Effectiveness of planned teaching program on knowledge regarding Alzheimer’s disease among the family members of elderly in a selected urban community at Mangalore

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ABSTRACT

Background: Alzheimer’s disease is one of the debilitating chronic diseases among older persons. It is an irreversible condition that leads to progressive deterioration of cognitive, intellectual, physical, and psychosocial functions. The study was aimed to assess the knowledge of the family members of elderly regarding Alzheimer’s disease in a selected urban community at Mangalore.

Materials and Methods: A preexperimental research design of one group pretest and posttest with an evaluative approach was adopted for the study. A total of 50 family members of elderly who met the inclusion criteria were selected through purposive sampling technique. The researcher developed a planned teaching program on Alzheimer’s disease, and structured knowledge questionnaire on Alzheimer’s disease was used to collect the data.

Results: Descriptive and inferential statistics was used to analyze the data. Analysis revealed that the mean posttest knowledge (20.78 ± 3.31) was higher than mean pretest knowledge scores (12.90 ± 2.43). Significance of difference between pretest and posttest was statistically tested using paired “t” test and it was found very highly significant (t = 40.85, P < 0.05). Majority of the variables showed no significant association between pretest and posttest knowledge score and with demographic variables.

Conclusion: The findings revealed that the planned teaching program is an effective strategy for improving the knowledge of the subjects.

Key words: Alzheimer’s disease, effectiveness, family members of elderly, knowledge, structured knowledge questionnaire

INTRODUCTION

Alzheimer’s disease is a progressive brain disorder that damages and eventually destroys brain cells, leading to memory loss and changes in thinking and other brain functions. It usually develops slowly and gradually gets worse as more brain cells wither and die.1 Ultimately, Alzheimer’s is fatal, and currently, there is no cure. Alzheimer’s disease is the most common type of dementia, a general term used to describe various diseases and conditions that damage brain cells.2

Worldwide, nearly 35.6 million people live with dementia.
This number is expected to double by 2030 (65.7 million) and more than triple by 2050 (115.4 million). Dementia affects people in all countries, with more than half (58%) living in low- and middle-income countries. By 2050, this is likely to rise more than 70%.[3]

**Need for the study**

India had a lower population with Alzheimer’s disease in previous years, i.e., 4% when compared to the Alzheimer’s patients in the United States above the age group of 65 years. The size of India’s elderly population aged 60 and over is expected to increase from 70 million in 2001–179 million in 2031, and further to 301 million in 2051. Today in India, 3200000 people are affected by Alzheimer’s disease. In Kolkata, there are about 46000 patients with Alzheimer’s disease. In Delhi, 50000 and in Bangalore, there are 30000 elderly patients suffering from Alzheimer’s disease.[4]

Family members can experience considerable stress when a relative develops dementia. Frustration, anger, and denial are common response when people are confronted with the disruptive dementia symptoms of a loved one. Learning about the disease can minimize some of the reactions, as caregivers and other family members recognize that most of the person’s behavior arises due to dementia. The clinical team is responsible for educating the caregiver, a formidable task that is often short changed in busy medical environments.[3]

**Objectives of the study**

- To determine the pretest knowledge of the family members of elderly regarding Alzheimer’s disease
- To evaluate the effectiveness of planned teaching program on knowledge regarding Alzheimer’s disease among the family members of elderly
- To find the association of pretest knowledge score of the family members of elderly regarding Alzheimer’s disease with selected demographic variables.

**MATERIALS AND METHODS**

An evaluative approach and preexperimental design of one group pretest and posttest was selected to carry out the present study. A total of 50 family members of elderly who met the inclusion criteria were selected through purposive sampling technique. The structured knowledge questionnaire on Alzheimer’s disease prepared by the investigator consisted of 2 sections. Section A: Demographic proforma (11 items) and Section B: Structured knowledge questionnaire (30 items) were used for the data collection. Reliability of the instrument was calculated using Karl Pearson Correlation Coefficient formula and significance of correlation was tested using Spearman Brown prophecy formula. The ‘r’ value was 0.85 and the tool was found reliable. Ethical clearance was obtained from AJ Ethical Committee. Pilot study was conducted in Kavoor Urban Community area, Mangalore, and it was found feasible and practicable. The main study was conducted in Kunjathbail Urban Community area, Mangalore. The investigator explained the need and importance of study to the subjects before data collection. After obtaining the consent for the study, pretest was conducted among the family members of elderly using structured knowledge questionnaire to assess the level of knowledge regarding the Alzheimer’s disease. The average time taken to conduct pretest was 40 min. The planned teaching program regarding Alzheimer’s disease with the help of PowerPoint and charts for 45 min was done. The posttest was conducted after 7 days of the pretest. At the end of data collection, the investigator expressed her gratitude to the respondents for their co-operation.

**RESULTS**

**Section A: Description of the demographic variables of the sample**

The study revealed that majority (52%) of the sample belonged to the age group of 31–40 years, whereas 28% were from the age group of 41–50 years. All the samples (100%) participated in the study were females. Regarding educational status, highest percentage (56%) of respondents had primary education, whereas the lowest percentage (8%) were educated up to PUC. Viewing marital status, majority (82%) of the subjects were married and remaining 18% were spinsters. Religion showed that the highest percentage (84%) were Hindu and the least percentage (4%) were Muslims. Occupational status revealed that majority (50%) of the subjects were homemakers and the least percentage (6%) were government employees. Considering the monthly income, most (68%) of the sample were from income group of <5000 rupees and least (2%) were belonged to 15,001–30,000 rupees. Most (58%) of the subjects belonged to nuclear family, remaining (6%) were from extended family. Analysis revealed that the least percentage (8%) of the subjects have a family member suffering from Alzheimer’s disease. Majority (82%) of the samples were having information about Alzheimer’s disease, remaining (18%) of the samples do not have information regarding Alzheimer’s disease. Majority (32%) were having the source of information regarding Alzheimer’s disease from mass medias such as radio, T.V, and internet, whereas the least percentage (14%) of the subjects were having the information from books, magazines, and newspapers.

**Section B: Knowledge of the family members of elderly regarding Alzheimer’s disease**

Figure 1 shows that the majority of the family members of elderly (70%) had average knowledge and 30% had good knowledge. The posttest knowledge shows that highest percentage (70%) had good knowledge whereas 28% had excellent knowledge and 2% had average knowledge on Alzheimer’s disease.
Data in the Table 1 show that the posttest knowledge range (14–28) is significantly higher than the pretest range (8–18). The data also depict that the mean posttest knowledge (20.78 ± 3.31) was higher than the mean pretest knowledge scores (12.90 ± 2.43). The median value of posttest knowledge score (20) was higher than the median value of pretest knowledge score (13).

Data in Figure 2 show that the mean percentage pretest score (96%) is highest in the area of meaning of Alzheimer’s disease and (39.44%) is the least in the area of investigation and management of Alzheimer’s disease. Mean percentage posttest is maximum (100%) in the area of meaning of Alzheimer’s disease and least (64.66%) in the area of signs and symptoms of Alzheimer’s disease. It also shows that the highest modified gain (100%) in the area of meaning of Alzheimer’s disease and least (30.89%) in the area of signs and symptoms of Alzheimer’s disease.

**Section C: Effectiveness of planned teaching program on Alzheimer’s disease**

Data in Table 2 show that the mean posttest knowledge score (20.78) is higher than the mean pretest knowledge score (12.90). The calculated “t” value (t = 40.85, P < 0.05) was greater than the table value (t49 = 2.009, P < 0.05). Hence, the null hypotheses (H0) was rejected and the research hypotheses was accepted at 0.05 level of significance. This indicated that the planned teaching program was effective in increasing the knowledge of family members of elderly regarding Alzheimer’s disease.

Data in Table 3 show the area-wise comparison of the pretest and posttest mean and calculated “t” values regarding Alzheimer’s disease such as incidence and prevalence, etiology and risk factors, signs and symptoms, and investigation and management were 7.90, 9.33, 7.45, and 9.22 was greater than table value of t49 = 2.009, P < 0.05. This reveals that there is a significant difference between mean pre- and post-test knowledge scores of elderly regarding Alzheimer’s disease in all area. This suggests that the planned teaching program was effective in increasing the knowledge of family members of elderly in all aspects.
Section D: Association between knowledge scores with selected demographic variables

The association between the pretest knowledge score and the selected demographic variables was found using Chi-square test. The data presented in the Table 4 show that there was significant association of the pretest knowledge scores and selected demographic variables such as monthly income (in rupees) and type of family. Other variables show no significant association with pretest knowledge scores.

DISCUSSION

Overall comparison of mean, standard deviation (SD), and mean% of pre- and post-test knowledge scores among the family members of elderly on Alzheimer’s disease revealed that the overall mean percentage of pretest was 43% whereas in posttest, the mean percentage was 69.26%; thus, depicting 26.3% overall difference in mean percentage.

The findings of the study coincide with the result of a descriptive survey conducted to investigate knowledge and fear of developing Alzheimer’s disease in a sample of healthy adults. The sample size was 127 young adults and 118 older adults. Younger adults obtained a score of 54% while older adults obtained 58% on knowledge test. Knowledge and fear scores were not significantly correlated with having a family member or knowing someone with Alzheimer’s disease.[6]

Area-wise analysis of the knowledge scores show that the area-wise mean percentage of knowledge score was more (96%) in the area of “meaning” with mean ± SD of 0.92 ± 0.07; “incidence and prevalence,” the mean percentage was 51% with area-wise mean ± SD of 1.02 ± 0.26; “etiology and risk factors,” the mean percentage was 40.66% with area-wise mean ± SD of 1.22 ± 0.54; “signs and symptoms,” the mean percentage was 44% with area-wise mean ± SD of 2.64 ± 1.31; and “investigation and management,” the mean percentage was (39.44%) with area-wise mean ± SD of 7.1 ± 2.57.

This study’s findings are consistent with a study done to assess the knowledge regarding Alzheimer’s disease among adults in a selected community, Bangalore, with a view to develop an information booklet. Findings show that the highest mean percentage (62.2%) of knowledge score in the area of meaning of Alzheimer’s disease (SD of 29.7, mean 1.87), the least mean percentage (50%) of knowledge score is found in the area of incidence and prevalence and cause (SD of 39.1, mean 1 and SD of 25.7, mean 1.50) signs and symptoms show 50.7% (SD of 24.4, mean 5.07) investigation and management show 56.1% (SD of 20, mean 6.73), total knowledge score shows mean percentage of 53.9%, SD of 15.5, and mean 16.17.[7]

The difference between the pretest and posttest knowledge score of the family members of elderly was analyzed using student “t” test. The difference was found to be highly significant (t = 40.85). A significant increase was observed in the knowledge score of the family members of elderly following administration of planned teaching program regarding Alzheimer’s disease. Findings suggest that the planned teaching program was effective in improving the knowledge of the family members of elderly regarding Alzheimer’s disease.

The findings are supported by a study conducted to evaluate the effectiveness of educational intervention for family caregivers of persons in the early stages of Alzheimer’s disease. 58 family caregivers participated in the study, which consisted of 5 weekly educational sessions about the disease and various aspects of care giving. The results showed that modest benefits were derived by participants at the 3 months of time with disease improving significantly (Wilcoxon signed-rank test W = 0 444, P < 0.001) of 2 units ($\chi^2 = 2.0, SD = 2.5$). The results show that the improvement in Alzheimer’s disease Knowledge test remained intact at 9 months ($\chi^2 = 16.9$, SD = 2.5), which was significantly higher compared with pretest ($\chi^2 = 14.7, SD = 3.2; W+ =223, P < 0.001$). The study concluded that the educational intervention has merit for family caregivers coping with the early stages of Alzheimer’s disease.[8]

To determine the significant association of pretest knowledge score with selected variables, Chi-square test was used. The calculated Chi-square value of demographic variables such as age, educational status, marital status, occupational status, religion, family history of Alzheimer’s disease, information regarding Alzheimer’s disease, and source of information regarding Alzheimer’s disease (5.99, 7.81, 3.84, 7.81, 5.99, 3.84, 3.84, and 7.81) was not significant at 0.05 level of significant. Other variables such as monthly income (in rupees) and type of family (7.81, 7.81) have significant association with pretest knowledge scores.

The findings of the current study are contrary with the findings of a study done to assess the knowledge regarding Alzheimer’s disease among adults in a selected community, Bangalore, with a view to develop an information booklet. There was a significant association between knowledge scores of adults and selected demographic variable such as educational level ($\chi^2 = 23.44$), marital status ($\chi^2 = 12.67$), and family size ($\chi^2 = 9.99$), as these obtained scores are more than the table value.[9]

Limitations

- The study was limited to the family members of elderly residing only at Kunjathbail Urban Community, Mangalore
- The finding of the study could not be generalized in view of small sample size and limited area of setting
The study was limited to planned teaching program; there was no practical intervention evaluated among the family members of elderly

- The structured knowledge questionnaire restricts the amount of information that can be collected from the respondents
- The study did not use any control group. The investigator had no control over the event that took place between the pretest and posttest
- The male subjects were not available during the time of data collection, only the female statuses were assessed
- No follow-up was done after the posttest.

CONCLUSION

The findings of the study proved that the family members of elderly lacked knowledge on Alzheimer’s disease. Hence, the planned teaching program was an effective strategy in improving the knowledge of the family members of elderly regardless of their age, educational status, marital status, occupation, religion, family members with Alzheimer’s disease, and source of information about Alzheimer’s disease. All the subjects gained more knowledge compared to their pretest knowledge scores.

Acknowledgment

The authors express sincere thanks to all the experts who validated the tool and all the subjects who participated in the collection of data for establishing reliability, pilot study, and also for the main study. The authors also extend gratitude to The District Health Officer, Mangalore, for granting the permission to conduct the study in an urban community at Mangalore.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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