Effectiveness Of Planned Teaching Programme On Preventive Measures Of Cataract Among Adults In Selected Urban Community, Mangalore

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Abstract
A cataract is the clouding of the lens in the eye affecting vision. Early in the development of age-related cataract the power of the lens may be increased, causing near-sightedness (myopia), and the gradual yellowing and opacification of the lens may reduce the perception of blue colours. Most cataracts are related to aging. Exposure to sunlight may be associated with an increased risk of cataract. Vitamin supplements have shown varying results in delaying the progression of cataract. Globally, there are nearly 45 million blind people. Almost 135 million people are with low vision. A total of nearly 180 million people have some degree of visual disability. Nine of the ten who are blind live in the developing countries. On the current projections, there could be estimated 50 million blind people due to cataract by 2020[16]. Prevalence of cataract in USA is approximately 5.5 million or 2.02%. India is one of the countries that have a sizeable number of visually impaired people[17]. The annual incidence of cataract blindness in India is about 3.8 million. Statistics reveal that over 12 million people in the country are visually handicapped. Out of 41.8% of global blindness, 23.5% is contributed by India. Major proportion of total blindness in India (81%) is constituted by cataract[18]. In Karnataka prevalence of cataract blindness among the men above the age of fifty is 3.39% and women is 6.51%, in Dakshina Kannada district it is 1.27% for men and 7.65% for women[19].
Hence the researcher felt the need to evaluate the effectiveness of planned teaching programme on preventive measures of cataract in a selected urban community, Mangalore.
Objectives: The purpose of this study was
- *to determine the level of knowledge on preventive measures of cataract among adults as measured by a structured closed-ended knowledge questionnaire*
- *to determine the effectiveness of Planned Teaching Programme on preventive measures of cataract among adults*
- *to find the association between the pre-test knowledge scores with selected demographic variables.*
Research approach and design: A pre-experimental research design of one group pre- and post-test with an evaluative approach was used for this study.
Setting: The study was conducted in Jeppu urban community area of Mangalore.
Subjects: Adults in the age group of 30-55 years in the selected urban areas of Mangalore
Sample size and Sampling technique: The sample for the present study comprised 100 adults in the age group of 30-55 years who met the inclusion criteria The investigator purposely selected the adults who were judged to be a typical population who needs the knowledge related to cataract.
Planned teaching programme
The planned teaching programme on "preventive measures of cataract." was developed after an exhaustive review. The content the planned teaching programme included
- *Introduction*
- *Definition*
- *Eye and lens*
- *Functions of eye*
- *Definition of cataract*
- *Incidence of cataract*
- *Etiological risk factors of cataract*
- *Classification of cataract*
- *Sites of cataract*
- *Clinical manifestations of cataract*
- *Diagnostic measures of cataract*
- *Preventive measures of cataract*

- *Therapeutic regimen in case of diabetes and hypertension*
- *Demonstrate the eye exercises*
- *Conclusion*

Instrument used: Structured closed-ended knowledge questionnaire on preventive measures of cataract among adults. The data was analysed using descriptive statistics and inferential statistics

Major findings and reports: Descriptive and inferential statistics were used to analyse the data. Pre-test assessment revealed that highest percentage (49%) of adults had poor knowledge, 43% had average knowledge, and only 8% had good knowledge. The post-test revealed that 98% had gained very good knowledge, 2% of them gained good knowledge. The total mean percentage of pre-test knowledge score was 43.58% (mean 10.46 ± 3.22) and the mean percentage post-test knowledge score was 92.25% (mean 22.14 ± 1.38) showing an effectiveness of 48.62% (mean 11.68± 2.89). Significance of difference between pre-test and post-test was statistically tested by using paired 't' test and it was found very highly significant (t=40.10, p<0.05). The pre-test knowledge score showed association between the pre-test knowledge and previous source of information regarding prevention of cataract but there was no association between pre-test knowledge and age, gender, educational status, occupation and family history of cataract.

Conclusion: The findings of the study reveal that adults had inadequate knowledge on preventive measures of cataract; however the knowledge has significantly improved after the Planned Teaching Programme. Hence, it is concluded that PTP was highly effective in improving the knowledge of the adults regarding the preventive measures of cataract.

Keywords: Effectiveness; cataract; preventive measures; Planned Teaching programme; adults.

I. Introduction

The eye is like a camera. If the lens in a camera has scratches, the picture will be blurred. Similarly, when the lens in the eyes becomes cloudy, one will either see blurred images or nothing at all. Such a condition is called cataract, where there is opacity or clouding of the eye's natural lens which if not treated, can lead to blindness. The function of our eyes is to enable us to see clearly the objects in our surroundings at variable distances and under various conditions of lights. There are many similarities between our eye and a camera. Like in a camera the aim is to provide a well-focused image of the object onto the film at the back of the camera.

Cataracts develop more quickly if there are some environmental factors, such as smoking, exposure to other toxic substances, and exposure to excessive ultraviolet light or sunlight. They may develop at any time after an eye injury. The main non-modifiable risk factor is aging. Diseases such as diabetes also greatly increase the risk for cataracts. Certain medications, such as cortisone, can also speed up cataract formation.[9] Cataract in children is due mainly to genetic disorders.

Cataract is generally associated with fifty-five plus age group, but since two years it is increasingly seen in adults between thirty to forty years. There are two causes of cataract in adults –acquired cataract and congenital cataract, where newborns are affected if the mother has vitamin deficiencies, infections, viral fever, or had used drug. Adult cataracts usually develop very gradually with advancing age and may run in families. They develop slowly and painlessly, and vision in the affected eye or eyes slowly gets worse. As people reach their mid-40 years, biochemical changes occur in the proteins within the lens, causing them to harden and lose elasticity. This causes a number of vision problems. So it is necessary to educate adults regarding preventive measures of cataract.

II. Research Methodology

An evaluative approach was used to evaluate the effectiveness of planned teaching programme on preventive measures of cataract among adults in a selected urban community, Mangalore.

Sampling criteria
Inclusion criteria
In this study the following criteria were set to include the sample in the study:
Adults:
- in the age group of 30-55 years.
- willing to participate in the study.
- who come under Jeppu urban area of Mangalore.
- who are present during time of data collection.

- who are not diagnosed with cataract.

Selection and development of tool

The tool was prepared on the basis of the objectives of the study. The tool used for the present study was a structured closed-ended knowledge questionnaire to evaluate the effectiveness of planned teaching programme on preventive measures of cataract among adults in selected urban community of Mangalore.

Description of the tool

The tool was constructed in two parts.

Part I: Demographic profile.

It included 6 items of demographic variables such as age, gender, educational status, occupation, previous source of information about cataract and family history of cataract

Part II: Structured closed-ended knowledge questionnaire

It consisted of 24 items related to knowledge regarding preventive measures of cataract among adults. The tool covered the following areas:

☐ Concept of cataract.
☐ Diagnostic tests on cataract
☐ Preventive measures of cataract.

Description of planned teaching programme

The planned teaching programme was titled "preventive measures of cataract." The planned teaching programme included introduction, general and specific objectives, and references. The planned teaching programme was planned to be administered in sessions to enhance and reinforce the knowledge of preventive measures of cataract. Introduction

Reliability of the tool

Reliability of the research instrument is defined as the extent to which the instrument yields the result on repeated measures. It is concerned with consistency, accuracy, precision, stability, equivalence and homogeneity.

In the present study reliability of the tool was tested by administering it to 10 adults of Adam Kudru, Mangalore. Split-half method was used to measure the internal consistency of the tool. Karl Pearson's correlation coefficient and Spearman Brown Prophecy formula were used to find out the reliability of the tool. The reliability was found to be 0.82 which indicated that the tool was reliable.

Data Collection Procedure

The data collection plan was made and subjects were explained about the data collection and a time was fixed. Investigator visited house-to-house and selected the samples using purposive sampling technique. Pre-test was done using interview technique in the house hold setup average time taken was 10 minutes. For the administration of PTP the subjects were requested to assemble in the nearby anganwadi PTP of preventive measures of cataract given which took about 45 minutes which comprised areas such as functions of eye, causes, risk factors, classification, sites, diagnostic investigations, and preventive measures of cataract. The doubts were clarified at the end of the session. Finally, the sessions came to an end with thanking the participants for their cooperation.

Post-test conducted on the seventh day in the house hold setup in the morning and afternoon

Percentage wise distribution of adults according to their age group

Distribution of adults according to their age shows that highest percentage (40%) of them were in the age group of 40-49 years, whereas 32% of them were in the age group of 50 years and above, and 28% of them were 30-39 years. It shows that most of them were in the age group of 40-49 years

Percentage wise distribution of samples according to their gender

The gender-wise distribution of adults depicts that majority (71%) of them were female and only 29% were male. It is observed that majority of the subjects were females (Figure 4).

Percentage wise distribution of samples according to their educational status

The distribution of adults according to their educational status shows that highest percentage (39%) had completed secondary education, 32% of them had completed primary education, whereas 21% had no formal education and only 8% had completed their graduation. It is observed that most of them were literate

Percentage wise distribution of samples according to their occupation:

The distribution of adults according to their occupation shows that majority (71%) were not exposed to sunlight in their occupation while the remaining 29% were in occupations that exposed them to sunlight

Percentage wise distribution of adults according to source of information on cataract

Distribution of adults according to their source of information on cataract revealed that majority (66%) had no previous information on cataract, 22% gained information from mass media, 8% from newspapers/magazines, and only 4% from the health personnel

Percentage wise distribution of subjects according to their family history of cataract

The distribution of history of cataract reveals that highest percentage (55%) of their family members had no cataract, 10% of adults' father had cataract, 13% of the subjects' mothers had cataract, 4% of subjects' spouse and 6% of the subjects' siblings as well as 14% of subjects' other relatives had cataract

Table 1: Frequency and percentage distribution of pre-test knowledge score of adults regarding preventive measures of cataract

n=100

Grade	Score	Percentage of score	Percentage
Poor	0-10	0-40	49
Average	11-14	41-60	43
Good	15-19	61-80	8
Excellent	20-24	81-100	0

The distribution of pre-test knowledge score of adults shows that highest percentage (49%) of the subjects had poor knowledge whereas 43% had average knowledge and only 8% had good knowledge. None of them had excellent knowledge about the prevention of cataract. It is observed that most of the subjects under study had poor knowledge on the prevention of cataract

Table 2: Description of area-wise mean, SD, mean% of pre-test knowledge scores of adults regarding preventive measures of cataract

n=100

Sl. No.	Areas of Knowledge	Max. possible score	Mean score	SD	Mean %
1	Basic concepts of cataract	11	5.68	1.906	51.63
2	Prevention of cataract	13	4.78	1.818	36.76
	Total	24	10.46	3.22	43.58

Area-wise distribution of mean, mean percentage, and SD of pre-test knowledge score about prevention of cataract among adults shows that the highest mean score (5.68±1.906) which is 51.63% was found in the area of knowledge regarding "Basic concepts of cataract." Further, the lowest mean score (4.78±1.81) which is 36.76% was obtained for the area of knowledge regarding "Prevention of cataract." Analysis revealed that out of 24 maximum obtainable score, the total mean score was 10.46 and the maximum score obtained by the adults in the pre-test was 43.58%

Table 3: Comparison of mean, mean percentage, and standard deviation of pre-test and post-test knowledge score of adults

n=100

Category	Mean	SD	Mean percentage
Pre-test	10.46	3.224	43.58
Post-test	22.14	1.385	92.25
Effectiveness	11.67	2.895	48.62

Comparison of mean, mean percentage, and standard deviation of pre-test and post-test knowledge score of adults reveal that the post-test mean percent was 92.25% with the mean and SD 22.14±1.38 where as in pre-test the mean percentage was 43.58% with the mean and SD 10.46±3.22. The difference of mean percentage was 48.62% with mean and SD 11.67±2.89. Thus the data revealed that PTP was effective in improving the

knowledge of adults about preventive measures of cataract.

Table 4: Significance of difference between pre-test and post-test knowledge score
n = 100

Areas	Mean percentage	't' value	Level of significance
Basic concept	47.45	26.38	P < 0.05 HS
Prevention	49.53	38.44	P < 0.05 HS
Total	48.62	40.10	P < 0.05 HS

t_{99}=1.66 , p<0.05   HS=Highly Significant

Findings of Table 8 reveal that the calculated 't' value (t= 40.10, p<0.05) was greater than the table value at 0.05 level in all sections. Therefore the null hypothesis was rejected and alternate hypothesis was accepted indicating that the gain in knowledge was not by chance. Hence it is concluded that there is significant gain in knowledge of adults through planned teaching programme on prevention of cataract.

Table 5: Chi square values showing association between pre-test knowledge scores and sample characteristics
(n = 100)

Sl. No.	Demographic variables	df	χ^2	Table value	Remarks
1.	Age	2	1.930	5.99	NS
2.	Gender	1	0.009	3.84	NS
3.	Educational	2	2.613	5.99	NS
4.	Occupation	1	0.009	3.84	NS
5.	Preivous source of information	1	7.910	3.84	S
6.	Family members with cataract	1	0.146	3.84	NS

S=Significant P<0.05, NS= Non significant P>0.05

Chi square values showing the association between pre-test score and sample characteristics reveal that the calculated Chi square values where greater than the table values for previous source of information about cataract. Therefore the investigator rejected the null hypothesis (H_0) and accepted the research hypothesis (H_1) for source for information about cataract. Hence it was concluded that there was significant association between the pre-test knowledge and source of information regarding prevention of cataract but not the other variables, namely, age, gender, educational status, occupation, and family history of cataract.

III.   Summary
This chapter has dealt with the analysis and interpretation of the findings of the study. The data gathered was summarised in the master sheet and both descriptive and inferential statistics was used for analysis. Findings revealed that the mean pre-test score was 10.46±3.22 whereas the post-test mean knowledge score was 22.14±1.38. Paired 't' test was used to analyse the effectiveness of planned teaching programme which showed that the gain in knowledge was significant (t=40.10 , p=0.05) and the difference between pre-test and post-test score was 48.67%, which is also significant.

The findings show that there was significant association between pre-test knowledge and previous source of information regarding prevention of cataract but there was no association between pre-test knowledge and age, gender, educational status, occupation, and family history of cataract

IV.   Implications
The findings of the present study have implications in various areas of nursing education, nursing practice and nursing research. The healthcare delivery system at present is giving more emphasis on preventive rather than curative aspect.

V.   Nursing Practice
Community health can easily carry out planned as well as incidental health education programme for improving the knowledge of adults on preventive measures of cataract. Hence nurses should take keen interest in preparing different teaching strategies which include preventive, promotive, and rehabilitative aspects to the schools colleges and community.

VI.   Nursing education

Nurses should have thorough knowledge regarding various aspects of health in order to provide comprehensive care to the society. The nurses need to have in depth knowledge regarding cataract and issues so that they can motivate the adults in education about how to prevent cataract in future. The findings of this study would help the nurses develop insight into the importance of health education regarding preventive measures of cataract.

VII.   Nursing Research

Nursing practice should be based on scientific body of knowledge. There are only very few studies conducted on preventive measures of cataract. Further research should be conducted to create awareness. The findings of the study can be utilized to conduct similar research in a different population to create awareness on preventive measures of cataract. Nurse administrators can also encourage staff and students to carry out clinical study to prevent the occurrence of complications associated with cataract.

VIII.   Recommendations

 Similar study can be conducted on a larger sample to increase validity and generalization.
 A structured instructional module on preventive measures of cataract can be used to determine its effectiveness.
 A comparative study can be conducted between urban and rural adults on knowledge on preventive measures of cataract.
 A follow-up study can be conducted to determine the effect of teaching in terms of gain in knowledge on preventive measures of cataract.
 Similar study can be undertaken with a control group.

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