

A Study on the Predictors of Functional Status and the Overuse of OTC Medications among Elderly Population in a Sub-Urban Region of North Bengal.

Mehre Darakhshan Mehdi¹, Ranjita Santra Dhali², Somnath Maity³

¹Assistant Professor, Department of Pharmacology, North Bengal Medical College, Darjeeling.

²Assistant Professor, Department of Clinical & Experimental Pharmacology, Calcutta School of Tropical Medicine, Kolkata.

³Assistant Professor, Department of Pharmacology, College of Medicine & Sagore Dutta Hospital, Kolkata.

ABSTRACT

Background: Functional status can be conceptualized as an individual's ability to manage activities related to personal self-care and self-maintenance. Functional status assessment is fundamental aspect of geriatric examination especially in the context of over the counter (OTC) medications. This assessment helps clinicians and policymakers to design and implement interventions that help elderly to live safely and independently. The primary objective was to assess the prevalence of limitation in activities of daily living (ADL) and instrumental ADL (IADL) among elderly population. The secondary objective was to identify the use of OTC medications according to the therapeutic indications among them. **Methods:** A total of 200 community dwelling elderly persons residing in Sushrutanagar of North Bengal were interviewed using valid and reliable functional assessment scales namely Katz ADL and Lawton and Brody IADL. Statistical procedures for the analyses included descriptive ADL and IADL activity limitation was 15 % (30/200) and 85 % (170/200), respectively. **Results:** The results of logistic regression analysis revealed that advancing age (70 years and above), poor self-rated health and ailments namely musculoskeletal problems, cardiovascular diseases and cataract significantly predict functional limitation. 70% of the subjects consumed analgesics and 60% the antacids as OTC medications. **Conclusion:** With advancing age, various co-morbidities starts creeping up and the study subjects used the OTC medications to counteract the associated functional limitations as evident from this study. Cataract surgeries patients should be identified and operated upon so as to improve visual functioning and thus their functional ability. Further, factors affecting the use of OTC drugs in elderly subjects need further research.

Keywords: Activities of daily living, elderly, functional impairment, instrumental activities of daily living, OTC drugs.

INTRODUCTION

The Indian population is projected to age faster than the populations of countries around the world. This is due to the combination of declining birth rates, leading to fewer young people, and increasing life expectancy and hence that more people live into old age.^[1] The Indian elderly population accounted for 7.4% of the total population in 2001 census. This figure increased to 8.6% in 2011 census. It is further projected to rise to 11.1% by the year 2025.^[2] According to WHO, there is no standard numerical criterion, but the cut-off is 60+ years to refer to the older population.

Name & Address of Corresponding Author

Dr. Mehre Darakhshan Mehdi
Assistant Professor,
Department of Pharmacology,
North Bengal Medical College,
Darjeeling, India.
E mail: dr.m.d.mehdi@gmail.com.

Functional status can be conceptualized as an individual's ability to manage activities related to personal self-care and self-maintenance. Functional status assessment is a fundamental aspect of geriatric examination. This assessment helps clinicians and policymakers to design and implement interventions that help elderly to live safely and independently. On the other hand, over-the-counter medications utilization has increased

due to direct, rapid access to effective medicines, wider availability and to lower health care system cost of an individual particularly of elderly population aged 60 years and above.

Adults ages 60 years and above generally have more medical problems and use more medications, both prescription and over-the-counter (OTC), when compared to younger adults. In this group, polypharmacy is common, including multiple OTC preparations and prescription drugs. Age-related changes occur in the elderly, predisposing this population to greater risks of adverse events, drug-drug interactions, therapeutic errors, and misuse. The aim of this study was to assess the prevalence of limitations in activities of daily living (ADL) and instrumental ADL (IADL) among elderly while identifying the predictors of IADL limitation among them with emphasis on the overuse of OTC medications.

MATERIALS AND METHODS

This was a cross-sectional study conducted in Darjeeling district of North Bengal. The duration of this study was from January to July 2014. The study participants were people aged 60 years and above. The total sample size was 200 comprising of 96 males and 104 females. Literature review shows that the prevalence of morbidities among geriatric population in India is 50-80%.^[3,4] Taking the prevalence of morbidity as 50%, with worst

possible estimate of 43% on one side and 95% confidence interval, the sample size calculated using 4 pq/L² formula was 200. The study sample was obtained using multistage simple random sampling. Out of the 10 sub-center villages, five were selected by simple random sampling. Forty older persons were selected from each selected village. With the help of key informants, sampled villages were geographically divided into four parts with equal population (approximately). For each part, one house was selected randomly. Starting from this house, every nearest next house was surveyed until 10 subjects were enrolled in the study. A similar procedure was applied in the remaining parts of the village. Data on sociodemographic factors included age, gender, and marital status, level of education, living arrangement, self-related health and type of morbidity. The self-rated health (SRH) was evaluated using the response to the question, “How would you rate your health at the present time?” The possible responses were being “good,” “acceptable,” and “poor.” To evaluate the functional ability, two self-assessment scales Katz ADL scale and Lawton and Brody IADL scale were used. The Katz ADL scale included the following activities: Bathing, dressing, eating, toileting and transferring from bed to chair.^[5] The Lawton and Brody IADL scale included the following activities: shopping, preparing or cooking food, using the telephone, washing clothes, housekeeping, transportation, taking medication, and managing finances.^[6] The responses of items in the scales were dichotomized as “unable to do the

activity at all/need some help” and “able to do the activity without help”. OTC medication use was measured by assessing the frequency of OTC medication use, the total number of categories of OTC medication used, and the use of OTC medications in response to symptoms. SPSS software version 20.0 was used for analyzing data. Logistic regression was used to list the predictors of functional impairment. Informed written consent was obtained from the study participants. Approval was obtained from the institutional ethical committee prior to this study.

RESULTS

The mean age of the sample studied was 69.0 years (standard deviation ± 6.9), with age ranging from 60 years to 90 years. Females represented 52 % of the study subjects. Nearly two-fifth (40%) of the study participants were widowed and more than half (55%) were illiterate. A total of 155 (77.5%) study subjects was living in joint families. A total of 170 (85%) elderly was suffering from at least one medical problem. The most frequent health problem was musculoskeletal problem affecting 60 (30%) elderly, followed by coronary artery disease and chronic obstructive pulmonary disease in 40 (20%), 30 (15%) elderly was hypertensive, 20 (10%) were diagnosed of cataract and 10 (10%) had diabetes mellitus. 110 (55%) study subjects rated their health as good, 50 (25%) as average and the remaining 40 (20%) as poor [Table 1].

Table 1: Distribution of study subjects according to background characteristics and study variables.

Determinants	Total elderly study subjects (n=200) (%)
Age group (years)	
60-69	142 (71)
70-79	20 (10)
80 – 90	38 (19)
Gender	
Male	96 (48)
Female	104 (52)
Marital status	
Married	120 (60)
Widowed	80 (40)
Education	
Literate	90 (45)
Illiterate	110 (55)
Living arrangement	
Nuclear	45 (22.5)
Joint	155 (77.5)
Self-rated health	
Good	110(55)

Average	50 (25)
Poor	40 (20)
Type of morbidity	
Osteoarthritis	60 (30)
Hypertension	30 (15)
Cataract	20 (10)
Diabetes	10 (5)
Coronary artery disease	40 (20)
COPD	40 (20)
ADL limitation	30 (15)
IADL limitation	170 (85)

COPD: Chronic obstructive pulmonary disease, **ADL:** Activities of daily living, **IADL:** Instrumental activities of daily living

30 (15%) needed one or more assistance in various ADL and 170 (85%) needed one or more assistance in IADL. Among the ADL tasks, bathing was the most difficult for older persons to perform. Transportation was the most common IADL in which the 130 (65%) needed partial/ full assistance. In the descriptive analysis, IADL limitations were more among female elderly (28%) as compared to males (16%). Similarly, widowed elderly (46%) were facing more impairment problems as compared to married counterparts (15%). The results of logistic regression analysis revealed that advancing age (60-79 years adjusted odds ratio [AOR] 0.21; 80 years and above AOR = 0.77), poor SRH (AOR = 2.95) and ailments namely coronary artery disease (CAD), musculoskeletal problems (AOR = 0.68) and cataract (AOR = 0.11)

significantly predicted functional limitation. Nearly, 70% of the elderly subjects treated themselves with analgesics for headache and migraine, 60% with antacids and H2 blockers for heartburn and reflux disorders, 55% with mucolytics and antibiotics for cough, cold and flu, 50% with anti-inflammatory agents for arthritis, and 45% with short acting B2 agonists, theophylline and antihistamines for allergies and bronchial asthma. [Figure 1] It was quite astonishing that none of them used antihypertensive, caffeine and alcohol as OTC medications in this study. It may be the result of rising awareness among the geriatric population regarding the proper intake of these agents or concealment of the fact towards the researchers.

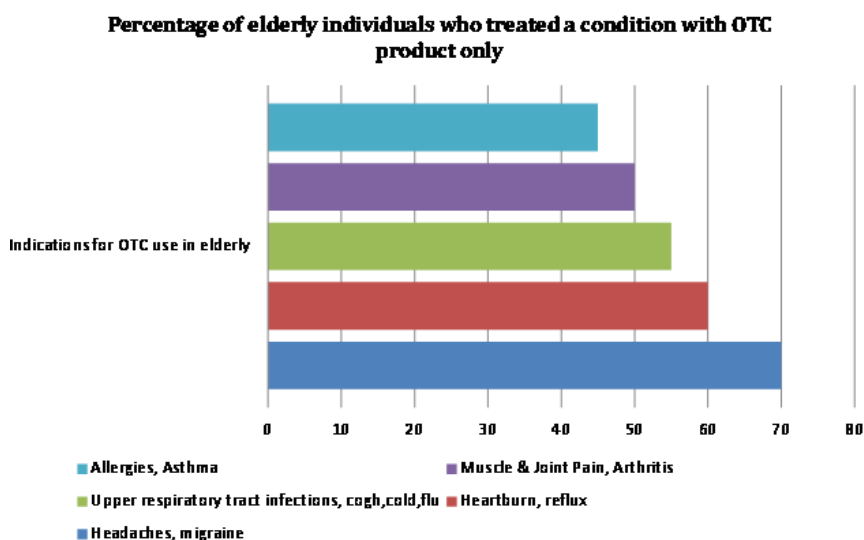


Figure 1: Percentage of elderly subjects who treated a condition with OTC drugs.

DISCUSSION

In our study, 15% study participants were categorized as dependent in carrying out ADL. This prevalence was much higher than that reported in a study by Swami et al. and Sharma et al. in India.^[1,5] Among the ADL tasks, bathing was found to be the

most difficult task for older persons to perform. Dressing, transferring, toileting and eating were found to be less frequent in dependency. The act of bathing starts right from arranging hot water in a bucket and then carrying it to the appropriate place in the bathroom. Further, the process of pouring water over body might be restricted in elderly

owing to the stiffness and paining joints. Thus, this multiple task process might invite help from caregivers. However, for toileting and eating, elderly does not seek help until they feel that they can no longer carry on the activity. Among the IADL tasks, transportation was the most dependent task. With limited transport facilities and crowded vehicles in the study area, it makes it difficult for the elderly to utilize these services. During the survey, it was observed that the transport system in the study area was not elderly friendly. In contrast to this, Siliguri a nearby city has a dedicated fleet of low floor buses, which makes it easy for elderly to board and get down from the bus. Another possible reason for the elderly experiencing difficulty in transportation is the observation from our study which states that most of them were suffering from morbid, the commonest being musculoskeletal problems. Our study observed that elderly having musculoskeletal problems and cataract were at higher risk of functional impairment. It may be due to the symptoms of musculoskeletal problems such as pain, stiffness and swelling of muscles, tendons, ligaments which results in limitation of the affected elderly to perform a given task. Research suggests that exercise and optimizing pain management in elderly individuals has the potential to substantially reduce the functional impairment associated with musculoskeletal problems.^[7-9] Cataract in very elderly can cause progressive painless vision loss. The results of logistic regression reveal that age and SRH are significant correlates of functional impairment in elderly. A possible reason may be that with advancing age the rate of physiological decline increases, which might limit the ability to perform IADL. A similar observation was made by Kelly-Hayes et al., in a study among older persons, wherein it was reported that those who perceived their health as poor were significantly more functionally impaired.^[10] Self-medication with OTC drugs in our study is in concordance with previous studies by Amaoko et al., Goh et al., and Fulton et al.^[10-13]

CONCLUSION

Self-medication with over-the-counter (OTC) drugs is an economical choice of treatment for common self-limiting illnesses. As evident from this study, that when more medications are made available as OTC drugs, and the population of older adults with multiple co-morbidities increase, a need arises to monitor how elderly individuals use these agents. Thus, it can be concluded that older adults might be unaware of the adverse risks associated with concurrent use of various medicines. This makes it necessary for all nurses and other clinicians providing health care to older adults to intensify efforts to educate and guard these patients and

ensure appropriate use of OTC drugs as far as their health condition is concerned.

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