A Comparative Study On Knowledge, Attitude, And Practice Towards COVID-19 Among Nursing Students Of Odisha And West Bengal

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Abstract: Background:COVID 19 is a highly infectious disease transmits from human to human through respiratory droplets. Remarkable steps have been taken by the Indian government to restrain the spread of the deadly virus. Since nursing students are valuable assets in the fight against the lethal virus, they should be endowed with adequate knowledge. Objective:The objective of the current study is to compare the knowledge, attitude, and practice of the nursing students of Odisha and West Bengal towards COVID 19. Methods: A cross-sectional web-based survey was carried out among diploma, bachelor, and master degree nursing students of West Bengal and Odisha from 12th June to 20th June 2020. A 25 item self-structured questionnaire was applied to assess the knowledge, attitude, and practice (KAP) among the nursing students. About 1220 students submitted their responses through the online portal (Google form). Descriptive statistics were used for demographic variables, whereas Independent samples t-test and one-way ANOVA were applied for comparison of KAP scores based on demographic characteristics at 0.05 level of significance. Result:Among the nursing students 64.8% had good knowledge (10.63± 1.27), 91.15% had positive attitude (3.93± 0.743) and 99.5% had good practice (4.02± 0.408). Comparison of KAP scores revealed that females had higher knowledge (9.34+2.24) and attitude (3.78± 0,92) as compared to the male. It was also found that nursing students of Odisha state had greater knowledge and practice in contrast to the students of West Bengal, with a significant difference. No significant difference was found in the attitude scores between the nursing students based on current residence(p>0.05). Conclusion: The current study revealed that the majority of the students have good knowledge, a positive attitude, and good practice. But still, a gap in the knowledge was discovered; amonga few students, which require careful attention.

Introduction

SARS-CoV-2 is an enveloped virion containing the largest known genome (26.4-31.7 kb) within a single-stranded RNA as compared to other RNA viruses. (1)The name coronavirus refers to the appearance of the viral anatomy which isanalogous to the 'crown' shape as fabricated by several glycoprotein projections around the envelope like the spike glycoprotein(S), membrane protein(M), envelope small membrane protein(E), and hemagglutinin esterase (HE).(2)(3)This zoonotic virus has the potential to transmit from animal to human and between humans to humans majorly through a respiratory droplet and direct contact. (4)(5)(6)(7)(8)SARS CoV-2 is one of the seven known strains of the coronavirus family, first isolated in the wet market of Wuhan, China in Dec 2019. (9)(10)Since then the virus has spread to 216 countries, areas, or territories as per the WHO report. At the time of writing (2nd July 2020) 10,533,779 confirmed cases and 512,842 confirmed death has been reported globally to the WHO.(11)In the Indian scenario whenthe first case was detected on 30th January 2020 the Government has taken many initiatives likethe organization of awareness campaigns, training of

health care workers, lockdown measures, containment strategy, contact tracing, etc to halt the incidence rate and to gain some time for the preparedness. As of now (2nd July 2020) 604,641 confirmed cases and 17,834 deaths due to COVID 19 have been recorded in India.(12)The widespread burden of escalating COVID 19 cases on the health care sector ultimately putting paramount pressure on the frontline warriors.(13)As a substantial component of the health care system nurses are vital as they take challenges of delivering optimal quality care to the coronaaffected patientsat proximity and play a critical role in establishing bridge among other health care workers.(14)(15)(16)(17) As per the standard operating procedure (SOP) issued by the Government of India during this unprecedented pandemic situation, nursing students arealso contributing efforts to render high quality nursing care despite of high risk and challenges in the hospitals or at local community to minimize the health care burden.(18)Although six months passed since COVID 19 case was first identified, no vaccine or drug has been proved to be curative against novel corona virus infection, hence leaving precautionary measures the only way to stay safe.(19)WHO guidelines and several scientific evidencesproposed that proper hand hygiene, correct use of mask, and practice of social distancing are effective measures to reduce the transmission of novel corona virus.(20)(21)(22)Therefore, the current study aimed to assess the nursing student'sknowledge adequacy, attitude and practiceto mitigate the transmission of the novel corona virusso that they can keep themselves and their loved one safe.

Methods

Study design and sample

The current study was an online-based cross-sectional survey conducted among the nursing students of Odisha and West Bengal from 12th June to 20th June 2020. The students pursuing diploma, bachelor's degree, or master's degree in nursing were eligible to participate in the study.To estimate the sample size Rao soft sample calculator was used assuming 95% of alpha, 5% of margin error, and 50% of the response distribution. Although 377 was the minimum required sample size as calculated, a total of 1220 students completed the survey,

Measures:

 An online survey link was generated using google form and circulated among the students through several digital platforms like Facebook, WhatsApp, and Email. Personal contacts, class teachers, and authorities of the educational institutions were contacted for extensive dissemination of the formulated link. A self- structured survey questionnaire was generated based on the issued advisory and guidelines by the World Health Organization, Centre for Disease Control and the Ministry of Health, and family welfare Govt. of India.(23)(24)(25). The whole questionnaire was comprised of 2 major segments 1. The demographic part containing age, gender, marital status, education, year of study, and state of current residence 2.KAP (Knowledge, Attitude, and Practice)section.

Knowledge questionnaire included 15 items based on clinical presentation, transmission, and prevention of infection which participant responded by selecting predefined options (True/False/Not sure). A correct response was awarded '1' point and for an incorrect answer '0' point, hence respondents securing 9 points or more (60%) out of maximum score 15, were labeled as good knowledge group and those who obtained 8 points or less were categorized as poor knowledge group.

Both attitude and practice sections consisted of 5 items each where responses were recorded in the form of 'yes' or 'no'. Scoring was done by assigning '1' point to 'yes' and '0' point to 'no'. The total score was 5 in each with a higher score indicating a positive attitude and good practice.

The questionnaire was sent to 2 nursing researchers and 3 doctors for validation based on clarity, simplicity, relevancy, adequacy, and ambiguity, and necessary corrections were carried out. A pilot study was conducted on 60 nursing students to identify the issues, simplify the question, and to examine the feasibility of the study. The reliability of the KAP questionnaire was measured using SPSS version 20. The tool was found to be reliable as the calculated Cronbach's alpha score was 0.74.

Ethical consideration:

Online consent was taken from the participants. Upon clicking on the google link consent page used to appear first, which the participants have to read and mark their agreement to proceed to the next hidden section containing Demographic and KAP questionnaire.

Statistical analysis:

SPSS version 20 was used for the calculation of descriptive and inferential statistics. Shapiro Wilk test was performed on KAP scores and found to be normally distributed. Demographic variables were expressed using frequency and percentage. Knowledge, attitude and practice scores were compared among and between the groups using 't' test and 'ANOVA' as applicable based on demographic characteristics. The analysis was carried out at 0.05 level of significance.

Result:

Demographic characteristics

The demographic characteristics of the participants are depicted in the form of frequency and percentage in Table 1. A total of 1220 students completed the survey out of which maximum students (50.5%) were fromthe age group of 15- 20 years. Most of the respondents were female representing 85.6%. In terms of marital status, 93.8% were unmarried participants. Based on the educational status majority of the participants (50.7%) belong to a bachelor's degree. About 33% ofthe first-year student participated as compare to others. The majority of the respondents had current residence Odisha representing 64.9%.

Table 1. Demographic characteristics of participants (N=1220)

Variables	N	Percentage (%)
Age group in year		
15-20	616	50.5
21-25	482	39.5
26-30	104	8.5
>30	18	1.5
Gender		
Male	176	14.4
Female	1044	85.6
Marital status		
Married	72	5.9
Unmarried	1144	93.8
Preferred not to say	4	0.3
Education		
Diploma nursing	428	35.1
Bachelor degree in nursing	618	50.7
Post basic Bsc Nursing	66	5.4
Master degree nursing	108	8.9
Year of study		
1st year	402	33.0
2nd year	362	29.7
3rd year	386	31.6
4th year	70	5.7
State of current residence		
Odisha	792	64.9
West Bengal	428	35.1

Knowledge

The result of the knowledge scoresis described in table 2. and Table 5. It was found that 64.8% of students had good knowledge whereas the remaining 35.2 % had poor knowledge-based 60% cut off point. The good knowledge group had the mean $\pm$ SD =10.63$\pm$ 1.27 and the poor knowledge group had a mean score of 6.69 (SD:1.45).

Table 2. Result of knowledge survey

	Questions	True [N (%)]	False [N (%)]	Not sure [N (%)]
K1	Dry cough, fever sore throat, diarrhoea and nasal congestion are the primary features of person infected with COVID-19	1004(82.3)	148(12.1)	68(5.6)
K2	Hospitalization is not required for clinically stable suspected or confirmed COVID-19 cases with mild illness without warning signs.	414(33.9)	686(56.2)	120(9.8)
K3	A person who tested negative cannot be positive or develop symptoms later.	234(19.2)	784(64.3)	202(16.6)
K4	The health care providers should self-monitor their temperature daily and report if they experience symptoms of COVID-19.	1070(87.7)	56(4.6)	94(7.7)
K5	Asymptomatic COVID-19 positive cases don't spread infection to others.	132(10.8)	974(79.8)	114(9.3)
K6	COVID-19 infection does not spread through droplets of saliva or nasal discharge of infected person.	120(9.8)	1056(86.6)	44(3.6)
K7	Animals transmit COVID-19 virus to humans	458(37.5)	486(39.8)	276(22.6)
K8	Can COVID-19 be passed from pregnant mother to the foetus?	644(52.8)	274(22.5)	302(24.8)
K9	Breastfeeding should be continued even if mother tested positive for COVID-19.	328(26.9)	616(50.5)	276(22.6)
K10	Triple layer mask and disposable gloves are enough while cleaning the surface and handling the clothing or linen used by COVID-19 patients.	436(35.7)	672(55.1)	112(9.2)
K11	When hands are visibly dirty, they should be washed with soap and water for 40-60 seconds following the appropriate technique to prevent COVID-19 transmission.	920(75.4)	262(21.5)	38(3.1)
K12	A disposable face mask can be sterilized and reused by the health workers working in the COVID-19 care facility.	314(25.7)	794(65.1)	112(9.2)
K13	It is desired to have a negative pressure isolation room for COVID-19 patients requiring suction, ventilator support, or intubation.	760(62.3)	140(11.5)	320(26.2)
K14	The health care workers who come in contact with positive COVID-19 patients should stay in isolation for 14 days.	1098(90.0)	88(7.2)	34(2.8)
K15	Children and older are more vulnerable to COVID-19 infection.	396(32.5)	764(62.6)	60(4.9)

Attitude:

There were a total of 5 items (A1-A5) in the attitude section (Table 3) which the respondent answered through yes or no option. Most of the students (84.4%) reported that their study was affected due to the outbreak of a deadly virus.The interesting outcome of this survey is that 90.2 % of the students opt to work for the country during the time of need as a frontline warrior.   The majority of the participants i.e. 91.15% (N=1112) had a positive attitude towards COVID 19 with a mean score of 3.93$\pm$0.743 (Table5).

Practice:

Assessment of the practice was performed using five items (P1-P5) as mentioned in Table 4. It was found that 98.9% of the students wear masks when going out of the house. Regrading visits to the crowded place very often 88.7% provided a negative answer. About 97.7% follow appropriate steps of washing for 20-30 seconds for routine hand hygiene, 94.9% stay at home during the lockdown and 97.9% clean their clothes and shoes when come from outside. The highest percentage of 99.5% of the students recorded good practice and the mean practice score was 4.02$\pm$ 0.408 (Table 5).

Table 3. Result of attitude survey

	Questions	Yes [N (%)]	No [N (%)]
A1	Are you scared of the COVID-19 transmission?	810(66.4)	410(33.6)
A2	Do you have the confidence that the COVID-19 outbreak will end soon in India?	880(72.1)	340(27.9)
A3	Do you feel the consumption of wild animals should be avoided?	748(61.3)	472(38.7)
A4	Is your study affected due to the COVID-19 outbreak?	1030(84.4)	190(15.6)
A5	Will you work for the country during the time of need as a frontline warrior against COVID-19 infection?	1100(90.2)	120(9.8)

Table 4. Result of practice survey

	Questions	Yes [N (%)]	No [N (%)]
P1	Do you wear a mask when going out of the house?	1206(98.9)	14(1.1)
P2	Do you visit crowded places very often?	138(11.3)	1082(88.7)
P3	Are you following appropriate steps of handwashing techniques for 20-30 seconds for routine hand hygiene?	1192(97.7)	28(2.3)
P4	Did you stay at home with your parents during the lockdown?	1158(94.9)	62(5.1)
P5	Do you clean your clothes and shoes when coming home from outside?	1192(97.7)	28(2.3)

Table 5.KAP analysis

Good knowledge		Poor knowledge		Positive attitude		Good practice	
N (%)	Mean (SD)	N (%)	Mean (SD)	N (%)	Mean (SD)	N (%)	Mean (SD)
790 64.8	10.63$\pm$ 1.27	430 35.2	6.69 $\pm$ 1.45	1112 91.15	3.93$\pm$ 0.743	1214 99.5	4.02$\pm$ 0.408

Comparison of knowledge, attitude, and practice scores

A comparison of KAP scores based on demographic variables was accomplished using independent samples t-test and one-way ANOVA as appropriate,demonstrated in Table 6. Comparison of knowledge scores at 0.05 level revealed a statistically significant difference for age group, gender, marital status, and education. It was found that females had higher knowledge (9.34$\pm$

2.24) as compared to male students. Greater knowledge mean scores were also noted among >30 years of age group (10.89 $\pm$ 1.49), married (10.03 $\pm$ 1.88), and master degree students (10.88 $\pm$ 1.42). When attitude scores were compared based on demographic variables significant difference was found for gender, education, and year of study as $p<0.05$. Attitude scores were significantly higher among female (3.78$\pm$ 0.92), master degree (4.02 $\pm$ 0.74) and 4th year students (3.86 $\pm$ 0.1). Besides, the difference in practice scores was significant between different age groups,gender,education, year of study, and state of current residence as $p<0.05$.Similarly, greater practice scores were noted among female (4.02$\pm$0.44), master degree (4.07 $\pm$ 0.46) and 3rd year students (4.06 $\pm$ 0.46) (Table 6). Comparison of attitude and practice scores between good and poor knowledge group revealed no significant difference as $p>0.05$ Concerning the current residence, Odisha students had higher knowledge (9.36 $\pm$ 2.36) and practice scores (4.05 $\pm$ 0.39) as compared to the West Bengal students with a significant difference as $p<0.05$(Table 7).Moreover, no significant difference for attitude was found between the students of both the state (p=1.44).

Discussion

The current study assessed the knowledge, attitude, and practice of nursing students towards COVID 19 in the eastern part of India. It was found that 64.8% of nursing students had good knowledge and the finding is consistent with another study of Marzieh Nemati et.al.(26)This outcome additionally suggest that the education and training of nursing students should be emphasized more as they are the potential frontline fighters against the lethal virus. Importantly when the knowledgescore was compared concerning the gender it was observed that female students had higher knowledge (mean$\pm$ SD: 9.34$\pm$ 2.24) as compared to the male and the result is congruent with the findings of a study conducted on medical students of India by Sonam Maheshwari et. al. (27)Knowledge is vital for building up the positive attitude and thereby good practice in the control and prevention of COVID-19. The current study found a higher knowledge was associated with a positive attitude with a significant difference($P<0.05$) in Table 7. The homogenous finding was demonstrated in a study of M. Zhang et.al. among health care workers in China, where a straight forward relation between knowledge and attitude was presented.(28)About 91.15 % of students shown a positive attitude towards COVID 19 in this study which is equivalent in the study result of Hussain Asraf et. al.(29)As expected all most all the students (97.7%) have a positive attitude to work for the country if required during this COVID 19 outbreak. Hence the workload of the health care sector can be minimized by deploying these students if necessary, in the future but it is also quite important to equip them with adequate knowledge as because the current study has demonstrated few students still have a knowledge gap, for which further studies are required to explore the factors.

Table 6. Comparison of knowledge, attitude, and practice scores among different demographic variables.

Variables	Knowledge scores			Attitude scores			Practice scores		
	Mean $\pm$ SD	t/F value	P- value	Mean $\pm$ SD	t/F value	P- value	Mean $\pm$ SD	t/F value	P- value
Age group in year									
15-20	8.91$\pm$ 2.41			3.75 $\pm$ 0.91			4.04 $\pm$ 0.47		
21-25	9.43 $\pm$ 2.21	12.97	0.000	3.69 $\pm$ 0.96	2.17	0.090	3.98 $\pm$ 0.4	3.46	0.016
26-30	10.04 $\pm$ 1.83			3.92 $\pm$ 1.02			3.92 $\pm$ 0.55		
>30	10.89 $\pm$ 1.49			4.00 $\pm$ 0.84			3.89 $\pm$ 0.32		
Gender									
Male	8.64$\pm$ 2.6	3.76	0.000	3.56$\pm$ 1.06	2.86	0.004	3.92$\pm$ 0.53	2.68	0.007
Female	9.34$\pm$ 2.24			3.78$\pm$ 0.92			4.02$\pm$0.44		
Marital status									
Married	10.03 $\pm$ 1.88			3.94 $\pm$ 0.82			3.92 $\pm$ 0.28		
Unmarried	9.19 $\pm$ 2.33	4.50	0.011	3.73 $\pm$ 0.95	1.89	0.152	4.01 $\pm$ 0.46	1.46	0.234
Preferred not to say	9.00 $\pm$ 2.31			4.00 $\pm$ 1.16			4.00 $\pm$ 0.00		
Education									
Diploma nursing	9.00 $\pm$ 2.36			3.70 $\pm$ 0.91			3.99 $\pm$ 0.47		
Bachelor degree nursing	9.06 $\pm$ 2.30	21.74	0.000	3.76 $\pm$ 0.98	6.11	0.000	3.91$\pm$ 0.29	7.50	0.000
Post basic BSc Nursing	10.24 $\pm$ 1.94			3.42 $\pm$ 0.99			3.85 $\pm$ 0.36		
Master degree nursing	10.88 $\pm$ 1.42			4.02 $\pm$ 0.74			4.07 $\pm$ 0.46		
Year of study									
1st year	9.14 $\pm$ 2.53			3.70 $\pm$ 0.91			4.00$\pm$ 0.50		
2nd year	9.23 $\pm$ 2.19	3.68	0.012	3.86 $\pm$ 0.91	3.59	0.013	3.99 $\pm$ 0.35	5.88	0.001
3rd year	9.19 $\pm$ 2.26			3.66 $\pm$ 0.1			4.06 $\pm$ 0.46		
4th year	10.11 $\pm$ 1.59			3.86 $\pm$ 0.1			3.83 $\pm$ 0.51		
State of current residence									
Odisha	9.36$\pm$ 2.3	2.51	0.012	3.77$\pm$ 0.96	1.44	0.152	4.05 $\pm$ 0.39	-2.64	0.008
West Bengal	9.01 $\pm$2.32			3.69$\pm$ 0.91			3.98 $\pm$ 0.48		

Table 7. Attitude and Practice-based on good or poor knowledge

Group	Attitude scores			Practice scores		
	Mean $\pm$ SD	t value	p value	Mean $\pm$ SD	t value	p value
Good knowledge group	3.81 $\pm$ 0.91	3.32	0.001	3.99 $\pm$ 0.41	-1.84	0.066
Poor knowledge group	3.62 $\pm$ 1.00			4.04 $\pm$ 0.52		

Nowadays the official data of COVID 19 in India shows a rapidly increasing trend of incidence and mortality rates in Odisha and West Bengal.(30) Hence appropriate preventive practice is the only key to win the battle against the invisible virus. In the current study maximum students have reported good practice (99.5%) which is a positive indicator and similar kind of findings also presented by M. Saqlain et. al. in a study conducted among health care workers including nurses.(31)As per the WHO recommendation, universal masking is crucial, which the majority of the nursing students adhered to (98.9%) while going out of the house as per the present study findings. The result is congruent with a previous study of SonamMaheswar et. al. where 96.9% of medical students followed the universal masking guideline. Secondly, hand washing with appropriate steps for 20-30 seconds also should be practiced to strangulate the transmission of fatal virus effectively. The current survey result found that almost all the participants (98.9%) practiced hand hygiene and about 97.7% clean their clothes when come home from outside. This reveals that the students have a good practice and similar result also established in a different study of SonamMaheswar et. al.(27)

Limitation:

The limitation of the study was that the information introduced in this investigation is self-announced and mostly reliant on the respondents' trustworthiness and recall capacity; hence, recall bias might be existing. Moreover, the survey was conducted through an online platform therefore, the nursing students staying in the area deprived of internet facilitieswere unable to participate in the study.

Conclusion and recommendation

The study found a major portion of the students with good knowledge, positive attitude, and good practice but still, the knowledge gap found among few students cannot be ignored. Hence extensive dissemination of COVID 19 related information through the educational campaign is required to empower them. The finding of the study also suggests further investigation about the factors associated with the knowledge gap so that appropriate and specific solutions can be applied. Additionally, the study was conducted in a confined eastern part of India, so further investigations are required to generalize the outcomes.

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