and the recording of participants' own responses.

Data were checked for completeness and analyzed using univariate and bivariate procedures. Frequencies and percentages were used to summarize anxiety levels and sleep quality. Because the 4 × 2 contingency table contained small and zero cell counts, the two-sided Fisher-Freeman-Halton exact test was used to assess the association between anxiety level and sleep quality. Statistical significance was set at $p < 0.05$. Cramer's V was calculated from the Pearson chi-square statistic to describe the strength of the association.

RESULTS

A total of 62 participants completed the study assessments. Available participant characteristics included age group and sex. Chronic disease, medication use, education, and length of institutional residence were listed in the questionnaire protocol but were not available in the summarized analytical results and therefore could not be reported.

Table 1. Participant characteristics

Characteristic	Frequency (n)	Percentage (%)
Age 45-59 years	1	1.6
Age 60-69 years	8	12.9
Age 70-79 years	53	85.5
Male	32	51.6
Female	30	48.4
Total	62	100.0

Table 2. Anxiety levels among participants

Anxiety Level	Frequency (n)	Percentage (%)
Mild	9	14.5
Moderate	42	67.7
Severe	9	14.5
Panic	2	3.2
Total	62	100

Table 2 shows that moderate anxiety was the most frequent category, reported by 42 participants (67.7%). Mild and severe anxiety were each reported by 9 participants (14.5%), while 2 participants (3.2%) were classified as having panic-level anxiety. The summed percentages equal 99.9% because of rounding.

Table 3. Sleep quality among participants

Sleep Quality	Frequency (n)	Percentage (%)
Good (≤ 5)	51	82.3
Poor (> 5)	11	17.7
Total	62	100

Table 3 shows that 51 participants (82.3%) had good sleep quality and 11 participants (17.7%) had poor sleep quality based on the PSQI global-score classification.

Table 4. Association between anxiety levels and sleep quality

Anxiety level	Good sleep, n (%)	Poor sleep, n (%)	Total, n (%)	p-value
Mild	9 (100.0)	0 (0.0)	9 (14.5)	
Moderate	40 (95.2)	2 (4.8)	42 (67.7)	
Severe	2 (22.2)	7 (77.8)	9 (14.5)	**0.001**
Panic level	0 (0.0)	2 (100.0)	2 (3.2)	
Total	51 (82.3)	11 (17.7)	62 (100.0)	

Table 4 shows a graded pattern across anxiety categories. All participants with mild anxiety and 95.2% of those with moderate anxiety had good sleep quality. In contrast, poor sleep quality was reported by 77.8% of participants with severe anxiety and by all participants with panic-level anxiety. The Fisher-Freeman-Halton exact test indicated a statistically significant association between anxiety level and sleep quality ($p = 0.001$), with a strong effect size (Cramer's $V = 0.786$).

DISCUSSION

This study identified a statistically significant and strong association between anxiety level and sleep quality among institutionalized older adults. Poor sleep quality occurred more frequently in the severe and panic-level anxiety categories, whereas good sleep quality predominated in the mild and moderate categories. This pattern is consistent with Indonesian studies reporting that greater anxiety severity is associated with poorer sleep among older adults in community and social care settings (Latief et al., 2020; Basarewan et al., 2022; Sulkarnaen et al., 2022; Nurdin et al., 2024).

The association can be explained through psychological and physiological mechanisms. Persistent worry, restlessness, muscle tension, and heightened sympathetic activity can maintain nocturnal arousal and interfere with sleep initiation or continuity. The relationship may also be bidirectional: sleep disturbance can worsen emotional regulation and anxiety symptoms, while anxiety can further disrupt sleep (Magee & Carmin, 2010; Peng et al., 2024). Because the present study measured both variables at one time point, the direction of this relationship cannot be determined.

An important finding was that most participants had good sleep quality even though moderate anxiety was common. Moderate anxiety symptoms may not necessarily produce a PSQI global score above the threshold for poor sleep. Stable institutional routines, scheduled daily activities, social interaction, caregiver supervision, and regular sleep-wake opportunities may also buffer the impact of moderate anxiety; however, these factors were not measured, and this interpretation should therefore remain cautious. In contrast, severe and panic-level anxiety may involve greater cognitive and physiological arousal that is more likely to coincide with impaired sleep (Gould et al., 2018; Potvin et al., 2014).

The institutional context may influence both anxiety and sleep. Separation from family, reduced independence, limited privacy, changes in social roles, environmental noise, and adaptation to institutional schedules may increase distress or disrupt sleep. Conversely, structured routines and access to caregiving support may protect sleep for some residents. Previous studies have demonstrated that personal and environmental factors shape sleep quality among nursing home residents and that sleep contributes to quality of life in residential care settings (Adawiyah et al., 2022; Hasan et al., 2025; Yuliati et al., 2026).

Roy's Adaptation Model clarifies how these findings may be understood in nursing practice. Anxiety represents a focal stimulus requiring immediate adaptation, while chronic illness, physical decline, loneliness, family separation, and institutional routines function as contextual stimuli. Regulatory and cognitive-emotional coping processes influence whether the older adult achieves an adaptive response. Persistent anxiety may indicate ineffective coping in the self-concept mode and may be accompanied by a maladaptive physiological response manifested as poor sleep. Assessment should therefore consider both the focal psychological symptom and the contextual conditions surrounding the resident.

Sleep quality is also connected with broader mental and cognitive health outcomes. Fu and Li (2025) reported associations between sleep quality, mental health, and cognitive function among community-dwelling older adults, while Huang et al. (2025) demonstrated interconnections among sleep, depression, and anxiety symptoms. These findings support an integrated geriatric assessment approach rather than treating sleep complaints as isolated physiological problems.

From a gerontological nursing perspective, the findings support routine, integrated assessment of anxiety and sleep quality among residents of elderly social service centers. Standardized tools can assist nurses in identifying residents who may require further clinical assessment, while interpretation should also consider cognitive status, chronic disease, medication use, environmental conditions, and psychosocial support.

Potential non-pharmacological nursing strategies include sleep hygiene education, relaxation techniques, therapeutic communication, spiritual support, structured daytime activity, and psychosocial support. These strategies are clinically plausible but were not evaluated in the present study. Intervention research is therefore needed before conclusions can be drawn regarding their effectiveness in this setting. Previous studies suggest that approaches such as slow-stroke back massage and mind-body exercise may influence anxiety and sleep-related outcomes (Lubbna et al., 2023; Zheng et al., 2026).

This study has several limitations. First, the cross-sectional design identifies association but cannot establish temporality or causality. Second, the study was conducted in one institution, and the final sample reflected eligible completers from the resident population, limiting generalizability. Third, anxiety and sleep quality were assessed using self-report questionnaires and may have been influenced by recall, comprehension, fatigue, or social desirability bias. Fourth, no standardized cognitive screening test was used. Fifth, one participant was recorded in the 45–59-year age category despite an intended minimum age of 60 years; this record requires verification. Sixth, chronic illness, pain, medication use, depression, social support, physical activity, loneliness, and environmental conditions were not available for multivariable adjustment, leaving the possibility of uncontrolled confounding. Finally, instrument reliability was not re-estimated in this sample. Future multicenter or longitudinal studies should use transparent participant flow reporting, formal cognitive assessment, comprehensive clinical characteristics, and multivariable analyses.

CONCLUSION

Anxiety level was significantly and strongly associated with sleep quality among older adults at the West Java Elderly Social Service Center. Poor sleep quality was more frequent in the severe and panic-level anxiety categories, whereas good sleep quality predominated among participants with mild and moderate anxiety. Because the study was cross-sectional, the findings do not establish whether anxiety contributes to poor sleep or poor sleep contributes to anxiety. Nevertheless, the results indicate that anxiety and sleep quality should be assessed together in gerontological nursing care.

RECOMMENDATION

Healthcare providers at elderly social service centers are encouraged to incorporate anxiety and sleep quality screening into comprehensive geriatric assessments and to refer residents with severe symptoms for appropriate clinical evaluation. Non-pharmacological nursing support may include sleep hygiene education, relaxation techniques, therapeutic communication, meaningful daytime activities, and psychosocial support tailored to individual needs and clinical conditions. Future studies should use longitudinal or multicenter designs, report comprehensive participant characteristics, evaluate relevant confounders, and examine the effectiveness of specific nursing interventions.

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