Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Psychiatric Nursing

A Cross Sectional Study to Assess the Sleep Disturbance and Activities of Daily Living and Their Predictors among Older Adults Visiting Medical Out Patient Department of Selected Hospitals of Bagalkot

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DOI: https://doi.org/10.36347/sjams.2025.v13i02.004 | **Received:** 26.11.2024 | **Accepted:** 01.01.2025 | **Published:** 01.02.2025

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Abstract **Original Research Article**

Background of the Study*:** Healthy aging according to the WHO is a continuous process of optimizing opportunities to maintain and improve physical and mental health, independence, and quality of life throughout the life course. Older adults may experience mobility problems due to age-related changes in muscles, bones, and joints. Depression, anxiety, and social isolation are prevalent among older adults. Sleep disturbances can significantly impact mood and emotional well-being in older adults. Mood swings, depression, and anxiety. This may result in difficulties with mobility, self-care tasks, and overall functional independence. Hence the investigator felt the need to conduct "A cross sectional study to assess the sleep disturbance and activities of daily living and their predictors among older adults visiting medical outpatient department of selected hospitals of Bagalkot." ***Aim: To assess the sleep disturbance and activities of daily living among older adults. ***Methods*:** Quantitative non-experimental approach with Cross sectional descriptive survey research design was used for the study to accomplish the objectives. Sleep Quality Scale (SQS), The Lawton Instrumental Activities of Daily Living Scale were used to collect data. A sample of 100 older adults aged above 60 years and visiting medical OPD's of selected hospitals of Bagalkot was selected by Non probability Purposive Sampling Technique. The data collected were analyzed using descriptive and Inferential Statistics. ***Results*:** Findings shows that, there was a significant negative correlation (r= -0.546, P<0.01) between sleep disturbance and activities of daily living of older adults. Sleep disturbance was significantly associated with Religion[$\chi2$=9.09, P<0.0026], Marital Status[$\chi2$=6.43, P<0.0112],Number of Children[$\chi2$=10.77, P<0.001], Family Monthly Income[$\chi2$=15.52, P<0.0001],Residential Status[$\chi2$=10.39, P<0.0013],Type of Family[$\chi2$=8.42, P<0.0037],Chronic Illness[$\chi2$=15.2, P<0.0001],Exercise Habits[$\chi2$=9.09, P<0.0026],Sleeping Pills Usage[$\chi2$=13.58, P<0.0002].Activities of daily living among older adults was significantly associated with Sex[$\chi2$=12.28, P<0.0005], Family Monthly Income[$\chi2$=6.43, P<0.0112],Residential Status[$\chi2$=5.26, P<0.0218].

Keywords: Sleep Disturbance and Activities of Daily Living, Predictors, older Adults.

INTRODUCTION

Healthy aging according to the WHO is a continuous process of optimizing opportunities to maintain and improve physical and mental health, independence, and quality of life throughout the life course. Ageing is caused by the accumulation of molecular and cellular damage, leading to decreased physical and mental capacity, increased disease risk, and eventually death. These changes are not strictly tied to chronological age and vary among individuals. Ageing is also connected to life transitions like retirement, relocation, and loss of loved ones [1, 2].

The Challenges and health problems faced by the elders are social isolation, financial difficulties, and health issues, care giving burden, chronic diseases such as heart disease, diabetes, arthritis, hypertension, and respiratory diseases. Cognitive decline and dementia: including mild cognitive impairment and various forms of dementia, such as Alzheimer's disease. These

conditions can lead to memory loss, impaired judgment, confusion, and difficulties with daily tasks [3, 4].

Older adults may experience mobility problems due to age-related changes in muscles, bones, and joints. Age-related hearing loss and vision problems, such as cataracts, glaucoma, and macular degeneration, are common among the elderly. Depression, anxiety, and social isolation are prevalent among older adults. Older adults are at a higher risk of falls due to factors like decreased balance, muscle weakness, and chronic conditions [5, 6].

Adequate sleep is essential for maintaining good physical health in older adults. It supports various bodily functions, including immune function, cardiovascular health, hormone regulation, and tissue repair. Sleep plays a vital role in cognitive function and memory consolidation. Sufficient sleep helps older adults maintain cognitive abilities, such as attention, concentration, problem-solving, and decision-making [7].

Adequate sleep can help regulate mood, reduce the risk of depression and anxiety, and improve overall emotional resilience. Many older adults have chronic health conditions that require careful management. Sufficient sleep is associated with better disease management and improved outcomes for conditions like diabetes, hypertension, and cardiovascular disease [8].

Insufficient sleep length and poor sleep quality in older persons can increase their risk of falling. Older folks who get enough sleep have a higher quality of life overall. Increased energy and vitality facilitate participation in daily activities and social interactions [9].

Insomnia continues to be one of the most prevalent sleep disorders seen in geriatric clinic patients, frequently characterized by the subjective complaint of difficulty falling or maintaining sleep, or non-restorative sleep, producing noticeable daytime symptoms like difficulty concentrating and mood disturbances, and insomnia remains a clinical diagnosis. Numerous demographic, psychological, biological, and behavioral variables might affect how well people sleep in their later years. The physical and psychological impacts of sleeplessness are more likely to affect older persons [10].

METHODS OF DATA COLLECTION

In the present study the data were collected from older adults aged above 60 years and visiting medical OPD's through standard self-report methods.

Development of the tool:

Data collection tools are the instruments used by the researcher to observe or measure the key variables in the research problem. The tools for the present study were developed after going through;

- Review of literature.
- Consultation and discussion with Physicians and Nursing experts.
- Based on the pilot study results.
- The final tool was prepared with the guidance and suggestions of the guide.
- Description of tool

The standard self-report questionnaire will be used to collect the data which will have the following sections.

Section A: Socio-demographic and personal characteristics of older adults:

It includes information about age, sex, religion, education status, marital status, number of children, occupation, family monthly income, residential status, type of family, and any other chronic illness, smoking or alcohol drinking habits, excessive use of coffee or tea, exercise habits, sleeping pills usage.

Section B: Sleep Quality Scale (SQS) to assess sleep disturbance:

It consists of 28 items, the SQS evaluates 6 domains of sleeping quality; day time symptoms restoration after sleep problems initiating and maintaining sleep, difficulty waking and sleep satisfaction, items are rated using a four points Likert's scale (0=rarely, 1= sometimes, 2=often, 3=almost always). Total score range between 0-84 with higher score denoting more acute sleep disturbance.

Scoring patterns:

There are 8 positive items (items 2, 8, 9, 13, 16, 18, 20 and 27) in Center Epidemiological Research Studies-Sleep Quality Scale, scoring of these items as follows;

0- Rarely or (less than 1 day)
1- Sometimes (1-2 days)
2- Often (3-4 days)
3-almost always (5-7 days)

There are 20 negative items (1,3,4,5,6,7,10,11,12,14,15,17,19,21,22,23,24,25,26 and 28) In center for epidemiological research studies – sleep quality scale, scoring. Thus, total score for scale ranges from 0-84 for 28 items.

To evaluate the quality of sleep in older adults aged above 60 years and visiting medical OPD's selected hospitals were categorized into different categories based on their level of quality of sleep scores. Categorization as follows;

Table 4.1: Categorization of levels of Sleep Disturbances

Level Of Sleep Disturbances	Range of Score
Good QOS	0-27
Moderate QOS	28-56
Poor QOS	57-84

Section C: The Lawton Instrumental Activities of Daily Living; It is used to assess the activities of daily living among older adults. In eight domains for each domain circle the item description that most closely reasonable the client highest functional levels (either 0 or 1) summarizing score ranges from 0 (low function, dependent) to 8(high function or independent).

Scoring pattern: There are 8 items in law Lawton Instrumental Activities of Daily Living.

0-Low function/dependent
8-High function/independent

To assess the activities of daily living in older adults aged above 60 years and visiting medical OPD's selected hospitals were categorized into different categories based on their level of quality of sleep scores. Categorization as follows;

Table 4.2: Categorization of levels of activities of daily living

Activities of Daily Living	Range of Score
Low function	0-2
Moderate function	3-4
High function	5-8

TESTING OF THE TOOL
CONTENT VALIDITY:

Content validity of the tool was established by obtaining the suggestions from experts. The tool was validated by 5 experts. Minor modifications were made on the basis of recommendations suggestions of experts and result of pilot study. After consulting guide the final tool was reframed. It was found to be valid and suitable older adults aged above 60 years.

RELIABILITY OF THE TOOL:

The coefficient of internal consistency was completed for WHO Quality of sleep Scale, Center Epidemiological Research Studies- Sleep Quality Scale, Lawton Instrumental Activities of Daily Living using test-retest technique the reliability of the test found by using Karl Pearson's coefficient correlation formula and spearman`s Brown Prophecy Formula. The reliability co-efficient obtained for sleep scale was 0.99, Lawton Instrumental Activities of Daily Living scale was 0.91, which indicates that the tools are reliable.

PILOT STUDY:

Pilot study was conducted on 15-04-2024 to 20-04-2024 at SNMC & HSK Hospital outpatient department Navanagar, Bagalkot, to find out stability for final study. The investigator used convenient sampling technique to select the sample. A sample of 10 subjects was selected for the pilot study and they were excluded from main study. The data were collected using structured Questionnaires for socio demographic and clinical characteristics of older adults visiting OPD's, for Sleep Quality Scale to assess quality of sleep, Lawton Instrumental Activities of Daily Living Scale to assess activities of daily living, older adults aged above 60 years and visiting medical OPD's selected hospital Bagalkot. The finding of the pilot study revealed that the study is feasible.

DATA COLLECTION PROCEDURES:

Data collection is gathering information needed to address the research problem. Prior to actual data collection, the investigator obtained permission from Principal, Sajjalashree Institute of Nursing Sciences, Navanagar, SNMC & HSK Medical superintendent Navanagar, Bagalkot. The main study was conducted from 5/05/2024 to 5/07/2024 among 100 older adults aged above 60 years and visiting medical OPD's selected hospital with following steps;

Step 1: Obtaining formal administrative approval from the Principal of Sajjalashree Institute of nursing science, Bagalkot.

Step 2: Obtaining approval from institutional ethical clearance committee.

Step 3: Obtaining administrative approval from concerned authorities of selected hospitals of Bagalkot.

Step 4: Obtaining the written consent from older adults aged above 60 years and visiting medical OPD.

Step 5: Assessment of sleep disturbance and activities of daily living among older adults.

PLAN OF DATA ANALYSIS:

The data obtained was analyzed in terms of achieving the objectives of the study using descriptive and inferential statistics.

- Organization of data in master sheet.
- Frequency and percentage distribution was used for analysis of sociodemographic and clinical characteristics.
- Calculation of mean, Standard Deviation of sleep disturbance and activities of daily living scores of older adults.
- Application of Karl Pearson order correlation to find relationship between sleep disturbance and activities of daily living among older adults.
- Application of Chi-square test to find the association between socio-demographic and Personal characteristics with sleep disturbance and activities of daily living among older adults.

RESULTS

Part-I: **Description of Sample in terms of their socio-demographic and Personal characteristics.**

The percentage wise distribution of sample according to their Age describes that, most of the older adults attending OPD of selected hospital of Bagalkot (75%) were from age group 60-70, their sex describes that, most of the older adults (70%) were males, their religion shows that, majority (80%) of older adults were belonging to Hindu religion, their education shows that, 35% of older adults had primary education, 35% percent of them had no formal education, their marital status shows that, majority (95%) of older adults were to married, their children shows that, majority (60%) of older adults had 3 or more children, their occupation shows that, majority (40%) of older adults were doing agriculture, their family income shows that, majority (55%) of older adults had Rs 20,001 to 30,000, their residential status shows that, (50%) of older adults were from urban area, their type of family status shows that, majority (75%) of older adults were belonging to nuclear family, their chronic illness shows that, majority (65%) of older adults had no chronic illness, and their smoking habits shows that, majority (75%) of older adults had no smoking habits.

Part-2: Assessment of sleep disturbance among older adults.

Section A: Assessment of level sleep disturbance among older adults.

Table 5.9: Levels of their sleep disturbance

LEVELS OF SLEEP DISTURBANCE			
Levels	**SCORES**	**FREQUNECY**	**PERCENTAGE**
Mild Disturbance	0-27	55	55%
Moderate Disturbance	28-56	45	45%
High Disturbance	57-84	0	0%

Table 5.9 displays the findings related to distribution of older adults according to their level of sleep disturbance. It shows that highest percentage (55%) of older adults had no/mild disturbance and remaining 45% of them had moderate disturbance.

Section B: Mean and SD of sleep disturbance score among older adults

Table 6.0: Mean and SD of sleep disturbance score among older adults, N=100

Variable	Minimum score	Maximum score	Mean	S.D
sleep disturbance	0	84	29.1	8.59

Table 6.0 shows that maximum score of sleep disturbance score among older adults is 84, Minimum score is 0. The mean and SD sleep disturbance score among older adults. is 29.1±8.59.

Part-3: Assessment of activities of daily living among older adults.

Section A: Assessment of levels of activities of daily living among older adults.

Table 6.1: Levels of activities of daily living among older adults

ACTIVITIES OF DAILY LIVING			
LEVELS OF ADL	**SCORES**	**FREQUENCY**	**PERCENTAGE**
Low Function	0-2	0	0%
Moderate Function	3-4	5	5%
High Function	5-8	95	95%

Table 6.1 displays the findings related to distribution of older adults according to their level of activities of daily living. It shows that majority (95%) of older adults had High function and remaining 5% of them had moderate Function.

Section B: Mean and SD of Activities of Daily Living Score among older adults.

Table 6.2: Mean and SD of Activities of Daily Living Score among older adults, N=100

Variable	Minimum score	Maximum score	Mean	S.D
Activities of Daily living	0	8	6.9	1.34

Table 6.2 shows that maximum score of Activities of Daily Living Score among older adults is 8, Minimum score is 0. The mean and SD Activities of Daily Living Score among older adults is 6.9±1.34.

Part 4: Relationship between sleep disturbance score and activities of daily living score of older adults.

Table 6.3: Relationship between sleep disturbance score and activities of daily living score of older adults

CORRELATION	PEARSONS 'R'	P VALUE
Sleep Disturbance and Activities of Daily Living	-0.54	0.00001**

*** Significant P<0.01**

Table 6.3 shows that finding of statistical test Karl Pearson's correlation coefficient applied to find relationship between sleep disturbance and activities of daily living of older adults. Findings shows that there was a significant negative correlation (r= -0.546, P<0.01) between sleep disturbance and activities of daily living of older adults. That means as sleep disturbance increases activities of daily living decreases, Hence **H_1**: is accepted for these sleep disturbance and activities of daily living, there is significant negative correlation between sleep disturbance and activities of daily living of older adults.

Part-5: Association between the socio demographic and Personal characteristics with levels of sleep disturbance among older adults.

Table 6.4

Sl. No	Variables	DF	Chi square value	P value
1	Age	1	0.34	0.5598
2	Sex	1	0.43	0.512
3	Religion	1	9.09	0.0026**
4	Educational Background:	2	3.8	0.195
5*	Marital Status:	1	6.43	0.0112*
6	Number of Children:	1	10.77	0.001**
7	Occupation	1	1.46	0.2269
8	Family Monthly Income	1	15.52	0.0001**
9	Residential Status	1	10.39	0.0013**
10	Type of Family	1	8.42	0.0037**
11	Chronic Illness	1	15.2	0.0001**
12	Smoking Habits	1	0.34	0.5598
13	Alcohol Drinking Habits	1	1.09	0.29
14*	Exercise Habits	1	9.09	0.0026**
15*	Sleeping Pills Usage	1	13.58	0.0002**

***P<0.05, **P<0.01**

Table 6.4 Displays that findings regarding association of sleep disturbance among older adults with their selected socio demographic and clinical variables. it shows that, there was a significant association found between Religion[$\chi 2$=9.09, P<0.0026], Marital Status[$\chi 2$=6.43, P<0.0112], Number of Children[$\chi 2$=10.77, P<0.001], Family Monthly Income[$\chi 2$=15.52, P<0.0001], Residential Status[$\chi 2$=10.39, P<0.0013], Type of Family[$\chi 2$=8.42, P<0.0037], Chronic Illness[$\chi 2$=15.2, P<0.0001], Exercise Habits[$\chi 2$=9.09, P<0.0026], Sleeping Pills Usage[$\chi 2$=13.58, P<0.0002], Therefore **H_2** is accepted for this socio demographic variables and there was significant association found between Quality of sleep and other variables therefore H_2 stated is rejected for remaining socio demographic variables.

Part-6: Association between the socio demographic and Personal characteristics with Activities of Daily Living among older Adults.

Table 6.5

Sl. No	Variables	DF	Chi square value	P value
1*	Age	1	1.75	0.1859
2	Sex	1	12.28	0.0005**
3	Religion	1	0.93	0.3349
4	Educational Background:	1	0.28	0.5967
5	Marital Status:	1	0.28	0.5967
6	Number of Children:	1	3.51	0.061
7	Occupation	1	0.58	0.4463
8	Family Monthly Income	1	6.43	0.0112*
9	Residential Status	1	5.26	0.0218*

10	Type of Family	1	1.75	0.1859
11	Chronic Illness	1	2.83	0.0925
12	Smoking Habits	1	1.75	0.1859
13	Alcohol Drinking Habits	1	1.75	0.1859
14	Exercise Habits	1	0.58	0.4463
15	Sleeping Pills Usage	1	0.58	0.4463

***P<0.05**

Table 6.5 Displays that findings regarding association of Activities of daily living among older adults with their selected socio demographic variables and clinical characteristics, it shows that, there was a significant association found between Sex[$\chi 2=12.28$, $P<0.0005$], Family Monthly Income[$\chi 2=6.43$, $P<0.0112$], Residential Status[$\chi 2=5.26$, $P<0.0218$], Therefore $\mathbf{H_2}$ is accepted for these socio demographic variables and it is rejected for remaining socio demographic variables and clinical characteristics.

DISCUSSION

Part-I: Description of Sample in terms of their socio-demographic and Personal characteristics.

The percentage wise distribution of sample according to their Age describes that, most of the older adults attending OPD of selected hospital of Bagalkot (75%) were from age group 60-70 and 25% of them in the age group of 71 to 80 years.

Findings of the present study are consistent and supported with the study conducted by Puto G, Cybulski M, Kędziora-Kornatowska K, Doroszkiewicz H, Muszalik M. Sleep Quality in Older People. The most of the patients (86%) were in the age group of 60-70 years [11].

The percentage wise distribution of sample according to their sex describes that, most of the older adults (70%) were males and 30% of them in the females.

Findings of the present study are consistent and supported with the study conducted by de Almondes KM, Castro EAS, Paiva T. Morbidities Worsening Index to Sleep in the Older Adults During COVID-19: Potential Moderators. The most of the patients (59%) were males [12].

The percentage wise distribution of sample according to their religion shows that, majority (80%) of older adults were belonging to Hindu religion, 5% percent of them were belonging to Muslim community and 15% of them were belonging to others.

Findings of the present study are consistent and supported with the study conducted by Puto G, Cybulski M, Kędziora-Kornatowska K, Doroszkiewicz H, Muszalik M. Sleep Quality in Older People. The majority of the patients (80.6%) were Hindus [11].

The percentage wise distribution of sample according to their education shows that, 35% of older adults had primary education, 35% percent of them had no formal education, 25% of them had to secondary education and 5% of them had degree and above.

Findings of the present study are consistent and supported with the study conducted by Puto G, Cybulski M, Kędziora-Kornatowska K, Doroszkiewicz H, Muszalik M. Sleep Quality in Older People. The most of the people (40.6%) had primary education [11].

Part – II: Assessment of sleep disturbance among older adults

Findings related to distribution of older adults according to their level of sleep disturbance. it shows that highest percentage (55%) of older adults had no/mild disturbance and remaining 45% of them had moderate disturbance.

Findings of the present study are consistent and supported with the study conducted by Jaqua EE, Hanna M, Labib W, Moore C, Matossian V. Common Sleep Disorders Affecting Older Adults. it shows that highest percentage (60%) of older adults had no/mild disturbance [13].

Section-B: Mean and SD of Levels of Sleep Disturbance Score

The mean, SD, Maximum score and Minimum score of level of sleep disturbance of older adults. maximum Score is 84, Minimum score is 0. The Total level of sleep disturbance mean and SD level of sleep disturbance of older adults visiting OPD score is 29.1 and 8.59.

Part –III: Assessment of activities of daily living among older adults

Findings related to distribution of older adults according to their level of activities of daily living. It shows that majority (95%) of older adults had High function and remaining 5% of them had moderate Function.

Findings of the present study are consistent and supported with the study conducted by Gao, J., Gao, Q., Huo, L., & Yang, J. Impaired Activity of Daily Living Status of the Older Adults and Its Influencing Factors: A Cross-Sectional Study. it shows that highest percentage (51%) of were aged 60–69 years had high function [14].

Part-IV: Relationship between sleep disturbance score and activities of daily living score of older adults

Finding of statistical test Karl Pearson's correlation coefficient applied to find relationship between sleep disturbance and activities of daily living of older adults. Findings shows that there was a significant negative correlation (r= -0.546, P<0.01) between sleep disturbance and activities of daily living of older adults. That means as sleep disturbance increases activities of daily living decreases, Hence H_1: is accepted for these sleep disturbance and activities of daily living, there is significant negative correlation between sleep disturbance and activities of daily living of older adults.

Findings of the present study are consistent and supported with the study conducted by Panghal, C., Belsiyal, C. X., Rawat, V. S., & Dhar, M Yang, J. Impaired Activity of Daily Living Status of the Older Adults and Its Influencing Factors: A Cross-Sectional Study The result shows highest of (61%) older adults had normal cognition in older adults' ADL were affected [15].

Part-V: Association between sleep disturbance and activities of daily living of older adults with their scores of sleep disturbance and personal variables

Findings regarding association of sleep disturbance among older adults with their selected socio demographic and clinical variables. it shows that, there was a significant association found between Religion[$\chi2$=9.09, P<0.0026], Marital Status[$\chi2$=6.43, P<0.0112], Number of Children[$\chi2$=10.77, P<0.001], Family Monthly Income[$\chi2$=15.52, P<0.0001], Residential Status[$\chi2$=10.39, P<0.0013], Type of Family[$\chi2$=8.42, P<0.0037],Chronic Illness[$\chi2$=15.2, P<0.0001], Exercise Habits[$\chi2$=9.09, P<0.0026], Sleeping Pills Usage[$\chi2$=13.58, P<0.0002], Therefore H_2 is accepted for this socio demographic variables and there was significant association found between Quality of sleep and other variables therefore H_2 stated is rejected for remaining socio demographic variables.

Findings of the present study are consistent and supported with the study conducted by Uchmanowicz, I., Markiewicz, K., Uchmanowicz, B., Kołtuniuk, A., & Rosińczuk, J. The result shows more than half of the patients experienced insomnia (AIS score ≥6) and 39% experienced daytime sleepiness [16].

CONCLUSION

On the basis of the findings of the study, the following conclusions are drawn Assessment of levels of sleep disturbance among older adults reveals that, highest percentage (55%) of older adults had no/mild disturbance. levels of activities of daily living among the older adults reveals That, majority (95%) of older adults had High function. A significant association of there was a significant negative correlation (r= -0.546, P<0.01) between sleep disturbance and activities of daily living of older adults. That means as sleep disturbance increases activities of daily living decreases, There was a significant association found between Religion[$\chi2$=9.09, P<0.0026], Marital Status[$\chi2$=6.43, P<0.0112], Number of Children[$\chi2$=10.77, P<0.001], Family Monthly Income[$\chi2$=15.52, P<0.0001], Residential Status[$\chi2$=10.39, P<0.0013], Type of Family[$\chi2$=8.42, P<0.0037], Chronic Illness[$\chi2$=15.2, P<0.0001], Exercise Habits[$\chi2$=9.09, P<0.0026], Sleeping Pills Usage[$\chi2$=13.58, P<0.0002].

Ethical Consideration

Ethical clearance certificate was obtained from Institutional Ethical Clearance Committee of B.V.V.S Sajjalashree Institute of Nursing Sciences, Bagalkot.

Source Funding: None

Conflicts of Interest: There are no conflicts of interest

Acknowledgement: None

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