Original Article

Knowledge of Alzheimer's disease among the healthcare staff in a medical college hospital of India

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Abstract

Background: With increasing numbers of people crossing the age threshold of 65 years, there is a strong likelihood that the cases of Alzheimer's disease (AD) cases will increase manifold in the upcoming decades. It is essential for the healthcare professionals to have a reasonable background knowledge about this neurodegenerative condition. This study was done to assess the level of knowledge of AD among the healthcare staff appointed at a tertiary care hospital. **Methodology:** A cross-sectional survey study was done in a tertiary care hospital with healthcare workers. The knowledge level of AD was investigated using Alzheimer's Disease Knowledge Scale (ADKS) while a self-assessment scale was used by the participants to rate their own knowledge about the disease. The extent of background knowledge was then statistically evaluated on the basis of multiple subject-oriented factors. The impact of any prior dementia-specific training was also assessed. Data were analyzed by using SPSS-23 where *P* value < 0.05 was considered significant. **Results:** Out of a total of 124 participants recruited during the study period, the average score on the ADKS scale was 19.2 ± 3.1. Self-rated Alzheimer's scale depicted a mean value of 4.89 ± 1.7. The participants having a positive family history and personal/professional caring experience for AD did not obtain any remarkably better score. The doctors were more likely to score better than nurses and other healthcare staff ($p < 0.001$). Moreover, dementia-related training had a significantly better outcome in terms of promoting the knowledge base of AD ($p < 0.001$). **Conclusion:** There is a below-par knowledge of Alzheimer's dementia among the healthcare staff of the hospital. The staff of the hospital realizes this shortcoming, and there is a need for dementia-specific training to overcome this knowledge gap.

Keywords: Alzheimer disease, dementia, healthcare, knowledge

Introduction

Alzheimer's disease (AD) is considered as the most prevalent form of memory impairment among the elderly.[1] It is not uncommon for older individuals to develop some degree of memory loss; however, in this disease, dementia is severe enough to disrupt day-to-day activities.[2] Being a familial disorder, AD can run in families where it may even manifest in the young, especially during the third decade of life. The prevalence of Alzheimer's dementia increases with each decade of an individual's life, and once a person crosses the barrier of 65 years, it may reach as high as 9.7%. The prevalence of AD has been estimated to be 3.2%

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among people aged above 60 years.[3] Epidemiological statistics of AD in India reveal an overall incidence of approximately 9.2%.[4] As far as the healthcare costs are concerned, it has been estimated that the annual expenditure for a single AD patient far exceeds 25,000 USD while excluding the indirect costs of the disease.[5]

Although statistical evidence suggests that a majority of medical professionals, including the physicians, nursing and other healthcare staff are adequately equipped with essential knowledge pertinent to AD, a few studies have reported that healthcare teams can potentially lack an adequate understanding about this condition.[6-8] Although results tend to vary, a poor background know-how about Alzheimer's dementia as well as care of patients with AD is mainly associated with a potential lack of training and expertize, below-par experience, and low-resource clinical settings.[9] In India, a study detected a potential knowledge gap within the staff of a healthcare setting where a poor knowledge about AD was likely to prevail among the staff members who had graduated more than 10 years ago and those who did not possess any significant experience in caring for a demented individual.[10] This highlights the need for upgrading the quality of dementia care by ensuring a satisfactory background knowledge and training directed explicitly at AD.

The positive outcomes of having a strong knowledge base about dementia have been highlighted in the literature. When the healthcare professionals are well-informed about this condition, it is highly likely that they will be more capable of counseling the patient and their relatives about the disease prognosis along with its potential psychosocial impact.[11] As we approach 2050, one in every five persons from low to middle-income countries will cross the age of 60 years. This scenario is likely to worsen for India so there will be one elderly for every three working-age individuals by the end of this century. As these numbers rise steadily, the cases of dementia are also bound to increase gradually. In fact, the average number of people living with dementia is projected to double by 2030 and triple by 2050, while the majority would be in developing countries like India.[12] This broadly justifies the significance of a high-standard dementia care which can only be ensured by boosting the caliber of educational training pertinent to AD among healthcare professionals.

This research has been designed to assess the knowledge of AD among healthcare staff (resident doctors, nursing staff, and ward caretakers) at a tertiary care center and to find out whether the demographic indicators, personal or professional knowledge, and dementia training have any significant impact on the overall understanding of care in dementia and AD.

Methodology

Study design and setting

This study was designed as a cross-sectional survey. Before conducting the research, an ethical approval was obtained from the Institutional Ethical committee (No.Dean/2020/EC/2243). Moreover, a thorough consent was obtained prior to data collection from the healthcare staff. Proper instructions on how to respond to each item on the data collection tool. The collected data were confidential, and all participants were reassured that their identity would not be revealed. The duration of study was around two months from January to February 2021.

Alzheimer's disease knowledge scale (ADKS)

The authors utilized the Alzheimer's disease knowledge scale (ADKS) to assess the knowledge of healthcare staff regarding the subject of Alzheimer's dementia. The ADKS criteria provide a set of 30-item, true/false questions which take about 5–10 minutes to answer and cover all the risk factors, symptoms, diagnosis, disease course, caregiving, and management options pertinent to AD. For each correct answer, a score of 1 is awarded, and if the participants fail to answer correctly, they will receive 0, but there won't be any negative marking. The final score is calculated from all the correct responses, while the maximum score is 30. The structure of this scale is capable of assessing knowledge in both applied and research context. Everyone, including the patients, their attendants, and healthcare staff can be evaluated with the help of this scale.[13]

The respondents were also told to fill out the self-rated Alzheimer's knowledge scale, which is a 10-point scale to address what you think of your knowledge related to the subject where "0 = I know nothing at all" and "10 = I am very knowledgeable". The assessment also involved a few questions related to the demographics, qualification, and overall experience of the respondents. These included asking about their gender, age, professional group, family history of Alzheimer's, personal or professional care experience, and whether or not any dementia training was taken in the past.

Study population

The study population consisted of the healthcare staff members from tertiary care center of eastern Uttar Pradesh which include junior and senior residents, registered and enrolled nurses, nursing assistants, ward boys, and ward girls were randomly selected from all the inpatient and outpatient departments of the hospital that directly or indirectly deals with the elderly population.

Sample size calculation

The sample size for this study was calculated using the following formula:

$$n = \frac{(1.96)^2 \times p \times q}{d^2}$$

where n = effective sample size; *P* = prevalence; q = 1-p; and d = absolute precision. The effective sample size came out to be 96. The final sample size was calculated using the formula:

$$Final\ sample\ size = \frac{Effective\ sample\ size}{1 - non - response\ rate}$$

After calculation, the final sample was calculated to be 120 units which is the minimum sample size required in this situation.

Data analysis

The collected data were thoroughly analyzed by means of SPSS-23 software (Statistical Package for Social Sciences). Independent t-test was applied to establish a correlation between the level of Alzheimer's knowledge and various other factors related to demographics, and overall education/experience of the participating population. A *P* value <0.05 was considered significant.

Results

A total of 124 individuals were recruited during the study period having an equivalent percentage of males and female participants. About 60.5% of the respondents were 30 years old or younger. The maximum response rate was seen among the nurses (49.2%), followed by the doctors (35.5%), and lastly, the support staff (15.3%). There were only a few participants who had a family history of AD or any personal experience of caring for a relative with Alzheimer's. On the contrary, 46.8% responded that they had a professional experience of managing someone with the disease. Only 12.9% of individuals had received any dementia-specific training in the past, and all of them were either doctors or belonged to the skilled nursing staff [Table 1].

The individual ADKS score for each respondent was calculated separately. The mean ADKS score for all the participants was found to be 19.2 ± 3.1 (mean ± S.D). Following this, the mean ADKS score corresponding to each of the variables elaborated in Table 1 was determined. Surprisingly, participants aged 30 years or below had a remarkably better knowledge base about AD ($p < 0.05$). Moreover, the doctors (junior/senior residents) were far more informed about the disease as compared to other healthcare staff ($p < 0.001$). In addition, a background training experience of dementia care had a significant relationship with an improved ADKS score [Table 2].

Table 1: Characteristics of the study participants

Variables	Group	Frequency	Percentage
Demographic variables			
Gender	Male	63	50.8
	Female	61	49.2
Age group	≤30 years	75	60.5
	>30 years	49	39.5
Professional group	Doctor	44	35.5
	Nurse	61	49.2
	Hospital support staff	19	15.3
Level of education/ Experience			
Family history of AD	Yes	9	7.26
	No	115	92.7
Personal caring experience for AD	Yes	8	6.5
	No	116	93.5
Professional caring experience for AD	Yes	58	46.8
	No	66	53.2
Dementia training	Yes	16	12.9
	No	108	87.1

AD=Alzheimer's disease

The results of the self-rated Alzheimer's knowledge scale were almost the same as the average of 4.89 ± 1.7 when compared between the three professional groups [Doctors: 4.8 ± 1.9; Nurses: 5.0 ± 1.7; Support staff: 4.7 ± 1.1]. This reveals that most of the individuals do not consider themselves well-equipped with a solid background knowledge pertinent to AD. ADKS and self-rated Alzheimer's score are represented in Figure 1.

Discussion

This study assessed the knowledge of doctors, nurses, and supporting staff pertaining to Alzheimer's dementia and it was found that the doctors, particularly those with specific dementia-related training, had a significantly better performance on ADKS.

Despite the healthcare staff possessing apparently satisfactory information about AD, we found that the background knowledge of the Indian professionals was comparatively inadequate as compared to the data obtained from the studies worldwide. The overall mean ADKS score of the healthcare staff in our study was 19.2 ± 3.1 (64% correct response rate). This value is comparatively lower than that obtained from the healthcare staff in Australia (23.6 ± 3.26) as well as the US community pharmacists (>25) which depicts a major knowledge disparity between the Western and Indian healthcare professionals.[8,14] Furthermore, this score is substantially lower than that found among the Norwegian undergraduate medical students (~23.5).[15] Moreover, the current study did not indicate a positive impact of having a family history of AD or a personal caring experience for AD on an individual's know-how about the disease. This is in contrast to what was discovered by Carpenter *et al.*[16] in their study where such individuals were profoundly educated about this form of dementia. The inter-observer variability can be

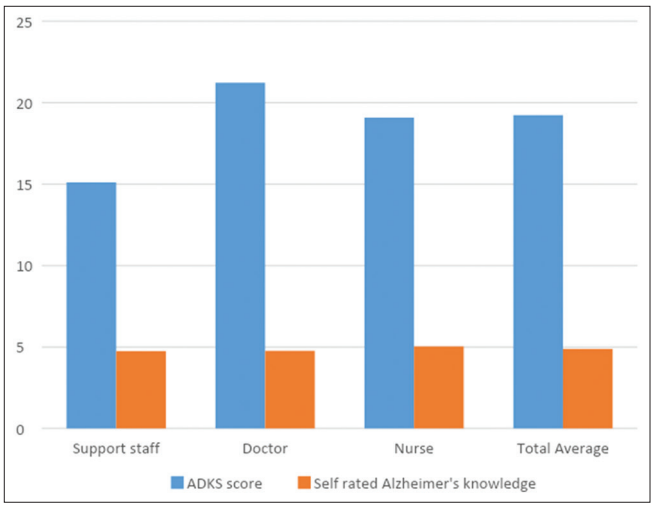

Figure 1: Comparison of ADKS and self-rated Alzheimer's knowledge score between different professional groups

Table 2: Background characteristics in relation to ADKS score

Variables	Group	ADKS score (Mean±S.D)	*P*
Gender	Male	19.3±3.2	0.807
	Female	19.2±3.1	
Age group	≤30 years	19.8±3.1	0.020
	>30 years	18.4±3.1	
Professional group	Doctor	21.2±3.3	<0.001
	Nurse	19.1±1.9	0.593
	Support staff	15.1±1.4	<0.001
Family history of Alzheimer's	Yes	18.8±2.4	0.651
	No	19.3±3.2	
Personal caring experience	Yes	18±2.9	0.250
	No	19.3±3.1	
Professional caring experience	Yes	19.8±3.2	0.054
	No	18.7±3.0	
Dementia training	Yes	21.8±2.0	<0.001
	No	18.9±3.1	

attributed to any contrast in the overall standard of professional healthcare education and training, inadequate caring experience for dementia patients, and lack of interest in academic sessions. It is, however, noteworthy that the current study was conducted in a single medical setting only and incorporated a potentially limited sample size which could have possibly modulated the final outcome. Secondly, patients and family members in developed countries tend to understand the pathophysiology of the diseases and the rationale behind the treatment options, that makes them more aware of the medical terms and they tend to have better overall knowledge.

The study has demonstrated that having dementia-specific training and/or education is associated with a much better dementia-related knowledge base, regardless of demographic factors, and individual experiences. This is comparable with the previous studies that found a significant correlation between the degree of dementia-specific cognizance and the overall quality of healthcare.[17,18] In the light of these findings, it can be suggested that dementia training programs should be held at the district level by the Health Ministry of India because educating the professionals as well as the general public is pivotal in tackling the increasing prevalence of the disease. The education could be provided in the form of pamphlets, informative videos on social media, and lectures at the undergraduate level. The health service regions should include dementia education as a mandatory component of employment criteria, and there should be developmental programs for the healthcare staff that is actively involved in the management of elderly people. Such a training format would need to focus on all the staff members who are likely to have contact with Alzheimer's patients as the support staff at a hospital cannot be expected to have the necessary background training about this vulnerable population. As the number of people in the older age group will increase in the near future, we should prepare staff members of all levels to acquire dementia-centered training. Only then can we ensure the provision of a fast-track healthcare to the patients having this disabling condition. Eighty-two percent of Primary Care Physicians (PCPs) reported being on the front lines of providing essential components of dementia care in a recent survey by the Alzheimer's Association of Primary Care Physicians on Dementia Care Training.[19] As a result, PCPs are very important in terms of dementia prevention, and management. Their role in educating patients and family members about AD is critical to raising awareness and knowledge in the general public.

The study has a few limitations that the ADKS is mainly focused on evaluating the knowledge of AD and therefore, does not assess the understanding of the other dementias. Also, the current survey was led in merely a single medical hospital of India, and it is hard to tell if its results can apply to other medical institutes in India.

Conclusion

The study reveals that the participants had inadequate knowledge on the subject of Alzheimer's dementia while they also recognize this deficiency themselves. The results support the development of dementia training programs in health service, thereby prompting the authorities to build the constructive attitude of the staff, and provide holistic care to those who are suffering from the disease. Once the healthcare staff has undergone this dementia-specific training, another possible research could be designed for assessing the overall adequacy of these educational interventions.

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Conflicts of interest

There are no conflicts of interest.

References

1. Garre-Olmo J. Epidemiology of Alzheimer's disease and other dementias. Rev Neurol 2018;66:377-86.
2. Lane CA, Hardy J, Schott JM. Alzheimer's disease. Eur J Neurol 2018;25:59-70.
3. Cui L, Hou N-N, Wu H-M, Zuo X, Lian Y-Z, Zhang C-N, *et al.* Prevalence of Alzheimer's disease and parkinson's disease in China: An updated systematical analysis. Front Aging Neurosci 2020;12:603854.
4. Mathuranath PS, George A, Ranjith N, Justus S, Kumar MS, Menon R, *et al.* Incidence of Alzheimer's disease in India: A 10 years follow-up study. Neurol India 2012;60:625-30.
5. Deb A, Thornton JD, Sambamoorthi U, Innes K. Direct and indirect cost of managing alzheimer's disease and related

dementias in the United States. Expert Rev Pharmacoecon Outcomes Res 2017;17:189-202.

6. Alazmi AB, Alazmi AB. A survey-based study of knowledge of Alzheimer's disease among health care staff. Int J Med Dev Count 2020;4:389-94.
7. Lin L, Lv S, Liang J, Li H, Xu Y. Level of Knowledge about Alzheimer's disease among nursing staff in Suzhou and its influencing factors. Curr Alzheimer Res 2019;16:650-8.
8. Smyth W, Fielding E, Beattie E, Gardner A, Moyle W, Franklin S, *et al.* A survey-based study of knowledge of Alzheimer's disease among health care staff. BMC Geriatr 2013;13:2.
9. Parra-Anguita L, García-Fernández FP, Del-Pino-Casado R, Pancorbo-Hidalgo PL. Knowledge about the care of people with Alzheimer's disease of the nursing staff of nursing homes in Spain. Int J Environ Res Public Health 2019;16:4907.
10. Biswas A, De S, Sarkhel S, Majumder U, Makhal M, Das S. Knowledge about dementia among doctor and nurses in a medical college hospital in India. J Alzheimer's Parkinsonism Dementia 2017;2:1-9.
11. Spector A, Revolta C, Orrell M. The impact of staff training on staff outcomes in dementia scare: A systematic review. Int J Geriatr Psychiatry 2016;31:1172-87.
12. Sathianathan R, Kantipudi SJ. The dementia epidemic: Impact, prevention, and challenges for India. Indian J Psychiatry 2018;60:165-7.
13. Garcia-Ribas G, García-Arcelay E, Montoya A, Maurino J, Ballesteros J. Quantifying knowledge of Alzheimer's disease: An analysis of the psychometric properties of the Alzheimer's disease knowledge scale. Neurol Ther 2021;10:213-24.
14. Stearns J, Burgoon R, Sahadak Z, Alazar B, Eng ML. A comparison of the knowledge of Alzheimer's disease among community pharmacists based on regional practice setting using the Alzheimer's disease knowledge scale (ADKS). Innov Pharm 2021;12:10.24926/iip.v12i3.2396. doi: 10.24926/iip.v12i3.2396.
15. Kada S. Knowledge of Alzheimer's disease among norwegian undergraduate health and social care students: A survey study. Educ Gerontol 2015;41:428-39.
16. Carpenter BD, Zoller SM, Balsis S, Otilingam PG, Gatz M. Demographic and contextual factors related to knowledge about Alzheimer's disease. Am J Alzheimers Dis Other Demen 2011;26:121-6.
17. Mulyani S, Probosuseno P, Nurjannah I. The effect of training on dementia care among nurses: A systematic review. Open Access Maced J Med Sci 2021;9:145-52.
18. Parveen S, Smith SJ, Sass C, Oyebode JR, Capstick A, Dennison A, *et al.* Impact of dementia education and training on health and social care staff knowledge, attitudes and confidence: A cross-sectional study. BMJ Open 2021;11:e039939.
19. Alzheimer's Association. 2019 Alzheimer's disease facts and figures. Alzheimer's Dement 2019;15:321-87.