Knowledge and Perception Regarding COVID-19 Among School Children: Online Survey Done in Selected Private Schools of Pokhara, Nepal

Laxmi Paudyal[1] and Rajmi Gurung[2]

[1]Lecturer, Child Health Nursing, Gandaki Medical College Teaching Hospital and Research Center, Pokhara, Nepal
[2]Lecturer, Obstetrics and Gynecological Nursing, Gandaki Medical College Teaching Hospital and Research Center, Pokhara, Nepal

Email: [1]laxmipaudyal990@gmail.com and [2]rajmi.gurung@gmail.com

Abstract— Coronavirus disease-19 (COVID-19) is an infectious disease caused by newly discovered coronavirus. The virus is mainly spread between people during close contact. The best way to prevent and slow down rate is to wash hands or using alcohol-based rub frequently and social distancing. A cross-sectional descriptive study was conducted among 182 school children who were attending online classes in 2 private schools to assess the knowledge and perception regarding COVID-19. The results showed that 43.4% children had inadequate knowledge and 57.1% children had poor perception regarding COVID-19. Majority of school children got information through social media. There was a strong positive correlation between the level of knowledge and level of perception among children (r=0.0243, p=0.001). The perception level had a significant association with sex, ethnicity and area of residence (*p*=0.018, 0.013, 0.015, respectively) and knowledge level had a significant association with ethnicity (*p*=0.001). Study concluded that there was a gap in knowledge among school children and even if the knowledge level was adequate, more than fifty percent school children had poor perception regarding COVID-19. Due to insufficient knowledge and poor perception of COVID-19 in school children, they may have to suffer the negative consequences of this pandemic.

Keywords— Knowledge, Perception, COVID-19, School children.

INTRODUCTION

COVID-19 is the zoonotic infectious disease caused by the most recently discovered corona virus. Currently this disease is affecting globally and become a pandemic was first outbreak in Wuhan, China in December 2019.[1] The virus that causes COVID-19 is mainly transmitted from human to human through droplets generated when an infected person sneezes, coughs or exhales. These droplets are too heavy to hang in the air and quickly fall on floor or surfaces. The person can be infected by breathing in the virus if one is within close proximity of someone has COVID-19, or by touching a contaminated surface and then person's eyes, nose and mouth. This virus has incubation period for two weeks or longer.[2] The most common symptoms of COVID-19 are fever, cough, and shortness of breath which severity ranging from mild illness presented with symptoms of upper respiratory tract infection to severe life threatening pneumonia with acute respiratory distress syndrome.[3,4] There are more than 30 million people affected over the world with average number of daily cases ranging from 350000 to 400000. Total 951,576 people died due to this disease.[5] Meanwhile in Nepal, there are total 61393 confirmed cases with 390 deaths due to this disease till 18 September 2020 from the first case in Nepal officially confirmed after about 3 weeks of outbreak on 23 January 2020 by Ministry of Health and Population.[6] A report shows that the infection among children is relatively less 1019 cases below 10 years and 10195 cases between 11-20 years got infected in Nepal.[7]

The main challenges in this pandemic situation still exist is there is no effective drug for treatment and also no preventive vaccine available till date. The only way to prevent this pandemic to get worse is following the preventive measures such as hand washing, using sanitizer, social distancing, travel restrictions and isolation for confirmed cases and quarantine for risk and suspected cases.[1,8] Many countries are under lockdown for this crisis to prevent from morbidity and mortality. Nepal imposed lockdown from March 24 2020 to June 10 2020 with little change in modality of lockdown but unfortunately the cases of COVID-19 are still increasing than before.[9] People should be aware about the preventive measures of this pandemic. There is a need to provide education and awareness about COVID-19 to Nepalese people focusing on the area of Knowledge gap so that Nepal can have victory against COVID-19.[10] For a public to be responsible partner in the efforts to combat the spread of the corona virus they should be aware of outbreak and informed about their role in controlling the spread. Misinformation, misunderstanding, lack of awareness, negative perception among people can lead to non-compliance to basic preventive measures which may progress to rapid transmission in the community.[8] To win against COVID-19, all the people including children should be aware about this outbreak and

preventive measures. However, there are few research conducted in Nepal regarding knowledge and perception of people toward COVID-19 but the best of our knowledge, so far no prior study has been conducted to assess the knowledge and perception among children. It is true that the comparative cases of COVID-19 among children are less but the perceived fear about the disease, its meaning, own health and safety, friend and family's health is more. Many children are worried about the school trips, cancelled sports tournaments or postponed and some are anxious and obsessed about repeated hand washing.[11] These all are due to insufficient knowledge and the negative perception about disease. This study describes the knowledge and perception of children about COVID-19 with delivering valuable recommendations. In addition, it would provide appropriate strategies to policy maker to develop the effective intervention for controlling the disease and improving the situation in further similar outbreak.

MATERIALS AND METHODS

The cross-sectional descriptive study was conducted with the aim to identify the knowledge and perception regarding COVID-19. School children were selected using self-selected convenience sampling technique to include heterogeneous group in the study with the sampling formula $n= n_o / (1+n_0/N)$ where $n_o= (Z)^2 \times pq/d^2$. The study sample is 182 school children studying in two private schools in pokhara from grade 6 to 10 and ages between 11 to 16 years. Web based survey was conducted with self-administered semi structured knowledge questionnaire consisting 13 items and perception questionnaire consisting 16 items was used along with 8 questions related to demographic variables. Assessment of knowledge level and perception level was categorized in two categories based on median score that is 7 for knowledge and 8 for perception. The category are inadequate knowledge for score ≤7 and adequate knowledge for >7, likewise for perception, poor perception is score ≤8 and good perception is score >8. The questionnaire was made in Google form and distributed via different social media such as messenger, viber, whatsapp, Gmail etc. Ethical approval for the study was obtained from Institutional Research Committee of Gandaki Medical College Teaching Hospital and Research Center (GMC IRC). Both verbal and written permission was taken from school authority, and the participants. Verbal permission was obtained by school authority from the parents of participants. After filling the questionnaire form, the participants were instructed to send it on same day. The data collection period was from 12th August 2020 to 29th August 2020. Collected data were transferred to spreadsheet from

Google.docs and after coding there again transferred to SPSS version 20.0 for final analysis. To find out the level of knowledge and level of perception the descriptive statistics such as frequency, mean, percentage, and standard deviation were used. To observe the correlation between knowledge and perception regarding COVID-19 among school children, inferential statistics Spearman's rank correlation coefficient was used. With the objective to test association between knowledge level and perception level with demographic variables, chi-square test was used with 0.05% tested level of significance.

RESULTS AND DISCUSSION

The summary of the analyzed results of the study is as follows.

Part I: Distribution of school children based on demographic variables

This part dealt with frequency and percentage distribution of school children based on demographic variables. Data was analyzed using descriptive statistics and summarized as follows.

Table 1: Frequency and percentage distribution of respondents according to demographic variables.

N=182

S.N	Demographic Variables	Frequency	Percentage (%)
1	Age in completed years		
A	10-12 years	70	38.46
B	**13-14 years**	**83**	**45.60**
C	15-16 years	29	15.93
2	Sex		
A	Male	86	47.3
B	**Female**	**96**	**52.7**
3	Religion		
A	**Hindu**	**162**	**89**
B	Others	20	11
4	Ethnicity		
A	**Brahmin**	**83**	**45.6**
B	Chhetri	47	25.8
C	Janajati	38	20.9
D	Dalit	14	7.7
5	Grade		
A	**6-8**	**118**	**64.83**
B	9-10	64	35.16
6	Area of residence		
A	**Urban**	**143**	**78.57%**
B	Rural	39	21.42
7	Heard about COVID-19		
A	**Yes**	**178**	**97.8**
B	No	4	2.2

Data presented on the table 1 showed that majority (45.6%) of respondents were between ages 13-14 and most (52.7%) of them are female, belonged to Brahmin (45.6%) group in ethnicity and followed Hindu (89%)

religion. Majority of the respondents were from grade 6-8 (64.83%) and resided in urban area. Among them, most (97.8%) of them had heard about COVID-19.
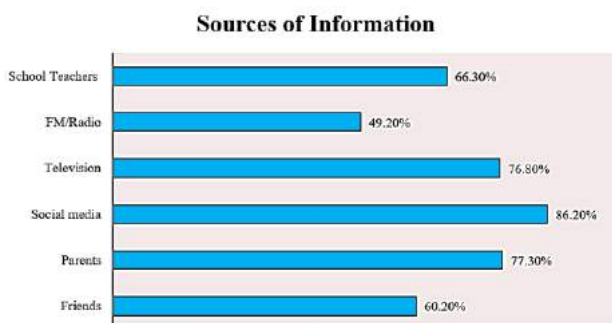

Fig 1: Sources of information regarding COVID-19 among school children

Data presented in the figure 1 showed that school children got information regarding COVID-19 through various sources. Out of various means of sources, majorities (86.20%) got their information from various social media whereas least source of information for COVID-19 was from FM/Radio (49.20%).

The findings were supported by the study conducted by Olaimat et al among 2,083 undergraduate or postgraduate students from different governmental and private universities to assess knowledge about COVID-19. The findings of the study showed that majority of students used the internet, social media and mass media as sources of information about COVID-19.12

Part II: Distribution of respondents according to knowledge level and perception level

This part explains the frequency and percentage distribution of respondents according to the level of knowledge along with mean knowledge score and level of perception with mean score on perception. Data were analyzed using descriptive statistics and summarized as follows.

Table 2: Frequency and Percentage distribution of respondents based on knowledge level and perception level (N=182)

	Knowledge level		Perception Level
	Adequate	Inadequate	Good
Frequency	**103**	79	78
Percentage	**56.6**	43.4	42.9
Mean	Mean=7±2		Mean=8.2±1.79

Data presented on the table 2 showed that majority (56.6%) of respondents had adequate knowledge with mean knowledge score of 7±2. And most (57.1%) of them have poor perception with mean score 8.2±1.79 on perception.

The findings were supported by the study conducted by Olaimat et al among 2,083 undergraduate or postgraduate students from different governmental and private universities to assess knowledge about COVID-19.

The findings of the study showed that 56.5% of the respondents showed good knowledge and almost 40.5% showed moderate knowledge.[12]

Similar study was done among students in Bangladesh to assess knowledge, attitude and perception regarding COVID 19 among students.

The finding showed that the perception towards COVID-19 was not good, they had no idea whether the outbreak would affect their daily routine, study and financial matters, study field work and restrict leisure time of meeting family and relatives.[13]

Part III: Correlation between knowledge and perception among respondents

This part deals with the correlation between the knowledge and perception among school children. Null hypothesis was created to test the correlation between knowledge and perception. Data was analyzed using Spearman's rank correlation coefficient and summarized as follows.

H_{01}: There is no significant correlation between knowledge and perception level among school children.

Table 3: Correlation between knowledge and perception among respondents (N=182)

	Correlation coefficient (r)	*p*-value
Knowledge Perception	**.0243****	**.000**

Data presented above revealed that Spearman's rank correlation coefficient was found to have strong positive correlation between knowledge and perception among school children with correlation coefficient (r=0.243) at 0.001 level of significance. Hence, null hypothesis H_{01} is rejected and concluded that there is strong positive correlation between knowledge and perception among school children.

Part IV Association of knowledge level and perception level to the demographic variables

This part summarizes the presence of association between knowledge level and demographic variable and perception level and demographic variables. Data was analyzed using inferential statistics.

To test the association between demographic variables and knowledge and perception level null hypothesis was created.

H_{02}: There is no significant association between knowledge level and demographic variables.

H_{03}: There is no significant association between perception level and demographic variables.

Table 4: Association between Knowledge level and perception level to the demographic variables (N=182)

S.N.	Chi-square value		df	Significance level (P)		Reference	
	Knowledge	Perception		Knowledge	Perception	Knowledge	Perception
Age	1.423	6.943	5	0.922	0.225	NS	NS
Sex	0.640	**5.557**	1	0.424	**0.018**	NS	**S**
Religion	4.079	2.333	3	0.253	0.506	NS	NS
Ethnicity	**17.174**	**10.835**	**3**	**0.001**	**0.013**	**S**	**S**
Grade	5.559	9.190	4	0.235	0.057	NS	NS
Area of residence	3.660	**5.976**	1	0.056	**0.015**	NS	**S**

Data presented in table 4 showed that the variables such as sex (p=0.018), ethnicity (p=0.013) and area of residence (p=0.015) have significant association with level of perception.

Thus null hypothesis H_{03} is rejected and concluded that there is presence of significant association between level of perception and selected demographic variables. Similarly, null hypothesis H_{02} is also rejected and concluded that there is presence of significant association between selected demographic variable and level of knowledge as ethnicity (p=0.001) has significant association with level of knowledge.

CONCLUSIONS
COVID-19, due to its rapid human to human transmission it became pandemic and affecting 213 countries in the world. The children however, are not on the face of this pandemic but are always at risk of getting infected as well as becoming vulnerable to misinformation leads to fear and poor perception about disease. It is essential to provide adequate level of knowledge about the disease and its preventive measures to bring positive perception so that it will help them to cope with the situation.

COMPETING INTERESTS
The authors declare that they do not have any competing interests.

CONSENT FOR PUBLICATION
The authors gave consent for publication of the research.

AUTHOR'S CONTRIBUTION
Corresponding author has contributed in overall research process, proposal preparation, tool preparation, data collection, data analysis, manuscript preparation and submission. Co-author has contributed on tool preparation, data collection and manuscript preparation.

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