Knowledge, attitudes, and practices towards COVID-19 among Nepalese Residents: A quick online cross-sectional survey

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ABSTRACT

Background: Corona virus disease 2019 (COVID-19) is a highly infectious disease. It is caused by a novel virus belonging to a family known as corona virus. This virus was first identified in the month of December 2019 in Wuhan, China Hubei province. Since its first identification it has spread globally. It was declared a public health emergency of international concern on January 30, 2020 by WHO. Despite all efforts the virus continues to spread and WHO declared it a pandemic on March 11, 2020. In Nepal the first case was tested positive on 23rd January and ever since numbers are increasing as days passed by. Residents of the country are the most important stakeholders to control the spread of such viruses. Nepal is a land locked country situated between India and China and is one of the vulnerable areas among SAARC nations. In spite of being such a vulnerable nation there was a lack of previous studies detecting the degree of awareness among Nepalese residents towards COVID 19. **Aims and Objectives:** This study aims to assess the current level of awareness towards COVID 19 among Nepalese residents and to analyze their attitudes and practices towards COVID 19 which is very important for people's active participation to control this pandemic. In this study we investigated Nepalese residents KAP towards COVID-19. **Material and Methods:** This is cross sectional online study. A self-developed online questionnaire was completed by the participants. There were a total 29 questions among which 15 questions assessed knowledge, 6 questions assessed attitude and remaining 8 questions assessed practice. **Results:** Among the respondents (n = 760), 65.7 % were male, 50.3 % were healthcare workers, overall range of correct answers for knowledge questionnaire was 60.0-98.7% %, that for attitude was 77.9-96.4% and for practice was 78.2-95.0 %. Participants with a medical degree had statistically significant better practice against COVID 19 compared with the general population. **Conclusion:** Findings of this study show that knowledge among people of Nepal about COVID 19 is satisfactory. Yet a significant number of participants are lacking confidence when compared to other countries. Better practice against COVID requires a sense of responsibility, though the respondents with medical background had better sense of act against COVID prevention practice.

Key words: Knowledge; Attitude; Practice; COVID-19; Nepal

INTRODUCTION

COVID 19 is an abbreviation for Corona virus disease 2019 which is an infectious disease caused by a novel virus belonging to the virus family known as Corona virus. It was first identified in December 2019 in Wuhan, the capital of China's Hubei province, and has since spread globally, resulting in the ongoing 2019-20 Corona virus pandemic. The COVID-19 patients can present with symptoms that varies from asymptomatic or paucisymptomatic forms to clinical conditions that are characterized by respiratory failure and patients may need mechanical ventilation and support in an intensive care unit (ICU). Patients may develop multiorgan and

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systemic manifestations in terms of sepsis, septic shock, and multiple organ dysfunction syndromes. In one of the first reports on the disease, presenting patients suffered from fever, malaise, dry cough, and dyspnea. Chest computerized tomography (CT) scans showed pneumonia with abnormal findings in all cases. About a third of patients required ICU care, and mortality among the patients was15%.[1] Another study showed that 81% of cases had mild disease. Among the cases 14% developed severe disease. A small fraction of the cases, overall 5% developed critical disease.[2] Corona virus also causes diseases like Severe Acute Respiratory Syndrome(SARS) and Middle East Respiratory Syndrome(MERS). However Empirical clinical data have shown that the overall case fatality rate of COVID-19 is 2.3% in China, much lower than those of SARS (9.5%), MERS (34.4%), and H7N9 (39.0%).[3] In December 2019, there was an outbreak of pneumonia of unknown cause in Wuhan, Hubei province in China, with an epidemiological link to the Huanan Seafood Wholesale Market. World Health Organization (WHO) was notified about the disease on 31 Dec 2019 by the Chinese Health Authorities. On Jan 7, a novel Corona virus was identified by the Center for Disease Control and Prevention (CDC) from the throat swab sample of a patient, and was subsequently named 2019-nCOV by WHO. WHO declared it a public health emergency of international concern on January 30,despite these efforts, the virus continued to spread and WHO declared it as pandemic on 11 March 2020.[4]

According to WHO situation reports from its first outbreak in Wuhan through 14 April 2020, a total of 1844863 laboratory confirmed cases of COVID 19 associated with 117021 death have been reported globally. This disease is also quickly spreading in SAARC countries. Till 14 April, 2020 the no. of laboratory confirmed cases of COVID 19 in different SAARC countries are as follows: India 10363, Pakistan 5716, Bangladesh 803, Sri Lanka 218, Maldives 20, Nepal 16 and Bhutan 5.

In Nepal, the first case of COVID 19 was tested positive by real-time RT-PCR assay on 23 January 2020. The case is reported to be a 31-year-old male who studies in Wuhan and traveled to Kathmandu from Wuhan. The Nepalese Government evacuated 175 Nepalese citizens from various parts of the Hubei Province on 16 February, 2020 and quarantined at Kharipati, Bhaktapur and on day 16 of quarantine after the test results were negative, they were sent back home. The second case was tested positive on 22 March 2020 (MOHP). The Government of Nepal issued a national lockdown on 23 March, 2020(News). On 4 April 2020, 3 new cases were tested positive making total count 9. It was on 4 April 2020 when the first local

transmission was reported and following this Nepal entered the second stage of COVID 19 outbreak (MOHP). On 6 April 2020 the Government of Nepal extended the national lockdown until 15 April to contain the spread of the COVID 19.

Online survey was done in this study as the country was in the state of national lockdown during the study period so it was not feasible to do a community-based national sampling survey during this special period. Based on our results, we also intend to suggest concerned government authorities, NGOs, INGOs and other volunteer organizations to act accordingly to prevent the spread and contain the disease COVID 19.

People's adherence to control measures are essential, which is largely affected by their knowledge, attitudes, and practices (KAP) towards COVID-19 in accordance with KAP theory. Lessons learned from the past is that knowledge and attitudes towards infectious diseases are associated with levels of panic emotion among the population, which can further complicate attempts to prevent the spread of the disease.[5-8]

MATERIALS AND METHODS

This cross-sectional survey was conducted from 4th of April 2020 to 9th of April 2020. Online survey was done in this study as the country was in the state of national lockdown during the study period so it was not feasible to do a community-based national sampling survey. Preformed online questionnaires were sent via email, Facebook, Whatsapp, Twitter. Nepalese residents were included in the study. The Ethics Committee of National Medical College approved our study protocol and procedures before the formal survey.

Measures
The questionnaire consisted of two parts: Demographics and KAP. Demographic variables included age, sex, occupation, and province of current residence. These online questionnaires contained a total of 29 questions among which 15 assessed Knowledge, 6 assessed attitude and remaining 8 assessed practice

Statistical analysis
Microsoft excel was used for data entry and IBM SPSS 21.0 software was used for the analysis of data. Descriptive statistics was calculated to describe the characteristics of the sample and cross-tabulation for the distribution of knowledge, attitude and practices of the participants towards COVID – 19. To examine the association of gender and medical background of the participants with

their practices, binary logistic regression was done to calculate odds ratio with 95% confidence interval and p=0.05.

RESULTS

A total of 760 participants completed the survey questionnaire. Among this final sample, 739 (97.2%) were above the age of 18, 499 (65.7%) were men, 382 (50.3%) held a medical degree or and 302 (39.75%) were from Province 2. Other demographic characteristics are shown in Table 1.

The correct answer range of the questions on the COVID-19 knowledge questionnaire were 60.0-98.7%. Correct answer range among Male participants was 59.7-98.8% and among Female participants was 60.5-98.4%. Among medical degree holders the correct

answer range was 64.9-99.5%. Among non-medical participants this ranged between 55-98.1%. Virus as a cause of COVID 19 was the question with highest correct answers and risk of infection by eating or contacting domestic animals was the question with least correct answers (Table 2).

There was a total of 6 questions to assess attitude. Overall, 78.4% of participants were confident that COVID 19 can be successfully controlled. Male were more confident than female and medical degree holders more confident than non-medicos. In our study 90.3% of participants had agreed that drinking alcohol will not cure COVID 19. 77.9% were convinced that Nepal can win the battle against COVID 19. Almost all of the respondents (96.1%) believed that self-protection is necessary for the protection of others. 667(87.8%) opined that not everyone with COVID 19 will die. Almost all participants 733 (96.4%) believed that Lockdown is an effective measure to control the transmission(Table 3).

There was a total of 8 questions to access practice among the participants. Overall, 94.9% of the participants had not been too crowded places in recent days, 78.3% people disposed of masks when it became moist or at least wearing for 8 hours, 88.2% were wearing masks in a correct way. Among participants 93.7% followed WHO hand washing technique. Overall, 94.7% of participants practiced social distancing and 95.0% followed lockdown (Table 4).

Practices like wearing a mask while leaving home, disposing of the mask when it becomes moist or at least 8 hours after wearing and following WHO hand washing technique were significantly better among participants with a medical degree(Table 5).

Table 1: Demographic characteristics of the participants

Variables	Frequency (n=760)	Percentage
Age		
Above 18	739	97.2%
Below 18	21	2.8%
Gender		
Male	499	65.7%
Female	261	34.3%
Occupation		
Medical	382	50.3%
Non-medical	378	49.7%
Area of residence		
Province 1	89	11.7%
Province 2	302	39.7%
Province 5	82	10.8%
Bagmati Province	205	27.0%
Gandaki province	38	5.0%
Karnali Province	11	1.4%
Sudurpaschim province	33	4.3%

Table 2: Knowledge of the participants on COVID 19 according to the gender and medical training

Knowledge	Male (n=499)	Female (n=261)	Medical (n=382)	Non-medical (n=378)	Total (n=760)
Virus as the cause of COVID 19	476 (95.4%)	249 (95.4%)	380 (99.5%)	345 (91.3%)	725 (95.4%)
Symptoms of COVID 19	383 (76.8%)	204 (78.2%)	328 (85.9%)	259 (68.5%)	587 (77.2%)
Who should get tested?	424 (85.0%)	229 (87.7%)	350 (91.6%)	303 (80.2%)	653 (85.9%)
Mode of transmission	453 (90.8%)	233 (89.3%)	360 (94.2%)	326 (86.2%)	686 (90.3%)
Protection from the spread of COVID 19	467 (93.6%)	245 (93.9%)	370 (96.9%)	342 (90.5%)	712 (93.7%)
Protection measures if recently visited to the area of high risk	420 (84.2%)	216 (82.8%)	333 (97.2%)	303 (80.2%)	636 (83.7%)
Cure for COVID 19	462 (92.6%)	240 (92.0%)	375 (98.2%)	327 (86.5%)	702 (92.4%)
Infection by eating or contacting domestic animals	298 (59.7%)	158 (60.5%)	248 (64.9%)	208 (55.0%)	456 (60.0%)
Transmission without fever	401 (80.4%)	215 (82.4%)	333 (87.2%)	283 (74.9%)	616 (81.1%)
Infection through respiratory droplets	447 (89.6%)	231 (88.5%)	366 (95.8%)	312 (82.5%)	678 (89.2%)
Wearing surgical mask as precaution	370 (74.1%)	182 (69.7%)	274 (71.7%)	278 (73.5%)	562 (72.6%)
Preventive measures for children and young adult	423 (84.8%)	226 (86.6%)	337 (88.2%)	312 (82.5%)	649 (85.4%)
Avoid going to crowded places	474 (97.1%)	252 (98.4%)	372 (97.9%)	354 (97.3%)	726 (97.6%)
Isolation and treatment of infected person as effective way to reduce the spread of the virus	467 (96.7%)	127 (95.7%)	381 (96.9%)	345 (95.8%)	714 (96.4%)
Isolation of contact for the period of 14 days	482 (98.8%)	249 (98.4%)	376 (99.2%)	355 (98.1%)	731 (98.7%)

Table 3: Attitude of the participants towards COVID 19 according to the gender and medical training

Variables	Male (n=499)	Female (n=261)	Medical (n=382)	Non-medical (n=378)	Total (n=760)
COVID-19 can finally be successfully controlled	403 (80.8%)	193 (73.9%)	313 (81.9%)	283 (74.9%)	596 (78.4%)
Drinking alcohol will not cure COVID-19	453 (90.8%)	233 (89.3%)	356 (93.2%)	330 (87.3%)	686 (90.3%)
Nepal can win the battle against COVID-19	400 (80.2%)	190 (72.8%)	303 (79.3%)	287 (75.9%)	590 (77.9%)
Self protection necessary for the protection of others	478 (95.8%)	252 (96.6%)	374 (97.9%)	356 (94.2%)	730 (96.1%)
Not everyone with COVID-19 will die	430 (86.2%)	237 (90.8%)	359 (94.0%)	308 (81.5%)	667 (87.8%)
Lockdown effective measure to control the transmission	481 (96.4%)	252 (96.6%)	376 (98.4%)	357 (94.4%)	733 (96.4%)

Table 4: Practice of the participants against COVID 19 according to the gender and medical training

Variables	Male (n=499)	Female (n=261)	Medical (n=382)	Non-medical (n=378)	Total (n=760)
Not been to crowded place in recent days	471 (94.4%)	250 (95.8%)	365 (95.5%)	356 (94.2%)	721 (94.9%)
Worn mask while leaving home	452 (90.6%)	234 (89.7%)	357 (93.5%)	329 (87.0%)	686 (90.3%)
Following WHO hand-washing technique	465 (93.2%)	247 (94.6%)	369 (96.6%)	343 (90.7%)	712 (93.7%)
Disposing of mask when it becomes moist or at least 8 hours after wearing	389 (78.0%)	205 (78.5%)	322 (84.3%)	272 (72.0%)	594 (78.2%)
Wearing mask in a correct way	446 (89.4%)	224 (85.8%)	348 (91.1%)	322 (85.2%)	670 (88.2%)
Practicing social distancing	477 (95.6%)	243 (93.1%)	366 (95.8%)	354 (93.7%)	720 (94.7%)
Following lockdown	475 (95.2%)	247 (94.6%)	369 (96.6%)	353 (93.4%)	722 (95.0%)

Table 5: Multiple binary logistic regression on factors associated with practices towards COVID-19

Variables	OR (95% CI)	P value
Not going to crowded places		
Occupation (medical vs. non-medical)	0.78 (0.40 – 1.50)	0.462
Gender (female vs. male	0.77 (0.37 – 1.59)	0.479
Wearing mask while leaving home		
Occupation (medical vs. non-medical)	2.20 (1.32 – 3.67)	0.002
Gender (female vs. male	0.79 (0.47 – 1.31)	0.370
Following WHO hand-washing technique		
Occupation (medical vs. non-medical)	2.85 (1.47 – 5.52)	0.002
Gender (female vs. male	1.09 (0.57 – 2.11)	0.779
Disposing of mask when it becomes moist or at least 8 hours after wearing		
Occupation (medical vs. non-medical)	2.11 (1.47 – 3.03)	<0.001
Gender (female vs. male	0.91 (0.631 – 1.32)	0.643
Practicing social distancing		
Occupation (medical vs. non-medical)	1.69 (8.76 – 3.27)	0.117
Gender (female vs. male	0.57 (0.29 – 1.09)	0.092

DISCUSSION

To the best of our knowledge our study is the first study in Nepal investigating the KAP towards COVID-19 among Nepalese residents. We studied the characteristics of KAP towards COVID 19 and identified associated demographic factors which can be useful for policy makers for prevention of COVID 19 and educating about it. Overall, 60.0 to 98.7% of the participants answered knowledge questions correctly. This finding was in accordance with a similar study done in China where the range of correct answers for knowledge questionnaires was 70.2 to 98.6%.[9] The level of awareness of SARS among Qataris was poor (31.7%) compared to that among non-Qataris (68.3%).[10] A satisfactory correct rate of COVID-19 knowledge in Nepalese residents is probably because this study was done when COVID 19 had already become a global health problem and had started to show its effects in Nepal. People would gather information on COVID 19 from television, radio,internet,ring tones on all mobile phone service providers,discussion among peer groups etc. The range of correct answers to Knowledge questions among participants in our study 64.9-99.5% was better than those of non-medical groups 55.0-98.1%. This is probably due to better medical knowledge among participants with a medical degree.

Overall, 78% of participants were confident that COVID 19 can be successfully controlled. 77.9% were confident that Nepal can win the battle against COVID 19. Among participants of similar study in China 90.8% were confident about control of COVID 19 and 97.1% of participants believed China would win the battle against the disease.[9] Better attitude among the participants of China is probably because health care facilities in China is comparatively better than Nepal. Second reason may be the better economic status of the country.

Participants of our study had optimistic attitudes towards COVID-19. Most of them took precautions to prevent infection by COVID-19: not going to crowded places and wearing masks when leaving home. These preventive practices could be primarily attributed to the very strict prevention and control measures implemented by the government such as banning public gatherings. Secondly, they also could be the result of strict lockdown implemented by the Government of Nepal with provision of punishment to defaulters. Third, they also could be the result of the residents' good knowledge regarding the high infectivity of the COVID-19 virus, which can be easily transmitted between people via invisible respiratory droplets. Unfortunately, the present study still showed that 5.1% (4.5% among medico's vs 5.8% non-medicos) residents went to crowded places and 9.7% (6.5%among medico's vs 13.0% among non-medicos) did not wear masks when leaving homes. Unfortunately, 6.3% (4.4% among medico's vs 9.3% among non-medicos) of participants did not follow WHO hand washing techniques. The statistically significant differences in these practices between participants with a medical degree and those without it can be attributed to differences in knowledge about COVID 19. Similar findings were obtained among participants of medical and non-medical study group in a study done in Vietnam on KAP towards dengue fever.[11]

Due to limited availability of Internet access in Nepal we could not involve a large population. The vulnerable populations of Nepalese society under the COVID-19 epidemic such as older adults, population with co morbidities and people living in villages of Nepal had limited participation. These groups need special research attention in today's Nepal. Another limitation to study was lack of in-depth assessment of KAP towards the COVID-19 which would have been possible with interviews and group discussion. More than half of the participants hold a medical degree therefore the outcome of the study would not be a perfect representation of the general population.

CONCLUSION

To the best of our knowledge the present study is first of its kind in Nepal. Nepal is facing a stiff challenge to control the spread of COVID 19 among its population. Findings of this study show that knowledge among people of Nepal about COVID 19 is satisfactory. Yet a significant number of participants are lacking confidence when compared to other countries. A fraction of participants are lacking safety practices like not going to crowded places, wearingmasks, hand washing with WHO technique, strictly following lockdown while which can be dangerous in the view of spread of disease. All the concerned bodies need to focus on these aspects to win the battle against COVID 19.

Limitations of the study

Our study lacks complete representativeness due to its online nature thus more studies are warranted to investigate the KAP towards COVID-19 among Nepalese residents.

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Authors Contribution:
HA- Concept and design of the Study, reviewed the literature, manuscript preparation and critical revision of the manuscript; **TG-** Statistically analyzed and interpreted, critical revision of manuscript; **BMS-** Data collection and review of literature; **RR-** Concept of study and data collection; **RPT-** Conceptualized study, Statistical analysis and interpretation.

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