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Knowledge and Attitude on Refractive Errors among Students of a School in Dharan

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Abstract

Refractive error is a common eye disorder among school-age children and is the second leading cause of treatable blindness. Globally, more than two billion people are estimated to be visually impaired. Of these, twelve million children are visually impaired due to refractive errors. A lack of knowledge and an unfavorable attitude toward refractive error can lead to long-term consequences for children's well-being and academic performance. This study aimed to assess the knowledge and attitudes on refractive error among secondary-level students. A cross-sectional analytical study was conducted among 280 students of Dharan Adarsha Boarding Secondary School, Dharan. A non-probability purposive sampling method was used, and data were collected through a self-administered structured questionnaire. The data were analyzed using SPSS version 16.0. Descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics (Chi-square test) were used for data analysis. The study revealed that 55.7% of respondents had a moderately adequate level of knowledge about refractive errors, while 53.2% exhibited a negative attitude toward refractive errors and their corrective measures. Statistically significant associations were found between knowledge levels and variables such as sex and family income per month. Similarly, significant associations were found between attitude levels and variables including age, grade, sex, and previous eye examination.

The study concluded that nearly one-third of the students lacked adequate knowledge about refractive errors, and the majority exhibited negative attitudes towards it. This shows the need for school-based eye health awareness programs to improve knowledge, reduce stigma, and encourage early detection and treatment of refractive errors.

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Introduction

Refractive Errors (RE) are defects in the eye in which refracted rays do not converge on the retina due to an abnormal shape or length of the eye, resulting in blurry vision. RE can be classified as myopia, hypermetropia, and astigmatism, and is the major cause of visual impairment and blindness (Assefa et al., 2021). Globally, 2.2 billion people are estimated to be visually impaired. Among them, 1 billion cases could have been prevented or remain unaddressed. About 90% of the world's visually impaired live in low-income settings like Nepal, and 19 million children are visually impaired. Of these, 12 million children are visually impaired due to refractive errors, which could be easily diagnosed and corrected. About 1.4 million are irreversibly blind and require rehabilitation to support their full psychological and personal development (World Health Organization [WHO], 2023).

According to a study by Assefa et al., (2021), among 390 public high school students in Ethiopia, the findings showed that 53.8% had good knowledge of refractive errors, and 52.1% had a positive attitude. However, 38.7% were unaware of refractive errors, 64.1% did not know the symptoms, and 41.7% were unaware of risk factors. About 40% believed uncorrected refractive errors impact academic performance, while 40.8% thought glasses could cause dependency or harm the eyes.

In recognition of the public health significance of uncorrected refractive error, the global initiative, Vision 2020: The Right to Sight, initiative established by the World Health Organization and other organizations involved in a wide range of eye and community-based on healthcare activities. This global initiative aimed at the elimination of preventable blindness and visual impairment, which are listed as one of the five priority eye diseases (Yilmaz et al., 2019). Nearly 80% of preschool-age children never got an eye examination in Nepal because of some social contextual barriers, including parental ignorance, illiteracy, inconvenience, language barriers, and lack of skilled service providers (Shyangbo & Kaiti, 2020).

Similarly, a study conducted by Thariq et al., (2022) in Sri Lanka, among 120 students of grade 9 students from two schools. The findings revealed that the overall prevalence of refractive errors was 28.3% while 18.3% of students had uncorrected refractive errors. Additionally, 94.2% of the participants were found to have poor knowledge on refractive errors. Refractive error is believed to hurt children's academic achievement and overall quality of life. Secondary-level students are at a crucial stage of their educational journey, where a clear vision is essential for effective learning. Various studies have alarming that RE is a greater Public Health problem, so further study seeks to assess the knowledge and attitude of secondary-level students towards refractive errors and their potential impact on their academic performance and well-being.

Methods and Materials

A cross-sectional analytical design was used to assess the knowledge and attitudes on refractive error among secondary-level students. A cross-sectional analytical design helps to gather information at a single point in time, provides a snapshot of knowledge and attitude on refractive errors, association, or relationship between variables within a specific time, is cost-effective, and less time-consuming. This study was conducted at Dharan Adarsha Boarding Secondary School (DABSS) in Dharan Sub-metropolitan City-1, Nepal. DABSS was established in 2025 B.S. The school offers educational programs from Nursery to Grade 12. The school serves a diverse student population, with an enrollment of approximately 1600 students from various socio-economic backgrounds. The study population was all the students of classes 11 and 12 of DABSS. The total number of students from classes 11-12 was 280. Class Eleven= 130, Class Twelve=150.

Sample size calculation: Cochran's formula was used for sample size calculation, i.e., Sample size (n) = $z^2 p q/d^2$ (Cochran, 1977). Where, Z= standard deviation at 95% confidence level, i.e., 1.96, P= 63% [A study to assess the knowledge on refractive errors among school children] (Minolin et al., 2022);

P=100%-63%, =37%

(q)=1-p = 1-0.37 = 0.63

d = allowable error 6%, = 0.06

Now,

Sample size (n) = n = $z^2 p q/d^2$

$= (1.96)^2 \times 0.37 \times 0.63/ (0.06)^2$

= 248.74 = 249

Assuming 10% as non-respondent, i.e., 10% of 249= 25, thus the desired sample size (249+ 25= 274). Although the calculated sample size is 274**.** As the total population of class 11 and 12 students exceeds the sample size, therefore, all the students were included by the census method, i.e., 280. The non-probability purposive sampling technique was used to select the research site, and the students of classes 11 and 12 aligned with the research objectives. Finally, all students meeting the criteria were included by using the census method to provide comprehensive data. Students who were present on the day of data collection. Students who were willing to participate in the study. A structured, self-administered questionnaire was developed based on the study's objectives, incorporating insights from an extensive literature review, input from subject-matter experts, and collaboration with relevant research advisers and peers to collect the data. The questionnaire was based on the objectives of the study and the curriculum of the Science of DABSS School. Questions were constructed using simple and understandable words. The questionnaire was initially prepared in English,

translated into Nepali (local language) by language experts for data collection, and re-translated into English to check the consistency in the meaning of words and concepts.

The research questionnaire consists of three parts: Part I consists of items related to sociodemographic information, including age, sex, ethnicity, religion, grade, family income, family history, previous eye examination, and sources of information. It comprised a total of 9 questions. Part II consists of a questionnaire related to assessing knowledge on refractive errors and their Risk Factors, Symptoms, and Corrective measures. It comprised a total of 11 questions, categorized as follows: Multiple-choice questions: 6, Multiple-response questions: 5. For multiple-choice questions, a score of **1** is allocated for each correct response, and 0 for an incorrect response. For multiple-response questions, each option is considered as an individual question, with a score of **1** assigned to each correct response. Part III consists of a questionnaire related to attitudes on refractive error among students. It consists of a four-point Likert scale with 14 items, having 7 positive statements and 7 negative statements, where scoring was done as "Strongly Agree=4" to "Strongly Disagree=1" for positive statements and in reverse for negative statements. Content validity of the tool was achieved by reviewing extensive literature, opinions of subject-matter experts, and collaboration with relevant research advisers and peers, and 1 Ophthalmologist.

Pre-testing of the instrument was done in 10% of the total sample size, i.e., 25 respondents in similar other situations, before the actual data collection period to check out the clarity, sequence, and feasibility of the instrument. It was conducted in Arniko Higher Secondary School, Biratnagar. Administrative approval was taken from the Research Management Committee (RMC) of Biratnagar Nursing Campus, Biratnagar. After getting approval from the RMC, the official approval letter was submitted to the administration of the DABSS for data collection. After getting permission from the concerned authority, data collection was proceeded. Informed consent was obtained from each respondent, which was distributed before data collection. Respondents' autonomy was respected throughout the research period. The confidentiality of respondents was maintained by coding the data. The Obtained Information was used for research purposes only. The respondents participated voluntarily and could discontinue at any point during the data collection period. Self-introduction and objectives of the study were clearly explained, and informed consent was obtained from each respondent before data collection. Data was gathered using a self-administered structured and semi-structured questionnaire. The researcher herself was involved in the data collection process. Confidentiality was maintained by instructing respondents not to mention their names in the questionnaire. Approximately, it took around 20-25 minutes to collect data from each class. The respondents were not forced by any means to participate in the study. They were given the freedom to withdraw from the study without any fear or clarification at any time during the study. Data was collected in 2081/09/16. After the data collection, the data was checked and reviewed for accuracy and completeness. All the collected data were categorized and kept in order for editing and coding. Data processing was done using the Statistical Package for Social Science (SPSS) version

16.0 software. Descriptive statistics such as mean, median, percentage, frequency, and standard deviation were used to describe socio-demographic variables. Inferential Statistics (Chi-Square) was used to find out the association between the socio-demographic data and the level of knowledge and attitude on refractive errors. Findings were interpreted systematically on the basis of objectives and were presented in relevant academic tables.

Result and Discussion

Table 1 presents the data relating to the socio-demographic characteristics of the respondents. Among 280 respondents, the majority (59.3%) belonged to the 15- 17 age group with a median age of 17 (IQR=18-17) years. Likewise, more than half (55%) of the respondents were male. Similarly, more than half (53.6%) of the respondents were students in grade 12. Regarding the ethnic group, nearly two-thirds (61.8%) belonged to the Janajati ethnic group. Likewise, two-thirds (66.8%) of the respondents followed the Hindu religion. Meanwhile, more than half (51.1%) of the respondents had a family income of 46,000-90,000. Similarly, more than one-third (37.5%) stated that their parents wore spectacles. Notably, nearly three-fourths (74.3%) of the respondents had undergone an eye test. Two-thirds (63.9%) of respondents reported books were the primary source of information.

Table 1:

Socio-Demographic Characteristics of Respondents

N=280

Variables	Frequency (f)	Percentage (%)
Age (in completed years)		
15-17	166	59.3
18-20	114	40.7
Median (IQR) =17 (18-17)		
Grade		
Class 11	130	46.4
Class 12	150	53.6
Sex		
Male	154	55
Female	126	45
Ethnic Group		
Dalit	22	7.9
Janajati	173	61.8
Madhesi	12	4.3
Muslim	7	2.5
Brahmin/Chhetri	66	23.6
Religion		
Hinduism	187	66.8

Kirati	45	16.1
Buddhism	28	10
Christianity	13	4.6
Islam	7	2.5
Family income per month		
NPR ≤45,000	76	27.1
NPR 46,000-90,000	143	51.1
NPR >90,000	61	21.8
Family History of RE		
Yes	105	37.5
No	175	62.5
Previous eye examination		
Yes	208	74.3
No	72	25.7
Sources of information*		
Books	179	63.9
Radio/TV, social media	130	46.4
Friends, relatives, and teachers	107	38.2
Health personnel	93	33.2

**Indicates multiple response questions, and each response is equal to 100%*

Table 2 presents the respondents' knowledge on Refractive errors. More than two-thirds (68.2%) of respondents correctly identified Refractive errors as the inability of an eye to form a clear image of far or near objects. Similarly, nearly two-thirds (70.4%) were aware of short-sightedness as a type of Refractive error, followed by long-sightedness (66.8%) and astigmatism (22.9%). Additionally, most of the respondents (81.8%) knew the excessive use of digital gadgets as the major risk factor, followed by family history (30.7%) and limited time spent outdoors (18.6%) as contributing factors. Moreover, more than half of the respondents accurately understood the meanings of myopia (57.1%), hypermetropia (62.9%), and astigmatism (53.9%). Finally, more than half (59.3%) identified headache as a sign of Refractive errors, followed by eye strain (53.9%) and blurry vision (53.9%).

Table 2:

Respondent's Knowledge on Refractive Errors

n=280

Statements	Frequency (f)	Percentage (%)
Meaning of Refractive Errors		
The eye fails to form a clear image of a far or near object.	191	68.2
Types *		
Short-sightedness	197	70.4
Long-sightedness	187	66.8

Astigmatism	64	22.9
Eye injuries	36	12.9
Conjunctivitis	23	8.2
Risk Factors*		
Excessive use of digital gadgets	229	81.8
Inadequate Nutrition	117	41.8
Family History	86	30.7
Spending too little time outdoors	52	18.6
Fall-related injury	40	14.3
Smoking	21	7.5
Meaning of Short-sightedness		
Can see only nearer objects clearly, but cannot see far objects clearly.	160	57.1
Meaning of Long-sightedness		
Can see only far objects but fails to see nearer objects clearly.	176	62.9
Meaning of Astigmatism		
Has blurry or distorted vision	151	53.9
Signs and symptoms *		
Headache	166	59.3
Eye strain	151	53.9
Blur vision	151	53.9
Difficulty seeing at certain distances	124	44.3
Double vision	59	21.1
Eye infection	33	11.8

** Indicates multiple response questions, and each response is equal to 100%*

Table 3 illustrates that the majority (64.6%) of respondents identified spectacles as the most commonly known corrective measure for refractive errors (RE), followed by contact lenses (56.1%), while fewer were aware of surgical options (31.8%). Most of the respondents (82.5%) reported they would visit an eye doctor if they experienced blurry vision, and 60.7% were aware that eye checkups should be done annually. In terms of preventive measures, more than half of the respondents indicated limiting screen time (56.8%) and eating healthy foods (51.1%) as important practices. Additionally, 50.7% mentioned the importance of regular eye check-ups, 34.6% highlighted spending time outdoors, 33.9% emphasized using proper lighting, and 30% acknowledged the benefit of taking regular breaks during close work. Overall, respondents demonstrated good awareness of Refractive errors, although some misconceptions remain and need to be addressed.

Table 3:

Respondent's Knowledge on Management and Prevention of Refractive Errors

n=280

Statements	Frequency (f)	Percentage (%)
Corrective measures of RE*		
Spectacles	181	64.6
Contact lens	157	56.1
Surgery	89	31.8
Medicines	53	18.9
Do not require any treatment	6	2.1
Response to blurry vision		
Visit an eye doctor immediately	231	82.5
Wait to see if it gets better	35	12.5
I don't know	14	5.0
Frequency of Eye Check-ups without Symptoms		
Once a year	170	60.7
Measures to prevent RE *		
Limit screen time	159	56.8
Eat healthy foods	143	51.1
Get regular eye check-ups	142	50.7
Spend more time outdoors	97	34.6
Use proper lighting	95	33.9
Take regular breaks during close work	84	30

***Indicates multiple response questions, and each response is equal to 100%**

Table 4 shows that less than one-fourth (18.9%) of the respondents had inadequate knowledge on Refractive errors. Likewise, more than half (55.7%) of the respondents had a moderately adequate knowledge of Refractive errors, and one-fourth (25.4%) had adequate knowledge of Refractive errors.

Table 4:

Respondent's Level of Knowledge on Refractive Errors

n=280

Level of Knowledge	Frequency (f)	Percentage (%)
Inadequate	53	18.9
Moderate	156	55.7
Adequate	71	25.4

Table 5 depicts that the attitude of respondents on refractive errors reveals several important trends. More than half of the respondents (56.8%) disagreed that uncorrected refractive error can lead to blindness. However, almost half of the participants (48.9%) disagreed that refractive error can affect academic performance. Moving further, less than half (42.1%) of respondents agreed with the misconception that young people with RE do not need spectacle correction. In contrast, when asked about the importance of regular eye checkups even in the absence of symptoms, half (51.4%) of the respondents strongly disagree. Likewise, 42.8% agreed with the belief that wearing spectacles can damage the eyes, and nearly half, 47.1% of respondents, strongly agreed that wearing spectacles makes a person unattractive or feel embarrassed. Similarly, less than half, 43.2% agreed that refractive error is not a serious problem, and 42.5% strongly agreed that eye exercises alone can permanently correct refractive errors. Similarly, nearly half (45.7%) of the respondents agreed that RE can be cured by medication. When asked whether refractive errors should be corrected as early as possible, 48.2% disagreed, showing a lack of urgency among students for early correction. Furthermore, 42.5% agreed that eye surgery is dangerous and should be avoided, indicating fear or misconceptions regarding medical interventions. Regarding the effect of screen use, more than half (48.9%) disagreed that long hours of mobile or computer use affect vision. Similarly, 46.4% disagreed that refractive surgery is an acceptable alternative to spectacles or contact lenses. More than half (56.2%) strongly disagreed that contact lenses are comfortable to wear, suggesting unfamiliarity or discomfort with alternative visual aids.

Table 5

Attitude of the Respondents on Refractive Errors

n= 280

Statements	SA n (%)	A n (%)	D n (%)	SD n (%)
Uncorrected RE can lead to blindness.	5(1.8)	38(13.6)	159 (56.8)	78 (27.8)
RE can affect academic performance.	15 (5.4)	38 (13.6)	137 (48.9)	90 (32.1)
Young people with RE do not need spectacle correction.	88 (31.5)	118 (42.1)	48 (17.1)	26 (9.3)
Regular eye checkups are necessary even if there are no vision problems.	31 (11.1)	31 (11.1)	74 (26.4)	144 (51.4)
Wearing spectacles can damage the eyes.	78 (27.9)	120 (42.8)	56 (20.0)	26 (9.3)
Wearing spectacles makes a person unattractive or feel embarrassed.	132 (47.1)	94 (33.6)	29 (10.4)	25 (8.9)
Refractive error is not a serious problem.	66 (23.5)	121 (43.2)	64 (22.9)	29 (10.4)

Eye exercises alone can permanently correct refractive errors.	119 (42.5)	102 (36.4)	30 (10.7)	29 (10.4)
RE can be cured by medication.	55 (19.6)	128 (45.7)	68 (24.3)	29 (10.4)
RE should be corrected as early as possible.	26 (9.3)	55 (19.6)	135 (48.2)	64 (22.9)
Eye surgery is dangerous and should be avoided at all Costs.	71 (25.4)	119 (42.5)	61 (21.7)	29 (10.4)
Using a mobile or computer for long hours does affect vision.	9 (3.2)	30 (10.7)	137 (48.9)	104 (37.0)
Refractive error surgery is an acceptable alternative to wearing spectacles or contact lenses.	21 (7.5)	82 (29.3)	130 (46.4)	47 (16.8)
Contact lenses are comfortable to wear.	26 (9.3)	15 (5.4)	82 (29.3)	157 (56.2)

Median score of Attitude = 42; Keys: SA (Strongly Agree), A (Agree), D (Disagree), SD Strongly Disagree)

Table 6 reveals that nearly half (46.8%) had a positive attitude toward Refractive errors while more than half (53.2%) of the respondents had a negative attitude toward RE.

Table 6:

Respondent's Level of Attitude on Refractive Errors

n=280

Level of Attitude	Frequency (f)	Percentage (%)
Positive	131	46.8
Negative	149	53.2

Table 7 illustrates the association between socio-demographic variables and the level of knowledge on Refractive errors. There is a statistically significant association between the level of knowledge and sex (p = 0.019) and with family income per month (p = 0.003), at the 0.05 significance level. Another variable including age, grade, ethnicity, religion, parents wearing spectacles, and previous eye examination were not statistically significant.

Table 7:

Association between the Level of Knowledge and Socio-Demographic Variables

n=280

Variables	**Level of knowledge**			***p*-Value**
	Inadequate n (%)	**Moderate n (%)**	**Adequate n (%)**	
Age (in completed years)				
15-17	28(16.9%)	92(55.4%)	46(27.7%)	0.404
18-20	25(21.9%)	64(56.1%)	25(21.9%)	
Grade				
Class11	23(17.7%) 30(20.0%)	74 (56.9%)	33(25.4%)	0.878
Class12		82 (54.7%)	38(25.3%)	
Sex				
Male	38 (24.7%)	77(50.0%)	39(25.3%)	
Female	15(11.9%)	79(62.7%)	32(25.4%)	0.019*
Ethnicity				
Janajati	28(16.2%)	97(56.1%)	48(27.7%)	
Brahmin	19(28.8%)	31(47.0%)	16(24.2%)	0.089
Others**	6(14.6%)	28(68.3%)	7(17.1%)	
Religion				
Hinduism	38(20.3%)	106(56.7%)	43(23.0%)	0.385
Others**	15(16.1%)	50(53.8%)	28(30.1%)	
Family income per month				
NPR ≤45,000	17(22.4%)	45(59.2%)	14(18.4%)	
NPR 46,000-90,000	25(17.5%)	88(61.5%)	30(21.0%)	0.003*
NPR >90,000	11(18.0%)	23(37.7%)	27(44.3%)	
Family History of RE				
Yes	19(18.1%)	53(50.5%)	33(31.4%)	0.189
No	34(19.4%)	103(58.9%)	38(21.7%)	
Previous eye examination				
Yes	38(18.3%)	112(53.8%)	58(27.9%)	0.255
No	15(20.8%)	44(61.1%)	13(18.1%)	

** Indicates statistical significance at p-value = ≤0.05, **Ethnicity: "others" includes Dalit, Madhesi, Muslim, **Religion: "Others" includes Christianity, Islam, Buddhism, Kirati.*

Table 8 depicts that the level of attitude was significantly associated with Age, Grade, Sex, and previous eye examination, with p values of 0.006, 0.015, 0.002, and 0.017 at the 0.05 significance level, respectively. Likewise, Ethnicity, Religion, Monthly income of the family, and Family History of RE were not associated with the level of attitude.

Table 8:
Association between the Level of Attitude and Socio-Demographic Variables

n=280

Variables	**Level of Attitude**		***p*-Value**
	Positive n (%)	**Negative n (%)**	
Age (in completed years)			
15-17	89 (53.6%)	77 (46.4%)	0.006*
18-20	42 (36.8%)	72 (63.2%)	
Grade			
Class 11	71(54.6%)	59(45.4%)	0.015*
Class 12	60 (40.0%)	90(60.0%)	
Sex			
Male	59(38.3%)	95(61.7%)	0.002*
Female	72(57.1%)	54(42.9%)	
Ethnicity			
Janajati	82(47.4%)	91(52.6%)	
Madhesi	29(43.9%)	37(56.1%)	0.858
Others **	20(48.8%)	21(51.2%)	
Religion			
Hinduism	95(50.8%)	92(49.2%)	0.056
Others**	36(38.7%)	57(61.3%)	
Family income per month			
NPR ≤45,000	41(53.9%)	53(46.1%)	0.985
NPR 46,000-90,000	76(53.1%)	67(46.9%)	
NPR >90,000	32(52.5%)	29(47.5%)	
Family History of RE			
Yes	55(52.4%)	50(47.6%)	0.146
No	76(43.4%)	99(56.6%)	
Previous eye examination			
Yes	106(51.0%)	102(49.0%)	
No	25(34.7%)	47(65.3%)	0.017*

** Indicates statistical significance at p-value = ≤0.05, **Ethnicity: "Others" includes Dalit, Madhesi, Muslim, **Religion: "Others" includes Christianity, Islam, Buddhism, Kirat.*

Discussion

This section presents a discussion of the study's findings. The results are analyzed concerning the research problem, objectives, and findings from other studies. The objectives of this study were to assess the levels of knowledge and attitude of students on refractive errors. The present findings revealed that more than half of the respondents (59.3%) were aged 15–17 years, and more than half of them (55%) were male. Ethnically, nearly two-thirds (61.8%) were Janajati, followed by Brahmin/Chhetri (23.6%). Likewise, more than two-thirds of the respondents (66.8%) followed the Hindu religion.

The present study revealed that more than two-thirds of the respondents (68.2%) were aware of the definition of refractive errors. This finding is consistent with a study conducted by Assefa et al. (2022) in Northwest Ethiopia, among 390 students, where 63.1% of the respondents demonstrated similar knowledge regarding the definition of refractive errors. Similarly, the present study showed that more than half of the respondents (55.7%) had a moderately adequate level of knowledge on refractive errors. This finding aligns with a study done among 390 students in Northwest Ethiopia, where more than half of them (53.8%) had a good level of knowledge on refractive errors (Assefa et al,2022). However, contrasting findings were reported in studies conducted in other regions of India. In a study conducted by Sreelatha et al. (2019) among 100 government school students in Tirupati, a higher proportion (73%) had a moderate level of knowledge on refractive errors, which is notably greater than the 55.7% observed in the present study. Conversely, a study conducted in Tamil Nadu among 100 students revealed that only 34% had moderately adequate knowledge and just 3% had adequate knowledge on refractive errors, indicating a lower level of knowledge compared to the current study (Minolin et al., 2022). The study conducted in Nepal, the finding shows that less than half (43.4%) of the students had idea on refractive error (Nyamai et al., 2016). The study finding of in Debre Birhan Town, North Shewa, Ethiopia shows that majority (86.01%) of the students had adequate knowledge (Bekele et al., 2024). This discrepancy may be attributed to differences in study settings, sample sizes, educational exposure, or access to eye health services.

On the other hand, less than half of the respondents (42.9%) believed that wearing spectacles could damage their eyes; this finding is comparable to a study conducted in Saudi Arabia by Fk et al. (2020), which found that 42.4% of 299 respondents held a similar belief. However, a contrasting result was noted in an Indian study, where 64% of 255 respondents believed that spectacles are harmful to the eye (Agrawal & Dhoble, 2013). Such differences could stem from varying levels of health literacy, cultural myths, and access to reliable eye health information. While analyzing data regarding attitudes towards refractive errors, more than half of the respondents (53.2%) had an unfavorable attitude towards refractive errors. This differs from a study in Gondar City, Northwest Ethiopia, where 52.1% of respondents had a favorable attitude (Assefa et al., 2022). The discrepancy may be attributed to differences in educational interventions, cultural perspectives, and awareness levels.

The present study showed that the level of knowledge was significantly associated with sex ($p = 0.019$) and family income per month ($p = 0.003$) at the 0.05 significance level. This finding is consistent with the study conducted in Government Schools of Tirupati, among 100 students, where there is a significant association between knowledge score and i.e. family income per month ($p=0.012$), (Sreelatha et al., 2019). This finding contrasts with the study conducted in Gondar city, Northwest Ethiopia, 390 students to assess the level of knowledge and attitude of refractive error among public high school students. There is a significant association between family history of spectacle wear ($p=0.04$) and knowledge of refractive error (Assefa et al., 2022). Different study settings,

studies, and sample sizes may be the result of a discrepancy. Regarding attitude, this study found statistically significant associations with age ($p = 0.006$), grade ($p = 0.015$), sex ($p = 0.002$), and eye test history ($p = 0.017$) at the 0.05 significance level. However, ethnicity, religion, monthly income, and family history of refractive error were not significantly associated with attitude. This is in line with the findings by Assefa et al. (2022), in Gondar city, Northwest Ethiopia, on 390 students, where age was significantly related to attitude ($p = 0.02$).

Conclusion

This study concludes that the majority of respondents had a moderate level of knowledge on refractive errors, but they tend to exhibit a negative attitude toward refractive error correction. Statistical analysis revealed a significant association was found between students' knowledge levels and certain socio-demographic variables (sex and family income per month). Similarly, a significant association was found between students' attitude levels and certain socio-demographic variables (age, grade, sex, eye test history).

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