



A STUDY TO EVALUATE THE EFFECTIVENESS OF STRUCTURED TEACHING PROGRAMME ON KNOWLEDGE REGARDING CATARACT AMONG WELDERS IN SELECTED URBAN AREAS, AGARTALA, TRIPURA

Nursing

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ABSTRACT

A pre-experimental investigation was carried out to assess the impact of a structured teaching program on cataract knowledge among welders in selected urban areas of Agartala, Tripura. **Aims:** The study aimed to evaluate welders' knowledge levels on cataract, gauge the effectiveness of the structured teaching program, and identify associations between pretest knowledge scores and demographic variables. **Methodology:** The study adopted the Modified Ludwig Von Bertalanffy general system theory as its conceptual framework and employed a quantitative research approach with a pre-experimental design (one group pre-test post-test design). Forty welders aged 20 to 40 years were purposively sampled, and the study tools were validated by experts, with a reliability check yielding a score of 0.75 through Karl's Pearson's test-retest method. Statistical analyses included mean, median, standard deviation, paired t-test, and chi-square. **Results:** The findings indicated that, before the structured teaching program, 52.5% of participants had inadequate knowledge, 47.5% had moderate knowledge, and none had adequate knowledge about cataracts. Post-program, 57.5% demonstrated adequate knowledge, 42.5% had moderate knowledge and none displayed inadequate knowledge. The mean post-test knowledge score was significantly higher than the pretest score, confirming the effectiveness of the structured teaching program based on the Modified Ludwig Von Bertalanffy General System Model. Furthermore, a significant association was identified between pretest knowledge scores and family income, supporting the research hypothesis. **Conclusion:** The study holds implications for nursing education, administration, research, and services, suggesting the potential for similar investigations on a larger scale in diverse settings.

KEYWORDS

Knowledge, Cataract, Welders, Urban and Eye health

INTRODUCTION

Cataract is a common eye disorder that affects millions of people worldwide, including welders who are exposed to harmful UV radiation and other chemicals in their workplace. According to the World Health Organization (WHO), cataract is responsible for 51% of blindness cases globally, making it the leading cause of blindness. In India, cataract is responsible for 62.6% of blindness cases, and it is estimated that by 2020, the number of people with cataract will increase to 40 million.

Welders are at a higher risk of developing cataract due to their occupational exposure to ultraviolet (UV) radiation, infrared (IR) radiation, and other chemicals such as metal fumes, gases, and dust. Moreover, welders are also at risk of developing other eye disorders such as pterygium, retinal detachment, and macular degeneration. Despite the high risk of eye disorders, welders often lack knowledge about the prevention and management of cataract.

Therefore, this study aims to evaluate the effectiveness of a structured teaching program on knowledge regarding cataract among welders in selected urban areas of Agartala.

This study is imperative due to the heightened occupational health risks faced by welders in the urban areas of Agartala, Tripura. Prolonged exposure to intense light and harmful radiation places welders at an increased susceptibility to cataracts, a prevalent vision impairment. Current statistics underscore the urgent need for targeted interventions, as welders often experience a knowledge gap regarding cataracts, encompassing preventive measures, symptoms, and early detection. The study aims to address this critical knowledge deficit, recognizing that enhancing awareness among welders not only promotes their individual well-being but also contributes significantly to workplace safety. By evaluating the effectiveness of a structured teaching program, the research seeks to provide evidence-based insights that can inform tailored health education initiatives, ultimately mitigating the burden of preventable vision impairments among welders and fostering a healthier occupational environment.

OBJECTIVES OF THE STUDY:

1. To assess the level of knowledge of welders regarding cataract in selected urban areas, Agartala, Tripura.
2. To evaluate the effectiveness of structured teaching programme regarding cataract among welders in selected urban areas, Agartala, Tripura.
3. To find the association between pretest knowledge score regarding cataract among welders with their selected demographic variable in

selected urban areas, Agartala, Tripura.

HYPOTHESES

H₁: There is a significant difference between the mean pre test knowledge and post test knowledge score regarding cataract among welders.

H₂: There is a significant association between pre test knowledge score of welders with their selected demographic variables.

RESEARCH METHODOLOGY:

Research Approach:

For the study evaluating the effectiveness of a structured teaching program on cataract knowledge among welders, a quantitative research approach was chosen for its systematic collection and analysis of numerical data.

Research Design:

Pre-experimental design (one group pre-test post-test design) employed to assess the effectiveness of the structured teaching program on cataract knowledge among welders.

Research Variables:

- Independent variable: Structured teaching program on cataract for welders.
- Dependent variable: Level of knowledge regarding cataract among welders.
- Demographic variables: Age, gender, education, family income, religion, awareness program exposure, previous eye examination, family history.

Setting Of The Study:

- Pilot Study: Mailakhala, Agartala, Tripura.
- Main Study: Chandinamura and Barjala, Agartala, Tripura.

Population:

- All welders in selected urban areas, Agartala, Tripura.
- Target Population: Total welders meeting criteria.
- Accessible Population: Welders meeting criteria and available for study.

Sample And Sampling Technique:

- Sample Size: 40 welders selected through non-probability purposive sampling.
- Sampling Criteria: Age (20-40), ability to read and write Bengali, accessibility, willingness to participate.

Data Collection Tools:

- Structured questionnaire for demographics.
- Structured knowledge questionnaire for cataract knowledge assessment.

Validity And Reliability:

- Content validity checked by 11 experts.
- Reliability established through test-retest method ($r=0.75$).

Procedure Of Data Collection:

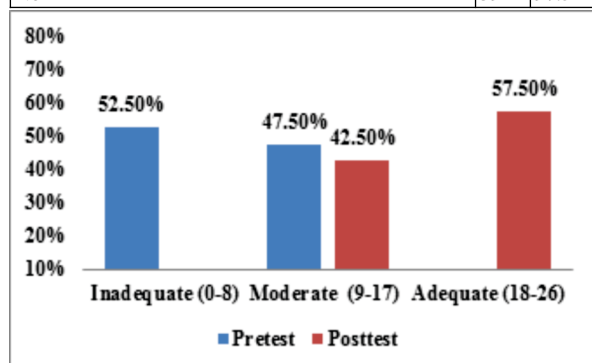
- Pre-test, structured teaching program, and post-test conducted on separate days.
- Pilot study conducted for tool feasibility.

Data Analysis:

- Descriptive statistics for demographics and knowledge scores.
- Inferential statistics: Paired 't'-test and chi-square for comparisons and associations, respectively.

RESULTS:**Table No. 1 Distribution Of Socio-demographic Variables Of Welders.**

Socio demographic variables	(f)	(%)
Age of welder in years		
20-26	12	30
27-33	15	37.5
34-40	13	32.5
Gender		
Male	40	100
Female	00	00
Educational status		
Informal	08	20
Primary	30	75
Secondary and above	02	05
Family income		
≤10000	02	05
10001-15000	19	47.5
15001 and above	19	47.5
Religion		
Hindu	38	95
Muslim	01	2.5
Others	01	2.5
Previous exposure		
Yes	00	00
No	40	100
Having previous eye examination within six years		
Yes	07	17.5
No	33	82.5
Positive family history of cataract.		
Yes	01	2.5
No	39	97.5

**Graph: 1** Level Of Knowledge Of Welders In Pretest And Posttest.

In the pre-test, 52.5% had inadequate and 47.5% had moderate knowledge of cataract; post-test results showed a shift, with 57.5% having adequate and 42.5% having moderate knowledge, indicating the positive impact of the structured teaching program.

In the Pre-test minimum score was 4, maximum score was 16, range was 12, mean was 9.05, median was 8, and SD was 2.26. In post test minimum score was 13, maximum score was 21, range was 08, mean

was 16.90, Median was 18, and SD was 2.34.

Table No.2 Paired 't' Test Analysis For Significance Of Pre Test And Post Test Knowledge Score Among Welders Regarding Cataract.

Level of Knowledge	Mean difference	SD	Paired 't' test	P- Value
Pre test & post test	7.85	0.08	19.65* Df 39	0.000 Table Value: 2.02

The above table 2 describe the outcome of paired 't' test. The paired 't' test analysis was carried over to evaluate the significance pre test mean and post test mean score of knowledge regarding cataract among welders. The paired 't' test was found to be significant on welders regarding cataract ($t=19.65$, $p<0.05$). Its evidence that there is a significant difference in knowledge after the intervention of structured teaching programme.

Regarding the Association between pre test knowledge score regarding cataract among welders with their selected demographic variables. The outcome of chi square (χ^2) analysis being carried out to bring out the association between pretest knowledge score regarding cataract among welders with their selected demographic variables.

The study examined various factors associated with pretest knowledge scores regarding cataract. In terms of age, there was no significant association found, as indicated by a chi-square (χ^2) value of 1.51 at $p = 0.47$. Gender and educational status also showed no significant associations, with χ^2 values of 0.46 ($p = 0.80$) and 0.80 ($p = 0.80$), respectively. However, family income exhibited a noteworthy connection, revealing a significant association with pretest knowledge scores ($\chi^2 = 7.80$, $p = 0.02$). In contrast, religion, previous exposure to a cataract awareness program, having a previous eye examination within six years, and a positive family history of cataract demonstrated non-significant associations with pretest knowledge scores. These findings emphasize the role of socioeconomic factors, particularly family income, in influencing knowledge levels regarding cataract, while other demographic variables showed no substantial impact in this context.

Demographic variables, including age, gender, education, family income, religion, previous exposure to cataract awareness, eye examination history, and family history, were considered in assessing the association with pretest knowledge scores among welders. Only family income ($\chi^2=7.80$, $df=2$) showed significance at $p<0.05$, while other variables were not statistically significant in relation to knowledge scores.

CONCLUSION:

The study concluded that in pre-test 21 (52.5%) welders had inadequate knowledge and 19 (47.5%) moderate knowledge and none of them had adequate knowledge regarding cataract. After administering structured teaching programme on post test none of the participants had inadequate knowledge, 17 (42.5%) participants had moderate knowledge and 23 (57.5%) participants had adequate knowledge regarding cataract. The result of the study found that in knowledge the mean difference was 6.3, mean % difference was 24.23. SD difference was 0.03, The paired 't' test analysis reveals that calculated 't' value was 19.65 which was higher than the tabulated 't' value 2.02 at 0.05 level of significance. Therefore, the paired 't' test was found to be significant. Hence, research hypothesis (H1) accepted and null hypothesis (H01) rejected. So, the structured teaching programme was effective to gain knowledge regarding cataract among welders. Calculated chi square (χ^2) values of demographic variables such as age of welders, educational status, family income, religion, having previous eye examination within six years, positive family history of cataract were 1.51, 0.46, 7.80, 0.37, 0.03, 0.18 and tabulated chi square (χ^2) values of demographic variables were 5.99, 5.99, 5.99, 5.99, 3.84, 3.84 respectively. Among them only in family income (in rupees) calculated chi square (χ^2) value was 7.80 which was higher than tabulated value 5.99 at $p<0.05$. So, there is significant association between pre test knowledge score regarding cataract among welders with family income (in rupees) and there is no significant association between age of welders, educational status, religion, previous exposure to awareness programme regarding cataract, having previous eye examination within six years, positive family history of cataract. Therefore, research hypothesis (H2) is accepted and null hypothesis

(H02) is rejected.

Ethical Clearance:

- Obtained from institutional and community authorities.
- Informed written consent from participants.

REFERENCES:

1. Khoza LB, Nunu WN, Tshivhase SE, Murwira TS, Mambanga P, Ramakuela NJ, Manganye BS, Ndou N. Survey on prevalence of cataract in selected communities in Limpopo Province of South Africa. *Scientific African*. 2020 Jul 1;8: e00352.
2. Considering existing prevalence and projected incidence of cataract blindness over the period 2001-2020, visual outcomes after cataract surgery and sight restoration rate, elimination of cataract blindness may not be achieved by 2020 in India.
3. Murthy GV, Gupta SK, John N, Vashist P. Current status of cataract blindness and Vision 2020: The right to sight initiative in India. *Indian journal of ophthalmology*. 2008 Nov;56(6):489.
4. Negi. B, Panwar. P, Thakur R. Assess the Effectiveness of Structured Teaching Programme (STP) on Knowledge Regarding Cataract among Adults (30-60 years) in a Selected Rural Area Mashobra Distt. Shimla (HP). 2022 Dec 1;11
5. Aldhabaan W, Abdulrahman MA, Asiri MY, Alshabab MQ, Alshahrani MY, Alnakhli GR, Alasmari F, Alharthi A, Zomia AS, Asiri Jr MY, Alshabab Jr MQ. Assessment of Knowledge Regarding Cataract Among Saudi Adult Population in Assir Region, Saudi Arabia. *Cureus*. 2022 Dec 19;14(12).