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Knowledge about Conjunctivitis among School Students in Pokhara Metropolitan City

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ABSTRACT

Conjunctivitis is a common and frequently observed health problem worldwide. It is highly contagious that makes school environment conducive for the transmission. The main objective of the study is to assess knowledge on conjunctivitis among school students of Pokhara. A descriptive cross-sectional study was conducted among selected three government schools in Pokhara Metropolitan City. Multistage sampling technique was used to select the schools and complete enumeration was done to collect data from selected schools. The total number of students included in the study was 268. Self-administered structured questionnaire was used to collect data. The collected data was entered in SPSS for analysis. The data was analyzed using descriptive statistics like frequency, percentage, mean, standard deviation. Inferential statistics chi-square test was used to identify the association between level of knowledge and selected variables. The study showed that 1.5 percent had good, 64.3 percent had moderate and 33.8 percent had poor level of knowledge on conjunctivitis. There was significant association between the age and information from school (p =<0.01) with level of knowledge.

The study concluded that most of the students had a moderate level of knowledge on conjunctivitis. A significant association was observed between age and information form school with level of knowledge. Hence, health education program/ awareness campaign should be conducted in the school to promote level of knowledge on conjunctivitis as it is the most common eye problem worldwide

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INTRODUCTION

Conjunctivitis is a common eye problem worldwide. It is marked by inflammation and swelling of the conjunctival tissue along with increased blood vessel size, discharge from the eyes and pain (Azari & Arabi, 2020). Conjunctivitis is the most commonly observed ocular disease in children and most prevalent comorbidity influencing their health (Agha, 2020). Conjunctivitis is a self-limiting disease. However, it's associated symptoms could affect the quality of life such as ocular disturbance and functional impairment even though it is a short-lasting disease. Contaminated contact, fomites, and aerosols are all considered the carriers of the disease. Most treatments are symptomatic and supportive, while proper hygiene is the most effective method of disease prevention (Prabhu et al., 2015).

Conjunctivitis occurs all year round but there is a surge in cases during summer and rainy season (Tuladhar & Gurung, 2020). Usually, the cases of conjunctivitis are reported in the month of March and August in Nepal but it spread at a faster rate this year and led to the temporary closure of school in the month of August (Pariyar, 2023). Conjunctivitis outbreak in the last week of July and continued till early September in Nepal and 50 % of the patients attending eye hospitals presented the symptoms of eye infection (Sunar, 2023).

It is estimated that acute conjunctivitis affects 6 million people annually in the United States (Azari and Barney, 2014). Pakistan witnessed outbreak of conjunctivitis in 2023. Nearly, 400,000 people were infected with viral conjunctivitis in a single province, Punjab. Likewise, more than 56,000 schools were closed for four days amidst the outbreak (Bowman, 2023). An epidemiological study of eye disorders was conducted on residents of Bangladeshi slums indicated that 17.1% respondents had conjunctivitis, ranking it as the second most prevalent eye condition (Sutradhar et al., 2019). Experts confirmed the prevalence of conjunctivitis epidemic worldwide and the suspected cases to be largely unknown (Kaur et al., 2021).

Conjunctivitis is non-severe, but is highly contagious which make schools environment conducive for transmission (Cronau et al., 2010). Schools with higher number of students poses a heightened risk for the transmission of the disease which emphasizes the necessity of implementing suitable public health measures (Liang et al., 2016). As there is environmental deterioration particularly in the developing nations, children are facing various challenges including allergic conjunctivitis that can affect the overall quality of life (Baig et al.,2010).

A cross-sectional descriptive study done among 397 university students in Pakistan showed that 49% have inadequate knowledge on conjunctivitis (Khan et al., 2018). In a study conducted among 1000 students in Ghana found that level of knowledge on allergic conjunctivitis was generally low, only 34.7% were aware of ocular allergy (Kyei et al., 2016). Study conducted among 523 students in Pokhara valley concluded that secondary level school students have poor knowledge of conjunctivitis. About 61.6% of the students have heard of conjunctivitis. Similarly, 83.2 % of the students don't know the correct mode of transmission of the disease (Tuladhar & Gurung, 2020).

Close contact with an initial case and residing in a closer setting result in the outbreak of conjunctivitis among the students (Madurapandian et al., 2020). Proper knowledge and being aware about conjunctivitis can reduce the duration or even prevent the disease altogether (Al-Ghofaili et al., 2018). In order to address eye health problems of students, primary eye care is insufficient (Burn et al., 2020). The school students are the future of the country so it is crucial that they have appropriate eye health knowledge which ultimately hinder the rapid transmission of infectious conjunctivitis. Also, there is a myth in our society that conjunctivitis can spread through eye-to-eye contact with person affected by conjunctivitis (Tuladhar & Gurung, 2020).

Conjunctivitis, often perceived as a minor problem, can significantly impact students' well-being and academic performance. School environments, where close interactions among students are common, provide a conducive setting for the rapid spread of this contagious condition. Secondary school students, being at an age where they are capable of understanding health-related information and adopting preventive measures, can play a proactive role in controlling the transmission of conjunctivitis. Therefore, this study aims to assess the level of knowledge regarding conjunctivitis among secondary school students, with a view to informing health education strategies and promoting disease prevention in school settings.

DATA AND METHODS

A descriptive cross-sectional study was conducted in three government school students of class 9 and 10 selected among the list of 78 secondary level government schools in Pokhara Metropolitan City. In mid-2023, Kaski District, particularly Pokhara Metropolitan City, experienced a significant outbreak of conjunctivitis in which local authorities ordered a three-day closure of all schools in Pokhara to stem further transmission. Therefore, Pokhara Metropolitan City was selected as the study area (Pariyar, 2023)

Multistage random sampling used to select the sample. Stage I: three wards (ward no. 01, 16 and 25) were selected from Pokhara Metropolitan City among the list of 33 wards by random lottery method. Selecting three wards also increase the representativeness of sample from the population.

Stage II: one school from each selected ward was chosen from simple random lottery method. There were two schools in ward no. 01, four schools in ward no. 16 and five schools in ward no. 25. Rastriya, Vindhyavasini and Shree Gaurishankar Secondary School are selected from Pokhara metropolitan ward no. 1, 16 and 25 respectively. Stage III: one section was selected from class 9 & 10 from the chosen schools through simple random lottery method. Then, All the students form the selected section included as the sample. Hence, researcher was planned to obtain 277 but 9 students were absent at the time of data collection so total sample was 268.

A self-administered structured questionnaire was used for data collection that consists of two parts. Part I related to socio-demographic information 11 items like age, gender, grade, religion, education of parents, occupation of parents, source of information and history of conjunctivitis. Part II: Consisted of 21 questions related to knowledge on conjunctivitis: 9 multiple choice questions, 9 yes/no question and 3 multiple response questions. Every question carries score '1' for correct response and score '0' for incorrect response or no response. For multiple response questions, score '1' will be given for each correct response and '0' for no response. Total score is further categorized into good: 80 % - 100 % (score 23-28), moderate: 50 % - 79% (score 14-22) and poor: less than 50 % (score <14).

The validity of the instrument was established through extensive literature review, consulting with subject experts. Pretesting of the instrument was done among 25 students in a school of Pokhara-16 that was not included for the study. After the approval of proposal, request letter was submitted and permission for data collection was taken from the selected schools. Furthermore, principal and teachers of selected schools were briefed about the objectives, process and importance of study. Then, the researcher self-introduced and explain purpose of study with the students. Voluntary participation was ensured. Data collection was done by researchers at the time convenient for the students. The average time to complete a questionnaire was 25-30 minutes. Confidentiality was maintained by not disclosing the results to others. Anonymity was maintained by using code number instead of name. To maintain the quality of the data, clear instructions were given about the questionnaire.

The data collected was reviewed, checked and organized for accuracy and completeness then coded and entered into Statistical Package for Social Science (SPSS). Data was analyzed using descriptive statistics (mean, frequency, standard deviation and percentage) to assess the level of knowledge. Inferential statistics (Chi-square test) was used to measure the association of level of knowledge with selected variables.

RESULTS AND DISCUSSION

The average age of the students was 15.46±1.11, 50.4 percent students were below 15 years of age. Similarly, 56.0 percent students were girls, 50.7 percent students were in grade nine and 85 percent students followed Hindu religion. Likewise, 41.0 percent got information regarding conjunctivitis from social media followed by 26 percent from school that indicates the social media is mostly used for the information. Moreover, 41.8 percent students had personal history of conjunctivitis while 48.5 percent had a family history that shows the significant number of students had exposure to this health condition (Table 1).

Table 1

Background Characteristics of Students (n=268)

Variables	Number	Percent
Age (in completed years)		
≤15 years	135	50.4
>15 years	133	49.6
Mean age ± SD (15.46±1.1); Range (13-19)		
Sex		
Boys	118	44.0
Girls	150	56.0
Education grade		
Nine	136	50.7
Ten	132	49.3
Religion		
Hinduism	228	85.1
Christianity	26	9.7
Buddhism	14	5.2
Source of information#		
Social media	183	42.1

School	113	26.0
Friends	61	14.0
Family members	41	9.4
Television/radio	32	7.4
Others	5	1.1
Personal history of conjunctivitis	112	41.8
Family history of conjunctivitis	130	48.5

#Multiple responses

In this study, level of knowledge categorizes as per Elhams et al., 2022. Only1.5 percent students had good level of knowledge, 64.3 percent students had moderate level of knowledge and 33.8 percent students had poor level of knowledge (Table 2). The minimum number of students had the proper knowledge on conjunctivitis.

Table 2

Knowledge on Conjunctivitis (n=268)

Level of knowledge	Number	Percent
Good (>80%)	4	1.5
Moderate (50-79%)	173	64.3
Poor (<50%)	91	33.8
Mean± SD (15.1±3.6); Max score:24; Mini score:5		

From the study findings, level of knowledge is statistically significant with age (*p=0.00*). However, no significant association was found between gender, grade, education and occupation of parents and history of conjunctivitis (Table 3).

Table 3

Association Between Level of Knowledge and Selected Background Variables (n=268)

Variables	Level of Knowledge			***P value***
	Poor	Moderate-Good		
	No. (%)	No. (%)		
Age				
≤15 years	33(24.6)	102(75.6)	10.97	0.00*
>15 years	58(43.6)	75(56.4)		
Sex				
Male	45(38.1)	73(61.9)	1.64	0.20
Female	46(30.7)	104(69.3)		

Educational grade				
Nine	44(32.4)	92(67.6)	0.31	0.57
Ten	47(35.6)	85(64.4)		
Religion				
Hindu	79(34.8)	148(65.2)	0.47	0.49
Other than Hindu	12(29.3)	29(70.7)		
Father's education				
Literate	86(34.3)	165(65.7)	0.16	0.68
Illiterate	5(29.4)	12(70.6)		
Mother's education				
Literate	78(33.3)	156(65.7)	0.31	0.57
Illiterate	13(38.2)	21(61.7)		
Father's occupation				
Employed	72(34.5)	131(64.5)	0.85	0.35
Unemployed	19(29.2)	46(70.8)		
Mother's occupation				
Employed	30(41.1)	43(58.9)	2.28	0.13
Unemployed	61(31.3)	134(68.7)		
Personal history of conjunctivitis				
Yes	37(33)	75(67)	0.073	0.78
No	54(34.6)	102(65.4)		
Family history of conjunctivitis				
Yes	41(31.5)	89(68.5)	0.65	0.41
No	50(36.2)	88(63.8)		

Pearson Chi Square Test; *p value statistically significant at <0.05.

Table 4 shows that level of knowledge is statistically significant with obtaining information from school (*p=0.01*). However, no significant association was found between other source of information.

Table 4

Association Between Level of Knowledge and Source of Information (n=268)

Variables	Level of Knowledge			
	Moderate to Good n (%)	Poor n (%)		***P value***
Social media				
Yes	124(67.8)	59(32.2)	0.75	0.38
No	53(62.4)	32(37.6)		
School				
Yes	84(74.3)	29(25.7)	5.99	0.01*
No	93(60)	62(40)		
Friends				
Yes	41(67.2)	20(32.8)	0.048	0.82
No	136(65.7)	71(34.3)		
Family members				
Yes	32(78)	9(22)	3.11	0.07
No	145(63.9)	82(36.1)		
Television/radio				
Yes	23(71.9)	9(28.1)	0.55	0.45
No	154(65.3)	82(34.7)		

Pearson Chi Square Test; *p value statistically significant at <0.05.

The study indicates half of the students (50.4%) were less than 15 years, 41.8% students reported a personal history of conjunctivitis and almost half of the students (48.5%) reported a family history of conjunctivitis. The findings of the study highlights that only (1.5%) had good, (64.3%) moderate and (33.8%) of the students had poor level of knowledge. This finding is inconsistent with the previous study done by Elhams et al. (2022) in which (7.63%) students have good knowledge. The differences can be due to population and educational settings that included students from university level. Likewise, a study conducted by Khan et al., (2018) revealed a higher proportion of students reported as having adequate knowledge (51%) and almost half of the students having poor knowledge (49%). A study conducted in Saudi Arabia showed (19.1%) of the respondents have sufficient knowledge and (80.9%) have insufficient knowledge (Al-Ghofaili et al., 2018). The study finding was different with this study as there

is differences in socio-cultural background, population and setting. The findings from this study indicate that almost all (97.4%), are familiar with the term conjunctivitis and understand that it primarily affects the eye. This aligns closely with the study conducted by Khan et al. (2018), which reported a comparable awareness level of (97.6%). However, it varies with a study by Elhams et al. (2022), where only (37.2%) of participants knew that conjunctivitis mainly affects the eye. In the present study, (78.4%) students reported conjunctivitis as a contagious disease, a finding quite different from that reported in Southwest Nigeria, where only (25.5%) knew red eye as contagious (Bodunde et al., 2016). In the present study, (75%) students reported that bacteria, virus is the causative organism. In a similar study done in Pokhara, (80.3%) reported organism as the cause (Tuladhar & Gurung, 2020). The current study revealed that (67.2%) students answered correctly about irritant material as a cause and (53.4%) about the potentiality of contact lenses to cause conjunctivitis. The similar findings observed in the study conducted by Khan et al., (2018).

Similarly, (34.2%) students responded direct contact with eye discharge as a mode of transmission of conjunctivitis while only (6.5%) reported it as a mode of transmission (Tuladhar & Gurung, 2020). Most of the students (74.6%) students reported that sharing of eye makeup, eye glasses and eye drops can transmit conjunctivitis while it is quite different to the findings of the study conducted by Elhams et al., (2022) which reported only (40.3%) students knew sharing such items is the mode of transmission.

In terms of sign and symptoms, the present study showed only (15.7%) students reported eye discharge, (34.1%) irritation and (29.6%) redness and swelling. This finding is different from a similar study conducted in Ghana showed higher percentages with (44.1%) reporting discharge, (79.8%) reporting swelling in the eyes and (86.5%) reporting itching as sign and symptoms (Kyei et al., 2016). Furthermore, study of Al-Ghofaili et al., (2018) found that (53.4%) students knew the main sign and symptoms of allergic conjunctivitis. These findings emphasize the importance of considering variations in knowledge levels when addressing conjunctivitis among students.

Likewise, (43.3%) students recognized conjunctivitis as a self-limiting condition. This is different from what Elhams et al., (2022) found, where only (14.7%) of students knew it as a self-limiting condition. More than half of the students, (79.9%) reported that medical advice should be seek for if you have conjunctivitis. But only (12.6%) students in the study of Tuladhar & Gurung reported that they have to go hospital in case of conjunctivitis. Furthermore, (63.1%) students responded that proper hand hygiene and eye hygiene can

prevent the transmission. While the study conducted by Khan et al., (2018) showed 77.7% reporting hand hygiene and eye hygiene as preventive measure. The current study showed that (40.3%) stated visual impairment as complication of conjunctivitis. While the study conducted by Tuladhar & Gurung, (2020) showed that 20.3% students reported decrement in visual acuity as complication.

The study found that there is statistical significance of level of knowledge with age (*p=0.00*). Students aged 15 or less seems to have higher level of knowledge compared to those older than 15 years. This is supported by another study conducted in Jeddah which showed that the younger age group had significantly higher knowledge level (Bazuhair et al.,2021). However, this finding is contradictory to the finding of Elhams et al., (2022) where the level of knowledge is higher with student's increasing age (*p=0.00*).

CONCLUSION

This study concluded that majority of the students have moderate level of knowledge on conjunctivitis. The study showed statistically significant association between level of knowledge with age of the students and obtaining information from school. Hence, health education program needs to be planned in the school to enhance level of knowledge on conjunctivitis. This study was limited to three schools of Pokhara Metropolitan City so it limits the generalizability.

REFERENCES

Agha, N.F.S. (2020). Conjunctivitis among rural and urban school children in Erbil Governorate/ Iraq. *Diyala Journal of Medicine,* 18. https://doi.org/10.26505/DJM.18014850804

Azari, A.A. & Arabi, A. (2020). Conjunctivitis: A systematic review. *Journal of Ophthalmic and Vision Research 15*, 372-395. https://doi.org/10.18502%2Fjovr.v15i3.7456

Al-Ghofaili, R.S., Al-Lahim, W.A., & Al-Balawi. (2018). Assessment of knowledge and awareness of ocular allergy among undergraduate students, University of Tabuk, Tabuk City, Saudi Arabia. *International Journal of Medical Research Professionals*; *4* (1), 459-64. https://DOI:10.21276/ijmrp.2018.4.1.095

Azari, A.A. & Barney, N.P. (2014). Conjunctivitis: A systematic review of diagnosis and treatment. *JAMA. 310* (16), 1721-30. https://doi.org/10.1001/jama.2013.280318

Baig, R., Ali, A. W., Ali, T., Ali, A., Shah, M.N., Sarfaraz, A. & Ahmad, K. (2010). Prevalence of allergic conjunctivitis in school children of Karachi. *Journal of the Pakistan Medical*

Association, 60(5), 371-373. https://ecommons.aku.edu/pakistan_fhs_mc_surg_ophthalmol/6

Bazuhair, M.S., Alsabban, H.H., Alsabbam, K.H., Alzahrani, K.A., Alattas, A.A., Khinkar, A.M. & Salawati, E.M. (2022). Knowledge and awareness of ocular allergy among Jeddah population. *Journal of Family Medicine and Primary Care,11*,1502-7. doi: 10.4103/jfmpc.jfmpc_1591_21

Bodunde, O.T., Sholeye, O.O., Onabolu, O.O., Otulana, T.O., & Ajibode, H.A. (2016). Perception of red eye among senior secondary students in Sagamu, Southwest Nigeria. Journal of Family Medicine and Primary Care, 5, 89-93. *DOI:* 10.4103/2249-4863.184630

Bowman, V. (2023). Mass outbreak of pink eye closes 56,000 schools in Pakistan. *The Telegraph.* https://www.telegraph.co.uk/global-health/science-and-disease/pakistan-eye-infection-viral-conjunctivitis-outbreak-punjab/

Burn, H., Puri, L., Roshan, A., Singh, S. K. & Burton, M. J. (2020). Primary eye care in eastern Nepal. *Ophthalmic Epidemiology*, *27*(3), 165–176. https://doi.org/10.1080/09286586.2019.1702217

Crounau, H., Kankanala, R.R., & Mauger, T. (2010). Diagnosis and management of red eye in primary care. *American Academy of family Physicians*, *80* (2), 137-144

Elhams, Y. M., Bakry, S. M. T., Almousa, A. A., Albagami, S. N., Fakieha, A. Y., & Alzahrani, A. S. (2022). Conjunctivitis in Makkah region, Saudi Arabia: A school and university level of knowledge experience. *Med Sci*, *26*, 1-8. https://doi.org/10.54905/disssi/v26i122/ms120e2167

Kaur, G., Seitzman, G.D., Lietman, T.M., McLeod, S.D., Porco, T.C., Doan, T., & Deiner, M.S. (2021). Keeping an eye on pink eye: A global conjunctivitis outbreak expert survey. *International Health*, *14*, 542-544. https://doi.org/10.1093/inthealth/ihab049

Khan, T., Haq, N. U., Nasim, A., Sadeeqa, S., & Noreen, N. (2018). Assessing students' knowledge and awareness regarding conjunctivitis among University of Balochistan Quetta, Pakistan. *Journal of Health Pharmacy and Allied Sciences 1*(1), 13-15.

Kumah, D.B., Lartey, S.Y., Yemanyi, F., Boateng, E.G., & Awuah, E. (2015). Prevalence of allergic conjunctivitis among basic school children in the Kumasi Metropolis (Ghana): A community-based cross-sectional study. *BMC Ophthalmology, 15*, 69. https://doi.org/10.1186/s12886-015-0053-8

Kyei, S., Tettey, B., Asiedu, K., & Awuah, A. (2016). Knowledge and awareness of ocular allergy

among undergraduate students of public universities in Ghana. *BMC Ophthalmology, 16* (1), 1–8. https://doi.org/10.1186/s12886-016-0366-2

Liang, Q., Lu, X., Wang, M., Tian, L., Labbé, A., & Hu, A. (2016). Study of infectious conjunctivitis among children in rural areas of Qinghai province. *Science China Life Sciences*, *59*(6), 548-554. DOI: 10.1007/s11427-016-5058-x

Madurapandian, Y., Rubeshkumar, P., Raju, M., Janane, A., Ganeshkumar, P., Selvavinayagam, T.S., & Kaur, P. (2020). Case report: An outbreak of viral conjunctivitis among the staff and staff of visually impaired school, Tamil Nadu, India. *Front Public Health, 5*, 10, 978200. https://doi.org/10.3389/fpubh.2022.978200

Pariyar, P (2023). Pokhara closes schools for three days to curb conjunctivitis infection. *The Kathmandu Post. https://kathmandupost.com/health/2023/08/08/pokhara-closes-schools-for-three-days-to-curb-conjunctivitis-infection*

Prabhu, P. B., Muraleedharan, A., Afsana, E.K. & Raju, K.V. (2015). Attitude and practices of subjects with recent history of conjunctivitis, regarding treatment and prevention of the disease. *BMH Medical Journal,* 91-96. https://www.babymhospital.org/BMH_MJ/index.php/BMHMJ/article/view/68

Sunar, P (2023). Conjunctivitis risks to persist for additional two weeks. *My Republica.* https://myrepublica.nagariknetwork.com/news/conjunctivitis-risk-to-persist-for-additional-two-weeks/

Sutradhar, I., Gayen, P., Hasan, M., Gupta, R.D., Roy, T. & Sarker, M. (2019). Eye diseases: the neglected health condition among urban slum population of Dhaka, Bangladesh. *BMC Ophthalmology, 19*(1), 38. https://doi.org/10.1186/s12886-019-1043-z

Tuladhar, S., & Gurung, J. (2020). Knowledge of conjunctivitis among high school students in Pokhara valley of Western Nepal. *Journal of Gandaki Medical College-Nepal*, *13*(1), 19–22. https://doi.org/10.3126/jgmcn.v13i1.28517.