

Knowledge and Awareness Regarding Strabismus and Amblyopia among School Nurses and Primary School Teachers of Government Schools at Bharatpur, Chitwan, Nepal

Manisha Shrestha¹

¹Pediatric Ophthalmologist, Bharatpur Eye Hospital, Bharatpur, Chitwan, Nepal.

ABSTRACT

Introduction

Strabismus/squint is an ocular misalignment in which the eyes are not properly aligned with each other. Amblyopia is a serious visual impairment resulting from abnormal visual stimulation during early childhood. It can be easily prevented or treated if detected early. This study aimed to assess the knowledge and attitude of school nurses and primary school teachers of Government schools toward children suffering from strabismus and amblyopia.

Methods

This was a cross-sectional study among the participating school nurses and primary school teachers of Government school which was organized to raise awareness regarding strabismus and amblyopia among them. It was conducted using a questionnaire which contained 22 items divided into three sections. First section consisted of demographic parameters, second regarding knowledge of strabismus and the third the knowledge of Amblyopia. Data were analyzed using Epi info version 7.02 (Centers for Disease Control, Atlanta, Georgia, United States). P-values of <0.05 was used for clinical significance.

Results

There were 67 participants and the mean age was 32.67 ± 7.71 years, range 21 to 55 years, the majority being female 66 (98.51%). Training on eye health was received by 13 (19.40%). Forty-four (65.67%) participants had knowledge of strabismus and amblyopia, out of them 30 were school nurses. The majority of school nurses 23 (76.67%) and primary teachers 13 (92.86%) had good knowledge scores (6 to 10).

Conclusions

The majority of participants had good knowledge about strabismus and amblyopia. As the school nurses and primary school teachers are the first link to the children at risk, improving their awareness level on strabismus and amblyopia will help in early referral, timely intervention and prevent the risk of vision loss.

Keywords: amblyopia; strabismus; knowledge; awareness; parents; primary teachers; school nurses.

Correspondence: Dr. Manisha Shrestha, Bharatpur Eye Hospital, Bharatpur, Chitwan, Nepal. Email: maneeshasht9845@gmail.com, Phone: +977-9845023273.

INTRODUCTION

Amblyopia is defined as a disorder of visual system characterized by a reduction in the best-corrected visual acuity with no organic pathology.¹In a study done in Kathmandu (2017), the prevalence of amblyopia and strabismus was 1.3% and 1.7% respectively.²Another study done in Nepal (2011) reported the prevalence of amblyopia and strabismus as 0.43% each.³ Amblyopia was found in 440 (0.7 %) of 62,633 children examined in Nepal Eye Hospital.⁴ Fu Z et al. estimated that the number of people with amblyopia worldwide would increase to 175.2 million in 2030 and 221.9 million in 2040.⁵ The goal in the treatment of strabismus is to realign the visual axes to eliminate diplopia, produce or restore binocular vision, improve the visual field, and/or provide a normal appearance.⁶ Our study attempted to study the knowledge and awareness regarding strabismus and amblyopia among school nurses and primary school teachers of government schools in Chitwan district.

METHODS

This was a quantitative, cross-sectional, descriptive study using self-administered questionnaires in Google form to assess the knowledge level of School nurses and primary school teachers of Chitwan district. A talk program was held in the month of June 2023 to explain about Strabismus and Amblyopia and the role of school nurses and primary school teachers in the early detection and referral of at-risk babies so as to prevent the number of blind years ahead of them. A semi-structured questionnaire was developed after a review of the literature by the authors in collaboration with two consultant ophthalmologists and underwent face and content validity.⁶⁻¹⁵ Only co-authors had access to all parents' replies, ensuring complete confidentiality and anonymity when gathering data and avoiding identifying information, including parents'

names. The link of the questionnaire was sent to the participants' email address. The answer choices were listed, and participants were asked to tick the answer boxes for each question in the form. Data was collected online using Google Form. The questionnaire contained 22 items divided into three sections. Questions in the first section collected name of the school they were working and personal details like their age, gender, educational qualification, years of experience, and if they had received any training in Primary Eye Care. The second section collected information about the participants' knowledge regarding their perception on strabismus, its diagnosis and treatment. The third section collected information about their perception about amblyopia, its diagnosis and treatment. A pilot study was done before starting the data collection to assess the accuracy of the survey questions among 10 ophthalmic assistants of our hospital. Also, data cleanup, checking for data completeness, outliers, and missing values, and supervision were carried out.

The knowledge questions' answers were scored as follows; score "1" was given to the correct answer, and "0" score was given to incorrect answers. The maximum score possible was 13. Participants with a total knowledge score of 0–5 were categorized as "poor" knowledge, that of 6-10 as "good" knowledge, and >10 as "very good" knowledge. Consent for this study was obtained verbally after explaining respondents about the study. The understanding was that anyone who accepted to fill the questionnaires had by that action given consent. The research proposal was submitted to the Institutional Review Committee (IRC) Nepal Netra Jyoti Sangh (NNJS) for approval of the survey. All participants (school nurses and primary school teachers) attending the CME who agreed to fill out the questionnaire were included in this study and those who did not give consent to participate in this study were excluded. The data obtained in the study questionnaire was

entered into Microsoft Excel sheet. Collected data was presented in the form of frequency and percentage. Knowledge score was created by assigning a score of "1" for correct answers and a score of "0" for wrong, missing, or "Don't know" responses. The total score was computed by summation of scores with a maximum score of 13, based on the number of correct answers in the KAP questions of the questionnaire. The data generated was managed with Microsoft Excel 2016 and Epi info version 7.02. Frequency, statistical summary, and cross-tabulations were used for the descriptive analysis of the entered data. Chi-square was used to determine associations and Students' t- test was used to compare two means. A p-value of <0.05 was taken as significant. Confidentiality of the information obtained was assured and maintained anonymous. The questionnaire was self-administered, making it liable for a biased reporting by the participants. Most of the data collected relied on the population memory which may have led to reporting bias. Furthermore, as there were multiple-choice questions in the questionnaire, there was the possibility that the correct answer would be chosen by chance.

RESULTS

Bharatpur Eye Hospital organized a CME programme to raise the awareness about strabismus and amblyopia among school nurses and primary school teachers of Chitwan district. There were 34 schools in Chitwan with school nurses, and we also invited one primary school teacher from each school, so the anticipated number of participants was 68. Among them 67 were present in the CME, the attendance percentage being 98.53%. The mean age of the participants was 32.67 (sd \pm 7.71) years, range 21 to 55 years, the majority being female 98.51% (n=66). The majority of the participants, 47.76% (n= 32) had educational qualification of bachelor's level. The profession of the participants was school nurse 34 (50%) and primary teachers 33 (49.23%).

The majority had professional experience of 1 to 5 years, 38.31% (n=26). Training on eye health was received by only 19.40% (n=13) (Table 1).

Table 1. Demographic profile of the participants.

Variables	Frequency (%)
Gender	
Male	1 (1.49%)
Female	66 (98.51%)
Age (in years)	
20-30	38 (56.72%)
31-40	19 (28.36%)
41-50	8 (11.94%)
51-60	2 (2.99%)
Educational Qualification	
Secondary	8 (11.94%)
Higher Secondary	23 (34.33%)
Bachelor	32 (47.76%)
Master	4 (5.97%)
Profession	
School nurse	34 (50%)
Primary teacher	33 (49.25%)
Less than 1 year	15 (22.39%)
Years of experience	
1 to 5 years	26 (38.81%)
5 to 10 years	8 (11.94%)
>10 years	18 (26.87%)
Training on eye health	
Yes	13 (19.40%)
Knowledge about strabismus and amblyopia	
Yes	44 (65.67%)
Source of information	
Books	24 (54.55%)
Awareness Campaign	3 (6.82%)
Eye doctor	8 (18.18%)
Personal experience	2 (4.55%)
Social media	7 (15.91%)
Barriers to treatment	
High cost of treatment	7 (15.91%)
Fear of surgery	5 (11.36%)
Do not think it is a problem	27 (61.36%)
Don't know about service centers	5 (11.36%)

Out of 67 participants, 44 (65.67%) had knowledge of strabismus and amblyopia, out of them 30 (44.78%) were school nurses. Twenty-four (54.55%) had received the knowledge of strabismus and amblyopia from books. Majority

of the school nurses 76.67% (n=23) and primary teachers 92.86% (n=13) had good knowledge scores (6 to 10). The barrier to treatment, as thought by 61.36% (n=27) was that the parents do not think it as problem thus not taking their child for treatment. Comparing the knowledge score with profession was statistically significant. The knowledge score when compared with years of experience was not statistically significant (Table 2).

Table 2. Comparing the knowledge score category with the profession and educational qualification.

Variables	Knowledge score category		
	1-5	5-10	>10
Profession			
School nurse	1 (3.33%)	23 (76.67%)	6 (20%)
Primary teacher	-	13 (92.86%)	1 (7.14%)
Educational qualification			
Secondary	-	3 (100%)	-
Higher secondary	1 (6.25%)	14 (87.50%)	1 (6.2%)
Bachelor	-	17 (77.27%)	5 (22.7%)
Masters	-	2 (66.67%)	1 (33.3%)
Years of experience			
Less than 1 year	-	12 (92.31%)	1 (7.69%)
1 to 5 years	1 (5%)	16 (80%)	3 (15%)
6 to 10 years	-	1 (50%)	1 (50%)
>10 years	-	7 (77.78%)	2 (22.2%)
Chi square= 7.34 (p value=0.29)			

DISCUSSION

Amblyopia is a condition that permanently affects the vision of children if not treated early, it could later impact their health and quality of life. Hence early detection and treatment of amblyopia is important for better visual outcome.⁸ Amblyopia hampers the mental and social growth of a child, including skill development, school performance, confidence development, and career opportunities.¹³ The study aimed to assess the knowledge and awareness regarding amblyopia among school nurses and primary school teachers in Chitwan. Prompt diagnosis and meticulous management of amblyopia can have a better visual prognosis

in the child's growing years.¹³ The majority of the previous studies have surveyed parents and the general population.^{6,7,9,10,11,12,14,15} However, we assessed the knowledge and awareness among the school nurses and primary school teachers of Government Schools of Chitwan, which makes this study different as it considers the point of view of the school professionals, where the children spend most part of their day, which would impact the assessment and management strategies adopted. This study was performed on the school nurses and primary school teachers of Chitwan district. Nurses from all government schools having nurses, (n=34) and one primary level teachers from the same school were invited for the study. One primary school teacher was absent hence the attendance percentage was 98.53%. The majority of the school nurses 23 (76.67%) and primary teachers 13 (92.86%) had good knowledge scores (6 to 10). Knowledge about pediatric eye diseases was poor among parents, and it was significantly affected by the education and occupation of parents.⁶ Some parents, especially from the lower educated segment, had a poor understanding of strabismus, thus resulting in late presentation and ineffective countermeasures. The key to prevent strabismic amblyopia and its psychosocial impacts is to provide health education regarding strabismus.⁷ In a study done by Basheikh A et al, in Jeddah, Saudi Arabia the knowledge and awareness levels among parents and companions were assessed and showed a low-level knowledge, with only 25.9% of the participants having adequate knowledge based on their amblyopia knowledge scoring system, and 20% self-declaring adequate knowledge.⁹ In a study conducted Alshaheen AY et al. showed the percentage of knowledge was equivalent to 40%, which means that Alhasa's population had a low to moderate awareness level about amblyopia.¹¹ In the current study, the main sources of knowledge were books, which is not consistent with the study by Basheikh A et al., where it was physicians

and the internet.⁹ Social media and personal experiences with eye diseases represented the main sources of knowledge about amblyopia in a study conducted in Alhassa Region of Saudi Arabia by Alshaheen AY et al.¹¹ In a study done by Alobaisi S et al, in Saudi Arabia, the main source of patients' knowledge was doctors or healthcare workers, friends and family members, and finally search engines.¹² In another study done by Assaye AK et al in Ethiopia, the most frequently mentioned source of information was from families/relatives, 42% (232), followed by radio/television, 37.4% (207), and the least one was from Internet, 15.65% (86).¹⁴ The findings can serve as preliminary data to identify knowledge gaps that can help primary school teachers and school nurses to assess and detect at-risk children and shall help in referring these children to the pediatric ophthalmologist and the Eye hospital. In this study, the most common obstacle for delaying doctor consultation for strabismus is that parents do not care about their child's crossed eyes, the high cost of treatment, followed by fear of surgery, and do not know about the service centers, which was consistent with the study done by Alobaisi S et al, in Saudi Arabia.¹² Social media is a useful resource that can be utilized for this purpose along with the physician's role in educating parents about the guidelines of vision screening in children. Nowadays, social media is considered a primary and dominant source that contributes to the enrichment of peoples' information. This is considered a good opportunity that can be used to increase awareness about this condition. Educational videos and articles can be posted on popular social media platforms through which information can reach a large segment of the population. Another method to increase awareness can be through organizing campaigns targeting public places such as schools, malls, hospitals, and universities. The results of our study will help eye care professionals in planning awareness programs among school teachers and

nurses, especially for amblyopia, strabismus and its harmful effects. So, it is crucial to educate the population on the importance of early detection of strabismus through campaigns and periodic screening in schools to reduce the prevalence of strabismus and improve children's quality of life. Not only does strabismus cause functional visual defects, but also psychosocial problems for the parent and child.

CONCLUSIONS

Early detection and treatment of amblyopia can improve the chances of a successful visual outcome. No statistical relationship was detected between the amblyopia level of knowledge and participants' demographic data. Strategies for screening programs are highly needed. Amblyopia is an easily treatable condition in children if the school nurses and the primary school teachers are aware and knowledgeable about the significance of early diagnosis and management. A planned educational program is needed to increase the level of knowledge among the studied population. Social media is a useful resource that can be utilized to achieve such a goal. The educational level of the population needs to be taken into consideration when the program is planned. Awareness programs incorporated into school vision-screening programs and popularized through media infotainment programs may lead to better eye care seeking in the community.

Limitations

The main limitation of our study was that the information was gathered in the CPD with limited options put forward to all respondents which may not reflect factual data at times. This was done because the subjective response by every respondent would have been difficult to interpret; therefore, we included a few choices to simplify the questionnaire. Another limitation is that the sample size of our study. In addition, multiple-choice questions have fixed

selected responses that may fail to reflect clinical practice. Nevertheless, this is the only cross-sectional study that has attempted to assess the knowledge of primary school teachers and school nurses of Chitwan. The questionnaire was self-administered, making it liable for biased reporting by the participants. Most of the data collected relied on the population memory which may also lead to reporting bias. Furthermore, as there were multiple-choice questions in the questionnaire, there is a possibility that the correct answer was chosen

by chance. As with other questionnaire-based studies, the participants might misinterpret some questions.

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