Physical Activity, Functional Status and Quality of Sleep among Ambulant Older Adults

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Abstract: *Ageing is a natural process. The elderly are a vulnerable group and ageing further complicates the situation with consequent medical and social concerns. Healthy ageing is vital and is a prerequisite for economic growth of countries. Methods: A descriptive cross sectional study was done to assess the physical activity, functional status and quality of sleep among ambulant older adults. A total of 150 participants were selected using simple random sampling technique. Demographic profile was collected using an Interview Guide and Standardized tools of Rapid Assessment of Physical Activity (RAPA), The Lawton Instrumental Activities of Daily Living (IADL) Scale and The Pittsburgh Quality Sleep Index (PQSI) were used to assess the physical activity, functional status and the quality of sleep respectively. Results: Findings revealed that the mean age of the study participants was 65.79 with Standard Deviation of 6.19, Majority (86.67%) of them rarely or never do physical activities, 24.67% were functionally independent and only 2% had good sleep. Conclusion: The findings of this study will enlighten the health care professionals regarding the activity, functional status and quality of sleep among the older adults in the community. It will further help the healthcare professionals in planning relevant and appropriate intervention to care for elderly in various health care settings.*

Keywords: Physical activity, Functional status, Quality of sleep, Older adults

1. Introduction

Life expectancy has increased and so is the proportion of adults in the population which has led to increase in the proportion of adults (8%) in India. In low income countries of Asia, including India, there is a rapid demographic transition, with a bulging apex of age pyramid. (Christmas & Anderson, 2000).

Physical activity has been demonstrated to improve management of chronic conditions and delay decline in function in older adult populations (Christmas & Anderson, 2000). In the recent years, there has been a growing interest in a comprehensive approach to prevent and manage chronic diseases that emphasizes self-management. Currently, there are no published reports comparing the validity of the commonly used physical activity measures with a more detailed, validated measure of actual levels of activity in older adults.

Physical activity often can prevent the need for medical treatment, or it can serve as an important adjuvant to medical treatment. Regular physical activity exerts beneficial effects on the functioning of the cardio-respiratory, vascular, metabolic, endocrine and immune systems. In so doing, it greatly reduces risk factors for coronary artery disease, the nation's leading cause of death, and may also prevent the development of, or effectively treat, diseases such as non-insulin dependent diabetes mellitus, osteoarthritis, osteoporosis, obesity, colon cancer, peripheral vascular occlusive arterial disease, arthritis and hypertension. Regular exercise reduces body fat stores, increases muscle strength and endurance, strengthens bones, and, importantly, improves mental health (U.S. Department of Health and Human Services, 1996).

Functional abilities of the elderly are often determined by the difficulties faced in or the need for assistance to perform activities of daily living (ADL) such as bathing, dressing, feeding, transfers, continence and ambulation and instrumental activities of daily living (IADL) like housekeeping, cooking, taking medicines, using transportation and telephone, shopping and managing money (Elsawy, 2011 & Loh, 2006).

The assessment of functional impairment is essential for identifying the common physical impairments among the elderly that are necessary for geriatric healthcare planning. It is pivotal for preventing secondary morbidities following physical impairment such as reactive depression. It is also related to the effective counseling of caregivers regarding the areas of impairment and the assistance required (Loh, 2006).

AccordingtoSuguna.et.al, (2015), among the 230 elderly subjects studied, it was found that the prevalence of sleep disturbances was 41.7%.In another study by Jianfeng, et.al, (2013), the prevalence and risk factors of poor sleep quality among Chinese elderly in an Urban Community was found to be 41.5% (95% CI=38.6–44.5%) and the participants were assessed as poor sleepers by global CPSQI score less than 5.

Alyssa et .al, (2012), assessed the trends of diagnosed sleep disturbances among older adults within the hospital setting and tested whether these diagnoses rates were associated with hospitalization metrics. Youngest-old (60–64 years) (22.1%) tended to have greater rates of change for insomnia.

Physical activity has been demonstrated to improve management of chronic conditions and delay decline in function in older adult populations (Christmas &Andersen,

2000). One of the important recommendations of Healthy Ageing project (2004-2007) is to increase the level of physical activity of aging population. Compared to high-income countries, developing countries, including Oman, have less time to adjust to the consequences of an aging population.

Recognizing the growing population of elderly in India, this study aimed to measure the physical activity, functional status and quality of sleep of elderly, and the impact of physical inactivity that are necessary for geriatric healthcare planning and health-related expenditure.

The objectives of the study were to:

1. Assess the level of physical activity among older adults
2. Assess the functional status of older adults
3. Determine the quality of sleep of older adults

2. Methods

A descriptive cross sectional study was conducted in an Urban area served by Community Heath Nursing Department of Christian Medical College (CMC), Vellore, Tamil Nadu, South India. The study was conducted among older adults (60 years and above) residing in Ramanayakanpalayam (RNP) which is an urban area of Vellore District. There are 39 streets in RNP from which 15 streets and 150 older adults who fulfilled the inclusion criteria were included in the study using simple random sampling technique. Older adults, who were mentally, compromised, with severe systemic diseases, who were seriously ill, bed ridden and physically disabled were excluded. Ethical approval to conduct this study was obtained from the Research and Ethics Committee of College of Nursing, CMC, Vellore.

The standardized instruments which were used to collect data include
Rapid Assessment of Physical Activity (RAPA), with 9 questions; The Lawton Instrumental Activities of Daily Living (IADL) Scale with 8 domains; and The Pittsburgh Quality Sleep Index (PQSI) with 19 questions, The need and purpose of the study were explained to the study participants and written consent was obtained from them. An interview method was used for data collection using the above mentioned instruments. Statistical analyses were performed using EPIDATA. Descriptive statistics was used to analyze the data.

3. Results and Discussion

a) Demographic profile

Analysis revealed that the mean age of the study participants was 65.79 with Standard Deviation of 6.19. Half of the study participants (52.67%) were illiterates and 30.67% of them have had primary education. Majority of them are doing household work (70%) and 11.33% of them are not doing any work. Most of the participants have

a monthly family income of Rs.5000-10, 000/-, 26% of them have an income of above Rs.10, 000/- per month, and 11.33% of them do not have any family income and they depend on others. Majority of the participants (98.67%) are non-vegetarians. Half of them (50.67%) have had an experience of previous hospitalization.
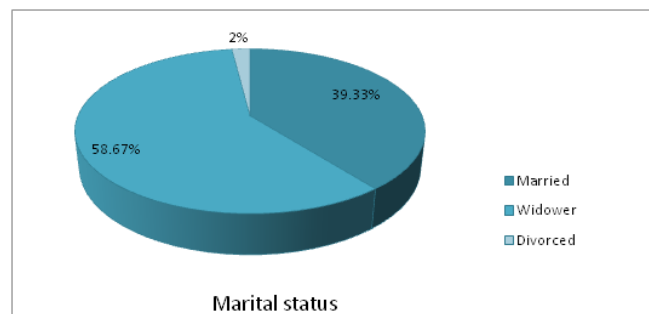

Figure1: Distribution of older adults according to Marital status

Figure 1: Reveals that majority of the older adults (58.67%) were widowers and (2%) of the older adults were divorced.
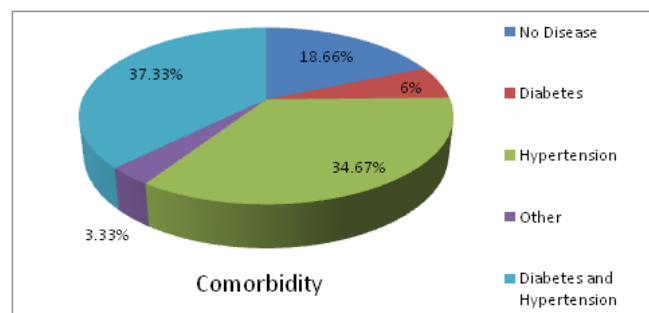

Figure2: Distribution of older adults according to the status of Co morbidity

Figure2: reveals that 18.66% of the older adults are free of disease, majority of the older adults (37.33%)are both diabetic and hypertensive, (34.67%) are Hypertensive, (3.33%) are with other disease like bronchial asthma, hepatomegaly, thyroidism and left ventricular dysfunction.
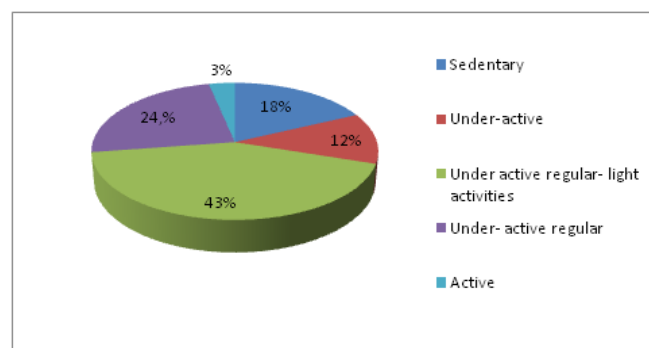
b) Physical activity

Figure 3: Distribution of Older Adults according to the Level of Physical Activity

Figure 3 reveals that 43 % of the older adults was underactive doing some regular light activity every week

and 24%were doing moderate and vigorous activity for 3 to 5 days, 18% were sedentary and only 3 % were active.

Table 1: Distribution of Older Adults according to the Physical Activity Performed

n= 150

S. No	Physical Activity	Yes		No	
		No	%	No	%
1	I rarely or never do any physical activities	130	86.67	20	13.13
2	I do some light or moderate physical activities but not every week	106	70.67	44	29.33
3	I do some light physical activities every week	103	68.67	47	31.33
4	I do moderate physical activities every week, but less than 30 minutes a day or 5 days a week	40	26.67	110	73.33
5	I do vigorous physical activities every week but less than 20 minutes a day or 3 days a week	9	6.00	141	94.00
6	I do 30 minutes or more a day of moderate physical activities, 5 or more days a week	5	3.33	145	96.67
7	I do 20 minutes or more a day of vigorous physical activities, 3 or more days a week	-	-	150	100%
8	I do activities to increase muscle strength such as lifting weight once a week or more	3	2.00	147	98.00
9	I do activities to improve flexibility such as stretching or yoga once a week or more	2	1.33	148	98.67

Table 1 reveals that majority 86.67%of the older adults rarely or never do physical activities, which was higher as compared to the findings of a study done by Goel, et, .al (2007) which showed that 71.6% of the older adults engaged themselves in light physical activity.

Table 2: Distribution of older adults according to activities performed for strength and flexibility

N= 150

S. No	Variables	No	%
1	Increase muscle strength	2	1.33
2	Stretching or yoga	1	0.67
3	Both of the above	1	0.67
4	None	146	97.33

Analysis of activities performed by older adults for strength and flexibility shows that majority of the older adults (97.33%) were not doing any activities to increase muscle strength and flexibility, only 1.33% of the older adults do some activities to increase muscle strength and 1.67% of the older adults perform both muscle stretching exercise and yoga as shown in Table 2.
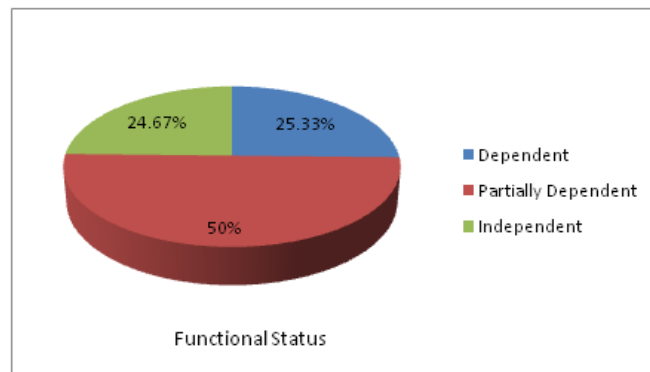
c) Functional Status

Figure 4: Distribution of Older Adults according to their Functional Status

Figure 4 reveals that only 25.33% of the older adults were functionally dependent to use the telephone, to do the shopping, to prepare food. They needed help to do the house keeping, to take medication, travel and to handle money. Only 24.67% of the older adults were independent. Half of the participants were partially dependent (50%).
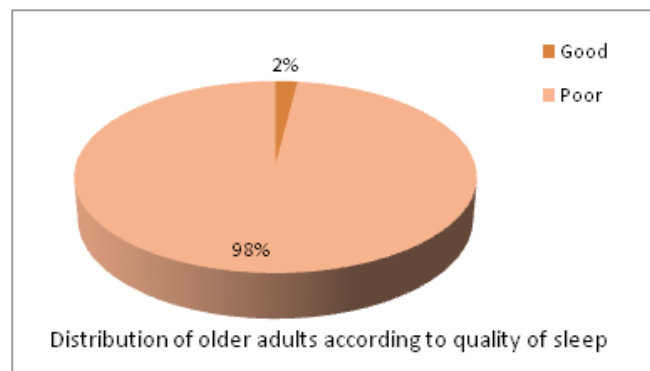
d) Quality of sleep

Figure 5: Distribution of Older Adults according to their Quality of Sleep

Figure 5 shows that only 2% had good sleep and majority (98%) of the older adults had poor sleep, which is lower than a population-based study as cited by Jianfeng, et, al (2005). This study revealed that the prevalence of sleep disorder among elderly varied from 6% to 40%. The National Institutes of Health (2005) stated that 30% of the general population report disrupted nocturnal sleep and 10% of the population has an insomnia diagnosis with impaired daytime functioning.

There are very limited studies carried out among the normal older adults that assessed all the three variables - physical activity, functional status and the quality of sleep. The present study reveals that majority (86.67%) of the older adults are not involved in physical activity, only 24.67% of the older adults are independent and majority of them (98%) have sleep disturbance.

4. Conclusion

Health care professionals are important stake holders in planning geriatric care in the community. The study

findings revealed that the elders are underactive and have a poor quality of sleep. Regular physical activity can play a major role in ameliorating many age-related declines in the musculoskeletal and cardiovascular systems. Old age is an incurable disease and as health care providers we should understand their problems, assist them in protecting and promoting their health so that their quality of life can be improved.

Conflicts of Interest

The authors declare that there are no conflicts of interest in the publication of this work.

Author Profile

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References

[1] Alyssa A. et .al, "Sleep Disturbances among Older Adults in the United States" retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5109617

[2] Christmas, C., & Andersen R.A. (2000).Exercise and older patients: guidelines for the clinician .J Am Geriatr Soc; 48 (3):318-24.

[3] Crowley K. (2011)."Sleep and sleep disorders in older adults." Neuropsychology Review.21 (1):41–53.

[4] Faith'S., et. al (2015)."Screening and Evaluation Tools for Sleep Disorders in Older Adults" Published retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4661454/

[5] Geol, P.K., et., al (2007) Activity status of elderly in rural area. Indian Journal of Community Medicine, 32 (2).149.

[6] Jianfeng, et.al (2013)."Prevalence and Risk Factors of Poor Sleep Quality among Chinese Elderly in an Urban Community", retrieved fromhttps://www.ncbi.nlm.nih.gov/pmc/articles/PMC3839883/

[7] Kari Sundsli, et.al (2010)Ability for self-care in urban living older people in southern Norway. Retrieved from https://www.ncbi.nim.nih.gov/pubmed

[8] Loh KY; Khairani O & Norlaili T. (2006). The Prevalence of functional impairment among elderly aged 60 years and above attending Klinik Kesihatan Batu 9 Ulu Langat, Selangor. Med J Malaysia; 60 (2): 188-93

[9] Nascimento, C.M, Ribeiro, A.Q, Cotta, R.M, Acurcio, A.F, Peixoto, S.V, Priore, S.E,

[10] Franceschini, C. (2012). Factors associated with functional ability in Brazilian elderly. Arch of Gerontol and Geriatr; 54 (2): e89-e94.

[11] Samhita P (2012)., Sleep-related disorders among a healthy population in South India Frontiers in Aging Neuroscience 60 (1): 68-74.

[12] Stephen F, et. al (2016). Risk factors for sleep disturbances in older adults: evidence from prospective studies https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4506260/

[13] Suguna A.et. al (2015). "Sleep Disturbances and Death Anxiety among the Elderly in a Rural Area of Southern Karnataka" International Journal of Health Sciences & Research 5 (9) published retrieved from (www.ijhsr.org)