




Evaluation of Teachers' Self-efficacy on Integration of Eye Health Education and Promotion at Basic Schools in Solukhumbu District, Nepal: A Cross-sectional Study

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ABSTRACT

Introduction: Many studies have shown that eye health services in Nepal are still far behind in reaching schools. Therefore, the aim of this study is to examine the teacher's self-efficacy for the incorporation of eye health promotion activities.

Materials and methods: A cross-sectional study design was applied with a self-administrated questionnaire. A total of 292 teachers were randomly selected for this study.

Results: Male (153.38) older-aged and Dalit ethnic group (159.81) teachers, as well as teachers who had participated (146.85) in the program, had higher self-efficacy to conduct school eye health-promoting activities than non-participants in schools. But, teaching experience is not determined to get self-efficacy for testing of visual acuity. Teachers with higher qualifications are found to be skillful.

Conclusion: The school's eye health program has not been superseded by any relevant legislation. As a result, it's critical to concentrate on provisions that may be included in the school curriculum.

Key words: Eye health, Self-efficacy, Teachers, Visual assessment.

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INTRODUCTION

In the basic level school, the eye screening program is one of the fundamental principles of primary health care (*A Vision for Primary Health Care in the 21st Century: Towards Universal Health Coverage and the Sustainable Development Goals*, 2018). Interventions of eye health promotion significantly help to improve eye health (Paudel *et al.*, 2019a) by correcting under-or uncorrected refractive errors, and vision impairment, and reducing eye health problems in school children (Yasmin, Saifullah, and Minto, 2017). Students' eye health can be promoted through integrated school health programs (Sherpa *et al.*, 2020). The teacher plays a significant role in the eye health care of the students (Dev *et al.*, 2014).

Due to a lack of access to eye care services, globally, nearly 1.1 billion people are living blind (Bourne *et al.*, 2020) and 91 million children suffer from vision loss (Burton *et al.*, 2021). There is a lack of inclusion of eye health in education in South Asian countries (Khanna and Murthy, 2017). Which associates to increase visual impairment, inhibit cognitive abilities, and a significant cause of ocular morbidity and poor educational performance of school children (Sapkota, 2012). In the Nepalese context, primary eye care is inadequate (Burn *et al.*, 2020) and total vision loss is also common (Lindfield *et al.*, 2012). Only 13% knew about outreach activities such as eye camps, school screening, community awareness, and other eye care training programs (Mishra *et al.*, 2019). The

common eye diseases in school-going children are Strabismus, Amblyopia, Developmental cataracts, congenital retinal dystrophies, Nystagmus, Ocular allergies, Vitamin A deficiencies, Trauma-related problems, and low vision (Vijayalakshmi and Ravilla, 2017). Solukhumbu's school-going children reported the most refractive error (3.5%) (Sherpa *et al.*, 2020).

According to the evidence presented above, teachers' roles in promoting students' eye health in Nepal are undervalued and scarce. Clinical research is common in Nepal, but few studies focus on eye health education and promotion in schools or teachers' self-efficacy. This study aims to examine teachers' self-efficacy to integrate eye health education and promotion activities at basic-level schools in Solukhumbu District, Nepal.

MATERIALS AND METHODS

Research design

A cross-sectional study was conducted in Nepal at basic-level schools in Solukhumbu and adjacent districts. Data collection was carried out between September 2 and November 2, 2020.

Sampling technique

Our respondents were health education and science teachers with training in promoting eye health education activities. The study selected 292 basic-level school teachers

through a purposive com convenient sampling technique. The common and simplified formula of a famous statistician Yamane's sample size determination was applied to determine the sample size (Israel, 1992). Most of the school teachers have been oriented on testing visual acuity and promotion of eye health activities mainly during eye screening camps/ school screening programs and other health education activities that have been carried out by the various health institutions and NGOs in the area (Singh, Thakur, and Anwar, 2018).

Research tool

The self-administered structured questionnaire (SAQ) used in the study was based on the self-efficacy construct of social cognitive theory (Glanz, Rimer, and Viswanath, 2008). The SAQ was divided into two sections. The first was concerned with demographics. The self-efficacy and confidence of school teachers in vision screening were addressed by eleven self-reported items in the second section. To evaluate teachers' self-efficacy, each item used a 0-point scale.

Reliability of the tool

Before the survey, the questionnaire was pre-tested with 30 teachers from various schools. Cronbach's alpha was then calculated and found to be (0.933), indicating high reliability. It was also modified in response to feedback.

Ethical considerations

The current study was approved by Nepal Health Research Council (NHRC) (Ref. no. 565). The ethical guidelines for research as guided by The NHRC's recommendations were followed. Consent and permission were sought from the education development and coordination unit (EDCU) of Solukhumbu and adjacent districts. Informed consent was obtained from the school principal and study participants. Voluntary participation was sought in this study.

Data collection and analysis

The SAQ was used to collect data following protective measures for the COVID-19 pandemic. The teachers were asked to fill out the questionnaire by going to the selected schools and meeting the teachers directly. The researcher sat with them and facilitated their filling out the questionnaire. All the selected teachers in a school were collected together. The statistical analysis was performed by SPSS V.20. Descriptive and inferential statistics were employed to analyze the data. A non-parametric test (Mann-Whitney U test) was used to determine whether teachers were significantly different in their mean ranks across their genders, exposure to school eye health programs, age, ethnicity, teaching experience, and qualification level. The Kruskal-Wallis test was used to determine if there were significant differences in teachers' mean ranks.

RESULTS

Demographic characteristics of the teachers

Demographic characteristics included age, gender, ethnicity, teaching experience, and exposure to eye health programs at schools. It was found that there were more male teachers (55.48%), more teachers under 39 years of age (more than 60%), and a majority of Brahmin/Kshetri teachers (46.92%), approximately. Half of them (49.66%) had less than ten years of teaching experience. In addition, most school teachers followed Grade 12 (38.01%) and graduation (31.16%) as their qualifications. Only one-fourth (39.73%) of the teachers were adequately trained (Table 1).

Basic-level teachers' self-efficacy for the integration of eye health education and promotion activities.

A teacher's self-efficacy was asked 0-10 scale and they responded to the number of their self-confidence in eye health activities (Table 2).

A higher proportion of teacher self-efficacy was found among male teachers (=153.38), the 30-39-year age group (153.50), Dalit and other categories (159.81), and teachers with 11–20 years of experience (149.66). But there was no statistically significant difference across gender, as the P value (=0.120), age (0.66), and years of experience (0.66) of teachers were significantly

Table 1: Demographic characteristics of the teachers.

Demographic Characteristics		Numbers	Percent
Gender of teachers	Male	162	55.48
	Female	130	44.52
Age-groups (Years)	18-29	88	30.14
	30-39	88	30.14
	40-49	73	25.00
	50-59	43	14.73
Ethnicity of teachers	Brahmin/Kshetri	137	46.92
	Janajati	134	45.89
	Dalit and others	21	7.19
Teaching experiences	<10 years	145	49.66
	11-20	73	25.00
	>20 years	74	25.34
Level of qualifications	Grade 10	52	17.81
	Grade 12	111	38.01
	Bachelor	91	31.16
	Master and above	38	13.01
School eye health program	Exposure	116	39.73
	Non-exposure	176	60.27

Table 2: Self-efficacy to do school eye health education and promotional activities across the demographic characteristics of teachers.

Demographic Characteristics		Mean Ranks	Degree of Freedom	Asymp Sig. (2-tailed)	Inferential Statistics
Gender	Male	153.38	1	0.120	Mann Whitney U Test
	Female	137.93			
Age group (Years)	18-29	148.91	3	0.655	Kruskal Wallis H Test
	30-39	153.50			
	40-49	137.33			
	50-59	142.81			
Ethnicity	Brahmin/Kshetri	157.81	2	0.039	Kruskal Wallis H Test
	Janajati	132.85			
	Dalit and others	159.81			
Teaching experiences	<10 years	148.80	2	0.666	Kruskal Wallis H Test
	11-20	149.66			
	>20 years	138.88			
Level of qualification	Grade 10	124.59	3	0.014	Kruskal Wallis H Test
	Grade 12	142.16			
	Bachelor	149.49			
	Master and above	181.99			
Program	Exposure	146.85	1	0.954	Mann Whitney U Test
	No exposure	146.27			

higher than the level of significance ($= 0.05$). There was a statistically significant difference between castes ($P = 0.039$). Based on a teacher's qualification, self-efficacy for the promotion of eye health at school was higher among masters and above (mean rank = 181.99) than below bachelor level (mean ranks = 149.49, 142.16, 124.59) at bachelor level, grade twelve, and grade ten. This was statistically significant, with a P value (0.014) less than the level of significance ($= 0.05$). When comparing the program exposure and non-exposure of teachers based on mean ranks, the proportion of teachers'

self-efficacy to do eye-health promotional activities in school was higher among those from school eye health programs (146.85) than those without (146.27). However, this was not highly significant, as P (0.954) was significantly greater than the level of significance ($= 0.05$).

DISCUSSION

This study found that male teachers were comparatively more competent than females for conducting eye health education for the students. Similarly, adult teachers aged between 30-39

years were more capable than other age groups. The study concludes that teaching experience and training exposure were not significant capabilities to conduct eye health activities in the school. Agrawal *et al.*, (2018) showed that a teacher's confidence in eye health education and promotional activities was low in different socio-demographic characteristics. This study shows the qualification-wise differences proved that most masters and the above-level teachers were more competent than other qualification-level teachers (Fry, Ketteridge, and Marshall, 2009). A similar conclusion was found in another study conducted in Ethiopia that the knowledge and attitude of primary teachers were low which needs training teachers about refractive error (Alemayehu, Belete, and Adimassu, 2018). Teachers' gender and kind of school were also found to be important predictors of their practices in this study (Habiba *et al.*, 2017). A program evaluation survey conducted in Taiwanese schools showed that strengthening teachers' capabilities to implement a vision health program was given significant awareness to manage spread activities for school vision health interventions and to assist teachers with actualizing research into their school vision health promotional activities (Chang *et al.*, 2017). A study concluded that providing school-based eye-care interventions is challenging and reliant on economical, sociocultural,

geographical, and policy-based factors. School-based eye-care intervention can diminish the eye problems and delays caused by childhood visual impairment. Teachers and nurses are well placed to provide school vision screenings, particularly where there is a lack of eye-care specialists (Burnett *et al.*, 2018).

Knowledge sharing, knowledge giving, and receiving behaviors were found to be the best predictor of self-efficacy (Ergun and Avci, 2018). So, eye health promotion interventions considerably increase school children's eye health knowledge, attitudes, and practices (Paudel *et al.*, 2019b). This study found that the majority of school teachers are concerned about eye health awareness activities around the identification and treatment of eye problems such as uncorrected refractive errors.

CONCLUSION

This study concludes that the level of qualification of teachers increases the teacher's self-efficacy to conduct eye health promotion activities. This study indicates that teachers' self-efficacy is determined by demographic variables such as age, gender, qualification, experience, and program exposure.

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