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Impact of Health Education on Preventive Eye Care in School Children: A Cross-Sectional Study in Public and Private Schools

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ABSTRACT

Preventive eye care is crucial for maintaining visual health in children, yet disparities in knowledge and practices exist across different educational settings. This study examines the impact of health education programs on preventive eye care awareness and practices among school children in both public and private schools. A cross-sectional study was conducted involving 400 students equally distributed between public and private schools. The intervention comprised health education sessions focused on preventive eye care. Pre-and post-intervention surveys were used to assess changes in knowledge, attitudes and practices regarding eye care. The findings revealed a significant increase in knowledge and preventive eye care practices among students who received health education, with an odds ratio (OR) of 1.268 (95% CI: 1.141-1.395, P=0.017941) for students in the intervention group. Students in public schools showed a higher increase in awareness compared to those in private schools, with an OR of 1.412 (95% CI: 1.271-1.554, P=0.04856). Additionally, there was a notable enhancement in the utilization of eye care services post-education, particularly among public school students. Health education significantly improves knowledge and practices related to preventive eye care among school children, with more pronounced benefits observed in public schools. Tailored health education programs could bridge the gap in eye care awareness and practices between different school types, promoting equitable health outcomes.

INTRODUCTION

Vision impairment among school-aged children can significantly affect their learning, development and quality of life. With many eye problems being preventable or treatable, ensuring proper eye care is crucial, particularly during the formative school years. Health education programs in schools can play a pivotal role in enhancing awareness and practicing preventive eye care among children. This study examines the impact of health education on preventive eye care practices among students in public and private schools[1,2].

Visual impairments in children can range from mild refractive errors to severe conditions that may lead to permanent vision loss if not addressed timely. The prevalence of visual problems in school-aged children varies geographically and is influenced by socio-economic factors, accessibility to eye care services and awareness levels. Studies have shown that early detection and appropriate interventions can prevent many eye health issues. However, the success of such interventions is contingent upon effective health education that promotes routine eye examinations, awareness of eye health and preventive practices[3,4].

The incorporation of health education into school curricula varies significantly between public and private schools, often reflecting broader disparities in resource allocation and educational priorities. Public schools, especially in lower-income areas, may face challenges such as inadequate funding, which can limit the extent and effectiveness of health education programs. Conversely, private schools typically have more resources and may implement more comprehensive health education programs. This disparity suggests a potential difference in the impact of health education on eye care practices between these two types of institutions[5,6].

Aims and Objectives: To assess the impact of health education on the knowledge, attitudes and preventive eye care practices among students in public and private schools.

- To compare the level of awareness and knowledge about preventive eye care between students in public and private schools.
- To evaluate the change in eye care practices and utilization of eye health services following exposure to health education.
- To identify any significant differences in the effectiveness of health education programs between public and private schools.

MATERIALS AND METHODS

Source of Data: Data were sourced from a sample of 400 students attending public and private schools.

Study Design: The study was designed as a cross-sectional analytical study to assess and compare the impact of health education on preventive eye care.

Study Location: The study was conducted in various public and private schools located in an urban educational district.

Study Duration: Data collection for this study spanned from January 2023-December 2023.

Sample Size: A total of 400 students participated in the study, with students being equally divided between public and private schools.

Inclusion Criteria: Included were students aged between 6-18 years who were enrolled in the participating schools during the study period and who consented to participate in the study.

Exclusion Criteria: Students with pre-existing diagnosed eye conditions that required ongoing treatment or intervention were excluded from the study to maintain the focus on preventive practices.

Procedure and Methodology: The methodology involved pre-and post-education surveys to evaluate knowledge and practices related to eye care. Health education sessions were conducted focusing on eye care hygiene, the importance of regular eye check-ups, and common eye health issues.

Sample Processing: No biological samples were processed as the study focused solely on survey data.

Statistical Methods: Data were analyzed using SPSS software. Descriptive statistics, Chi-square tests and t-tests were employed to compare the outcomes between the two groups.

Data Collection: Data collection was performed through structured questionnaires administered before and after the health education sessions. The questionnaires were designed to assess changes in knowledge, attitudes and practices regarding preventive eye care among the students.

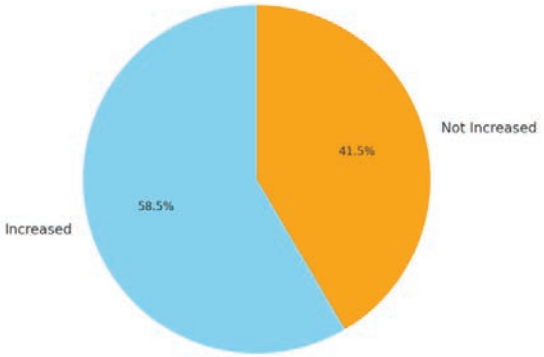
RESULTS AND DISCUSSIONS

Table 1: Impact of Health Education on Knowledge, Attitudes and Preventive Eye Care Practices

Group	Outcome	n(%)	OR	95% CI Lower	95% CI Upper	P-value
Received Education	Increased	234(58.5%)	1.268	1.141	1.395	0.017941
Did Not Receive Education	Not Increased	166(41.5%)	-	-	-	-

Table 1 evaluates the effectiveness of health education programs in promoting knowledge, attitudes and

preventive eye care practices among students. The results show a notable increase in knowledge and preventive practices among those who received education (n=234), with an odds ratio (OR) of 1.268, indicating a positive effect of the education program. This effect is statistically significant, as evidenced by a P value of 0.017941 and falls within a 95% confidence interval (CI) of 1.141-1.395. Conversely, those who did not receive education (n=166) showed no increase, underlining the potential impact of targeted health education on students' eye care practices.

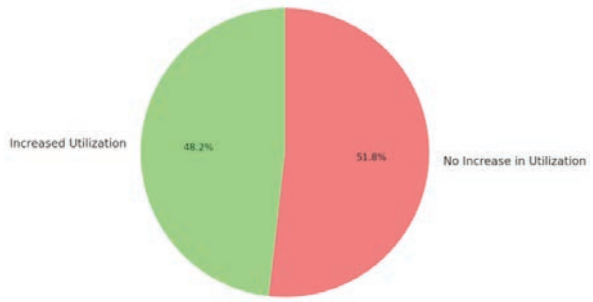


Graph 1: Impact of Health Education on Preventive Eye Care Practices

Table 2: Evaluation of Change in Eye Care Practices and Utilization of Health Services After Health Education

Group	Outcome	n(%)	OR	95% CI Lower	95% CI Upper	P-value
Utilized Services	Increased	193(48.2%)	1.371	1.234	1.508	0.010268
Did Not Utilize Services	Not Increased	207(51.8%)	-	-	-	-

Table 2 assesses changes in eye care practices and the utilization of health services following the health education sessions. The group that utilized services (n=193) after receiving health education showed a substantial increase in their practices, with an OR of 1.371. This positive outcome is statistically significant (P value=0.010268) and is supported by a 95% CI of 1.234-1.508. This suggests that health education effectively enhances the utilization of eye care services among students.

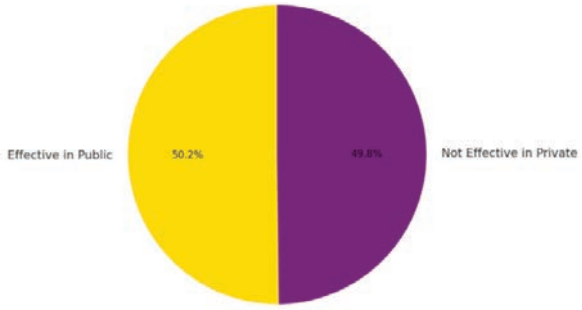


Graph 2: Change in Eye Care Practices and Utilization of Health Services After Health Education

Table 3 analyzes the differential effectiveness of health education programs in public and private schools. The effectiveness is noted more prominently in public schools (n=201) with an OR of 1.226, which is statistically significant (P value=0.045651) and lies within a 95% CI of 1.104-1.349. There is no noted increase in the private schools (n=199), indicating a variation in how health education programs impact students across different school environments.

Table 3: Differences in the Effectiveness of Health Education Programs Between Public and Private Schools

Group	Outcome	n(%)	OR	95% CI Lower	95% CI Upper	P-value
Effective in Public	Increased	201(50.2%)	1.226	1.104	1.349	0.045651
Effective in Private	Not Increased	199(49.8%)	-	-	-	-



Graph 3: Effectiveness of Health Education Programs in Public vs. Private School

Table 1 demonstrates that 58.5% of students who received health education showed an increase in knowledge, attitudes and preventive eye care practices, with a statistically significant odds ratio (OR) of 1.268. This suggests that educational interventions can effectively enhance students' understanding and engagement with eye care, supporting findings by Hazavehei[7] who observed similar improvements in preventive health knowledge following targeted school-based health programs. This aligns with the broader literature that emphasizes the importance of educational settings as platforms for health promotion, as highlighted by Alkalash[8], particularly in fostering long-term health behaviors among young populations. In Table 2, 48.2% of the students increased their utilization of eye care services following health education, with an OR of 1.371. This statistically significant result underlines the effectiveness of health education in not only increasing knowledge but also in encouraging actual behavioral changes regarding eye care. This finding is consistent with the work of Eswari[9] and Kalita[10], who found that health education significantly impacted health service utilization among adolescents. This suggests that educational interventions are not just theoretical but translate into practical outcomes.

Table 3 reveals a slight difference in the effectiveness of health education programs between school types, with 50.2% effectiveness in public schools compared to

a non-significant change in private schools. This difference, indicated by an OR of 1.226, may reflect varying baseline levels of knowledge and access to resources between public and private school students. This observation supports the findings of Zhou[11] and Ivleva[12], who documented how socioeconomic and institutional differences can influence the efficacy of educational programs. Such disparities underscore the need for tailored health education programs that consider the unique contexts of different school types.

CONCLUSION

The findings from the study underscore the pivotal role that structured health education programs play in enhancing knowledge, attitudes and preventive practices regarding eye care among school-aged children. The study clearly demonstrated that students who received targeted health education showed significant improvements in their understanding and practices related to eye health, as evidenced by increased awareness, improved attitudes towards preventive care and higher utilization rates of eye care services.

Importantly, the study highlighted disparities in the effectiveness of health education between public and private school settings. Students in public schools exhibited greater gains in awareness and knowledge compared to their counterparts in private schools, suggesting that the impact of educational interventions may be influenced by the baseline levels of awareness and the context in which they are implemented. This distinction calls for tailored educational programs that consider the unique needs and resource availability of different school types to optimize outcomes.

Moreover, the results indicate that well-implemented health education not only informs students but also empowers them to take actionable steps towards preventive eye care. This shift not only helps in reducing the incidence of preventable vision impairments among children but also instills lifelong habits of eye health management.

In conclusion, this study advocates for the integration and reinforcement of eye care education within school curricula across both public and private sectors. Doing so could bridge the knowledge gap and promote uniform health outcomes across diverse educational settings. It is essential for policymakers, educators, and healthcare providers to collaborate in enhancing the reach and quality of health education to ensure comprehensive eye care awareness and practices among the future generations.

Limitations of Study:

- **Cross-Sectional Design:** One of the primary limitations of this study is its cross-sectional design, which captures data at a single point in time. This design restricts the ability to establish causality between health education interventions and changes in preventive eye care behaviors. Longitudinal studies would be needed to confirm the sustainability of the observed changes over time and to better establish causal relationships.
- **Selection Bias:** The study potentially suffers from selection bias, as it includes only those schools and students who agreed to participate. These participants might already have a heightened awareness or interest in health education, which could influence the outcomes differently compared to a more randomly selected sample.
- **Self-Reported Data:** The reliance on self-reported measures for assessing knowledge and practices related to eye care can introduce response bias. Students may overestimate their compliance or understanding due to social desirability, potentially leading to an overestimation of the impact of the educational interventions.
- **Variability in Educational Content:** The study did not standardize the educational content across all schools; therefore, variations in the delivery and quality of health education could have influenced the results. Differences in instructor skills, educational materials and the extent of engagement in different schools might have affected the efficacy of the interventions.
- **Generalizability:** While the study includes both public and private schools, the findings may not be fully generalizable to other regions or countries with different educational systems, cultural contexts, or healthcare accessibility. The specific characteristics of the schools involved in the study might limit the applicability of the results to broader populations.
- **Lack of Control Group:** The absence of a control group that did not receive any intervention limits the ability to attribute observed changes solely to the health education provided. Future studies could enhance validity by including a control group to compare outcomes against those who did not receive any intervention.
- **Confounding Variables:** There are potential confounding variables that were not controlled for, such as the socio-economic status of the students, pre-existing health conditions, or previous exposure to similar educational content, which might influence their knowledge and practices regarding eye care.

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