

## Research Article

# A Study to Evaluate the Effectiveness of Structured Teaching Programme on Knowledge Regarding Prevention of Cataract among Middle-Aged Adults in a Selected Panchayath in Kannur District

K. H. Reshma<sup>1</sup>, Leena Sooraj<sup>2</sup>, Rani Jose<sup>2</sup>

<sup>1</sup>Department of Medical Surgical Nursing, Amrita College of Nursing, Kochi, Kerala, India, <sup>2</sup>Department of Medical Surgical Nursing, Government Nursing College, Kannur, Kerala, India

## ABSTRACT

**Background:** Vision is considered as an important part of well-being and an inevitable factor in retaining the quality of life. Vision impairment due to cataract can impose a significant burden on any community. Despite being the leading cause of treatable blindness, the lack of awareness about cataract and its treatment is still a major hurdle in decreasing the blindness in developing countries especially in the rural areas. **Aim:** The study aims to assess the knowledge of middle-aged adults regarding prevention of cataract, evaluate the effectiveness of structured teaching programme on the prevention of cataract and find the association between pre-test knowledge and selected demographic variables. **Methods:** An evaluative approach with pre-experimental one group pretest- post-test design was used in the present study. Sixty samples were selected using the convenience sampling method. Structured knowledge questionnaire was used to assess the knowledge regarding the prevention of cataract. The conceptual framework used for the study was based on system model by Von Bertalanffy. **Results:** Pre-test data showed that 78.4% of the subjects had average knowledge score, 8.3% had good knowledge score, and another 13.3% had poor knowledge regarding prevention of cataract. A teaching programme regarding prevention of cataract was administered to the samples. The mean post-test knowledge score (17.00) was higher than the mean pre-test score (10.75). The calculated *t*-value (27.62) was greater than the table value (2.00) at 0.05 level of significance. **Conclusion:** The study findings revealed that the teaching programme was effective in improving the knowledge of middle-aged adults regarding prevention of cataract. There was no significant association between knowledge level and demographic variables.

**Keywords:** Effect, Knowledge, Middle-aged adults, Prevention of cataract, Structured teaching programme

**Address for Correspondence:** Ms. K. H. Reshma, Department of Medical Surgical Nursing, Amrita College of Nursing, Kochi, Kerala, India. E-mail: reshmakh56017@gmail.com

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## Introduction

Good eyesight is an important part of well-being and a significant factor in retaining independence and quality of life as we get older. Many of the leading causes of visual impairment are associated with ageing and two-thirds of the visually impaired population is older than 65 years of age.<sup>[1]</sup> Significant losses to eyesight can reduce the quality of life and threaten the ability to live independently at home and in the community. A visually impaired person is often unable to work and therefore is dependent on their family. The family of a visually impaired person is restricted in their ability to

earn money or go to school because of the extra time it takes to care for dependant person. Thus the cycle of poverty and low level of education continues unless the cataract burden is managed adequately.

The most recent estimates from the World Health Organization (WHO) reveal that 47.8% of global blindness is due to cataract and in the South Asia region which includes India, 51% of blindness is due to cataract.<sup>[2]</sup> Globally, age-related cataract is responsible for 48% of blindness, which represents about 18 million people, according to the WHO.<sup>[3]</sup>

The vision 2020 program involves determining which areas have high rates of avoidable blindness and in which way services can be improved so that the burden of blindness is reduced. Since cataract is a major cause of avoidable blindness in the developing countries, the key to success of the Global Vision 2020: the right to sight initiative is a special effort to tackle cataract blindness.<sup>[4]</sup>

Although there is no way to cure or reverse the effects of cataract, prevention strategies can slow the rate at which a cataract forms or even prevent one from developing in the first place.<sup>[5]</sup> Thus, the need was felt to assess the knowledge on prevention of cataract among middle-aged adults and to make them aware of cataract and its prevention through a structured teaching programme.

### Objectives of study

- To assess the pre-test level of knowledge regarding the prevention of cataract among middle-aged adults
- To assess the post-test level of knowledge regarding the prevention of cataract among middle-aged adults
- To evaluate the effectiveness of structured teaching programs on knowledge regarding prevention of cataract among middle-aged adults.

### Hypothesis

- H1: The mean post-test knowledge scores on prevention of cataract among middle-aged adults who have undergone the structured teaching program will be significantly higher than the mean pre-tests cores
- H2: There is a significant association between pre-test knowledge score and selected demographic variables regarding prevention of cataract.

### Assumptions

- Middle-aged adults may have less knowledge on the prevention of cataract.
- Structured teaching programme will help in improving their knowledge on the prevention of cataract and strive to provide good health status and instill confidence in them.

### Methods

- Research approach: Evaluative approach<sup>[6]</sup>
- Research design: Pre-experimental One group pretest-post-test design.<sup>[7]</sup>

The study design is schematically represented as follows,

O<sub>1</sub> X O<sub>2</sub>

- O<sub>1</sub> – Pretest knowledge score of middle-aged adults regarding prevention of cataract
- X – Administration of structured teaching programme regarding prevention of cataract
- O<sub>2</sub> – Post-test knowledge score of middle-aged adults regarding prevention of cataract.

### Variables

#### Dependent variable

Knowledge of middle-aged adults regarding prevention of cataract.

#### Independent variable

Structured teaching programme regarding prevention of cataract.

### Setting of the study

Selected schools of Kunjimangalam Panchayath, Kannur district.

### Population

Middle-aged adults between 35 and 50 years.

### Sample and sample size

Sixty middle-aged adults who attended Parent Teacher Association meeting in selected schools of Kunjimangalam Panchayath.

Sample size calculation formula:  $n = 4SD^2/d^2$

SD of previous study = 7.3

Where

$d = 2$  (precision)

$= 4 \times (7.3)^2 / 4 = 53$

Considering a sample attrition of 15%, sample size is estimated to be 60.

### Sampling technique

Non-probability convenience sampling.<sup>[8]</sup>

### Reliability of the tool

Split half method was used to test the reliability of the tool. The items of the tool were divided into equal halves with

odd and even numbers questions and correlation was found using Karl Pearson's correlation coefficient formula. The reliability coefficient of the whole test was then estimated by Spearman-Brown Prophecy formula. As the reliability coefficient of the structured questionnaire was 0.83, the tool was confirmed as reliable.

## Results and Interpretation

The findings have been organized and presented under the following sections.

### Section I: Description of demographic data

- Among the respondents, 53% were in the age group of 35–39 years, 22% belonged to the age group of 40–44 years, 18% were in the age group of 45–49 years, and 7% belonged to the age group of 50–55 years
- Among the respondents, 50% were having higher secondary education, 26.7% were graduates, 10% were postgraduates 8.3% were having secondary education and 5% were having primary education
- Majority (81.7%) of the respondents were married, 8.3% were divorced and 6.7% were widowed and 3.3% of them were single
- Among the respondents, 52% were having no family history of cataract and 48% were having a family history of cataract
- Among the respondents, 53% were having previous information on cataract and 47% were not having any information on cataract

### Section II: Analysis of pre-test knowledge score regarding prevention of cataract among middle-aged adults

1. A: Assessment of pretest knowledge score regarding prevention of cataract [Table 1]  
[Table 1] shows the pre-test knowledge score of middle-aged adults. Among them majority (78.4%) of the sample had average knowledge, 8.3% had good knowledge and another 13.3% had poor knowledge regarding the prevention of cataract.

2. B: Area wise analysis of pre-test knowledge score regarding prevention of cataract [Table 2]

The data presented in the [Table 2] shows that the highest mean percentage was obtained in the area of risk factors of cataract which is 53% with a mean  $\pm$  SD of  $2.65 \pm 0.82$ . The lowest mean percentage was in the area of other prevention of cataract like habits, which is 36% with a mean  $\pm$  SD of  $0.72 \pm 0.52$ . The findings revealed that the middle-aged adults have average knowledge in all the area.

### Section III: Testing of hypotheses

1. A: Effectiveness of planned teaching programme on knowledge regarding prevention of cataract among middle-aged adults

To assess the effectiveness of the teaching programme, paired *t*-test was used. To test the hypothesis the null hypothesis and research hypothesis were formulated.  $H_{01}$  – The mean post-test knowledge score regarding prevention of cataract among middle-aged adults will not be significantly higher than their mean pre-test knowledge scores at 0.05 level of significance.

### Frequency and percentage distribution of pre-test and post-test knowledge score of the middle-aged adults [Table 3]

Data presented in the [Table 3] shows that in the pre-test score of samples, Majority (78.4%) of sample had average knowledge regarding prevention of cataract, 8.3% had good knowledge and another 13.3% had poor knowledge.

In the post-test score, majority (76.7%) had good knowledge, 23.3% had average knowledge and none had poor knowledge. The mean percentage of the total knowledge score in the pre-test was 45.36 and in the post-test was 74.84. It signifies the effectiveness of educational programme.

### Mean difference and *t*-value of pre-test and post-test knowledge scores [Table 4]

The data in Table 4 shows that the mean post-test knowledge score ( $17.00 \pm 2.28$ ) was higher than the mean pre-test score

**Table 1:** Frequency and percentage distribution of middle-aged adults according to their level of pre-test knowledge regarding prevention of cataract  $n=60$

Level of knowledge	Range	Frequency	Percentage
Poor	0–7	8	13.3
Average	8–15	47	78.4
Good	16–23	5	8.3

**Table 2:** Area wise analysis of pre-test knowledge score regarding prevention of cataract among middle-aged adults  $n=60$

Areas	Max. possible score	Mean	SD	Mean %	Level of knowledge
Concept of cataract	7	3.28	1.03	46.86	Average
Risk factor of cataract	5	2.65	0.82	53.00	Average
Nutritional prevention	9	4.10	1.36	45.56	Average
Other prevention	2	0.72	0.52	36.00	Average

**Table 3:** Frequency and percentage distribution of pre-test and post-test knowledge score of the middle-aged adults  $n=60$

Level of knowledge	Pre-test		Post-test	
	F	%	F	%
Poor	8	13.3	0	0
Average	47	78.4	14	23.3
Good	5	8.3	46	76.7

(10.75  $\pm$  2.80). The calculated *t*-value (27.62) was greater than the table value (2.00) at 0.05 level of significance. Hence, the null hypothesis is rejected and research hypothesis is accepted. This indicates that the teaching programme was effective in improving the knowledge of middle-aged adults regarding the prevention of cataract.

#### Area wise mean difference and *t*-value of pre-test and post-test knowledge scores [Table 5]

2. B: Association between the knowledge regarding prevention of cataract and selected demographic variables [Table 6]

H02 - There will be no significant association between the pre-test knowledge score of middle-aged adults regarding prevention of cataract and selected demographic variables [Table 6]. Shows that, Inferential statistical tools such as chi-square test and fishers exact test were used to find association between pre-test knowledge scores and selected demographic variables.

The calculated fishers test and Chi-square values are less than the table value at 0.05 level of significance ( $\chi^2(1) = 3.84$ ). Hence, the researcher failed to support the research hypothesis. So it is concluded that pre-test knowledge score had no association with any of the demographic variables at 0.05 level of significance.

#### Discussion

A similar study conducted by Aliyu *et al.* to assess knowledge and attitude of patients regarding cataract and its surgery among 60 subjects in Kano State. Age range of participants was between 35 and 50 years age, majority 53.3% of them were in the age group of 60 years and above, whereas in the study the age range of participants was between 35 and 50 years age, majority 53.3% of them were in the age group of 35–39 years. Hence, the age of participants were non-congruent with this study. Hence, majority 80% of the middle-aged adults were married among 60 middle-aged adults which is congruent to the present study.<sup>[9]</sup>

A study conducted by Kumar among old age people shows that the majority 85% were having inadequate level of knowledge, 11.66% were having moderate knowledge and only 3.33% of them were having adequate knowledge regarding prevention of cataract. The finding of the present study is non-congruent with my study in the aspect of knowledge but, signifies the importance of the educational program to improve the knowledge.<sup>[10]</sup>

The study findings are congruent with the experimental study done by Kumar on the effectiveness of structured teaching program on knowledge regarding the awareness of cataract among old age people. It reveals that 85% of old age people had inadequate knowledge and 11.6% had moderate knowledge by pre-test. 75% had adequate knowledge and 23.33% had moderate knowledge by post-test. Overall post-test mean score on knowledge was 22.15 with SD of 3.56, which was more than the pre-test score 8.05 with SD of 3.73. It shows the structured teaching program was effective.<sup>[10]</sup>

Another study conducted by Chawla and Pebma to assess the effect of structured teaching programme on knowledge regarding prevention and management of senile cataract among adults. The result concluded that structured teaching programme was effective in improving the knowledge of the subjects related to cataract as per *t*-test. As the post-test mean (23.8  $\pm$  2.4) was significantly higher in the experimental group as compared to control group mean ( $\pm$ SD 11.2  $\pm$  3.4) Hence, it was concluded that the structured teaching program was effective in the prevention and management of senile cataract among adults.<sup>[11]</sup>

The present study revealed that the calculated fishers exact test and Chi-square values are less than the table values at 0.05 level of significance ( $\chi^2(1) = 3.84$ ). Hence, it is concluded that pre-test knowledge score had no association with any of the demographic variables at 0.05 level of significance. The study findings were substantiated with the study conducted by Brilliant *et al.* on awareness of cataract among the Chinese population. The study findings revealed that there is no significant association between

**Table 4:** Mean difference and *t*-value of pre-test and post-test knowledge scores *n*=60

Parameter	Mean	SD	Mean %	Mean differences	Df	<i>t</i> -value	<i>P</i> -value
Pre-test	10.75	2.80	45.36	6.25	59	27.62	<0.001***
Post-test	17.00	2.28	74.84				

\*\*\*Significant at 0.001 level

**Table 5:** Area wise mean difference and *t* value of pre-test and post-test knowledge scores *n*=60

Areas	Pre-test		Post-test		Mean Difference	<i>t</i> -value	<i>P</i> -value
	Mean	SD	Mean	SD			
Concept of cataract	3.28	1.03	5.50	0.96	2.21	18.26	<0.001***
Risk factor of cataract	2.65	0.82	3.77	0.72	1.12	16.52	<0.001***
Nutritional prevention	4.10	1.36	6.20	1.05	2.10	17.78	<0.001***
Other prevention	0.72	0.52	1.53	0.50	0.82	11.15	<0.001***

\*\*\*Significant at 0.001 level

**Table 6:** Association of pre-test knowledge score with selected demographic variables  $n=60$ 

Variables	Test	Value	Df	P-value	Inference
Age	Chi-square	0.370	1	0.543	NS
Education	Chi-square	0.191	1	0.662	NS
Marital Status	Fishers exact test	—	—	0.500	NS
Family history	Chi-square	3.604	1	0.058	NS
Information	Chi-square	0.429	1	0.517	NS

NS: Not significant

demographic variables and knowledge level of the client with cataract.

### Conclusion

The study findings revealed that the teaching programme was effective in improving the knowledge of middle-aged adults regarding the prevention of cataract. There was no significant association between knowledge level and demographic variables.

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### Conflict of Interest

None declared.

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None.

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