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Research Article

A Study to Evaluate the Effectiveness of Planned Teaching Program on Knowledge Regarding Coronavirus Disease 2019 among B.Sc. Nursing 1st Year Students in Government College of Nursing, New Tehri, Uttarakhand, India

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Abstract

Aim: The study aims to evaluate the effectiveness of planned teaching program (PTP) on knowledge regarding coronavirus disease 2019 (COVID-19) among B.Sc. Nursing 1st year students in Government College of Nursing, New Tehri, Uttarakhand, India. **Methodology:** A quasi-experimental one-group pretest-posttest research design and quantitative research approach were used in the study. The sample consisted of 45 students of B.Sc. Nursing 1st year and was selected through convenient sampling method. The data were collected through online questionnaire method. **Results:** The data were analyzed by descriptive and inferential statistics. Assessment of the pre-test knowledge revealed that 20% had good knowledge, 68.89% had average knowledge, and 11.11% had poor knowledge. Assessment of the post-test knowledge revealed that 82.22% had good knowledge, 17.78% had average knowledge, and 0% had poor knowledge. The mean pre-test knowledge score was 15.86 with mean percentage 35.24% and standard deviation of ±4.46. The mean post-test knowledge score was 25.06 with mean percentage 55.68% and standard deviation of ±3.49. The paired *t*-test was used to find out the effectiveness of PTP. The findings revealed that paired *t*-test values were 14.82 at $P < 0.0001$ which was highly significant and Chi-square value 15.226 revealed that there was significant association between pre-test knowledge score with the selected demographic variable, that is, source of information. **Conclusion:** The study highlights that the students were able to gain knowledge regarding COVID-19 through PTP.

Key words: Coronavirus disease 2019, Effectiveness, Evaluate, Nursing students, Planned teaching program

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Introduction

Humans have suffered from lethal infectious diseases including viral outbreak for a long time. The human population has evolved by facing and fighting out the various critical life situations. Survival of the fittest is the law of nature. In recent decades, several new diseases have emerged in different geographical areas with pathogens including Ebola virus, Nipah virus, and coronavirus. Over the past two decades, coronaviruses have been associated with significant disease outbreak in East Asia and Middle East. In humans, several coronaviruses are known to cause respiratory infections ranging from common cold to more severe disease such as Middle East respiratory syndrome

(MERS) and severe acute respiratory syndrome (SARS). Coronavirus belongs to the family Coronaviridae and got its name due to its crown-like structure.[1] According to the WHO, "coronaviruses are a large family of viruses that are known to cause illness ranging from the common cold to more severe diseases such as SARS and MERS."[2] Recently, a new coronavirus SARS coronavirus 2 (SARS-Cov-2) causing coronavirus disease 2019 (COVID-19) emerged in late 2019, has posed a global health threat, causing an ongoing pandemic in many countries and territories. With the first case being reported in December 2019 in China, the virus spread rapidly within China and further throughout the world. On January 13, 2020, the first case of COVID-19 outside the China was reported in Thailand.[3] On January 30, 2020, India also reported its first case of COVID-19 in Thrissur district of Kerala.[4] On February 11, 2020, International Committee on Taxonomy of viruses named the virus as SARS-CoV-2 and the WHO named the disease caused by SARS-COV-2 as "COVID-19" which stands for –

- Co – corona
- Vi – virus
- D – disease
- 19 – 2019[5]

Not all who are being exposed to the virus are having symptoms; some remain asymptomatic while others are having symptoms. The most common symptoms being fever, dry cough, tiredness, sore throat, nasal congestion, diarrhea, loss of taste and smell, dyspnea, shortness of breath, and chest pain. Acc. to the WHO and Centers for Disease Control and Prevention – the incubation period of SARS-Cov-2 was estimated to be 2–14 days.[6] Several techniques are being used to diagnose the disease condition appropriately. Molecular tests including real-time reverse transcription-polymerase chain reaction, serology tests, isothermal amplification assays, antigen test, and antibody test including serology test and enzyme-linked immunosorbent assay are being used widely. Since COVID-19 is a newly emerged disease condition, so no specific treatment or vaccine is available till now for COVID-19. Till then, prevention is the only cure for COVID-19.

Objectives of the study

1. The objectives of the study were as follows: To assess the pre-test level of knowledge among B.Sc. nursing 1st year students regarding COVID-19 in Government College of Nursing at New Tehri, Uttarakhand
2. To assess the post-test level of knowledge among B.Sc. Nursing 1st year students regarding COVID-19 in Government College of Nursing at New Tehri, Uttarakhand
3. To evaluate the effectiveness of planned teaching program (PTP) regarding COVID-19 among B.Sc. Nursing 1st year students by comparing pre-test and post-test scores
4. To find out the association between pre-test level of knowledge regarding COVID-19 with the selected demographic variables.

Hypothesis

H_1: There will be significant difference between pre-test and post-test knowledge score at $P < 0.05$ level of significance.

H_2: There will be significant association between pre-test knowledge score and selected demographic variables at $P < 0.05$ level of significance.

Methodology

Quantitative research approach was considered as best suited for the present study. A quasi-experimental design (one-group pretest-posttest) in which pre-test and post-test observation are made on different days with one selected group without a control group was selected for the study.

The sample size of the study was 45 students of B.Sc. Nursing 1st year of Government College of Nursing, New Tehri, and who were available at the time of data collection and fulfilled the inclusion criteria. Convenient sampling which is a non-probability sampling was used to select the samples for the study.

The tool consist of two sections, section A consisting of seven sociodemographic variables and section B consisting of 30 knowledge-based questionnaire on COVID-19 and the data were collected through online mode.

Statistics

Collected data were planned to be analyzed on the basis of the research objectives and hypothesis using descriptive and inferential statistics. *t*-test and Chi-square test were used for the statistical analysis.

Results

Section A: Distribution of the respondents according to the demographic variables

Table 1 represents that the frequency and percentage distribution of demographic variables of the samples in the study shows that out of the 45 students, 31 (68.9%) belonged to the age group of 17–20 years, 14 (31.1%) belonged to 21–24 age group, and none >25 years. The data on gender reveal that 41 (91.11%) were female and 4 (8.89%) were male. On the previous qualification, 40 (88.9%) were intermediate qualified, 2 (4.44%) were graduated, 1 (2.22%) was postgraduated, and 2 (4.44%) were having other qualification. In family background, only 7 (15.6%) were from medical background and 38 (84.4%) were from non-medical background. In residential area, 24 (53.33%) from rural area and 21 (46.67%) were from urban area. Thirty-seven (82.2%) had previous knowledge about COVID-19 while 8 (17.8%) had no previous knowledge regarding COVID-19. Twenty-eight (62.22%) obtained knowledge from mass media, 9 (20%) from newspaper, 1 (2.22%) from webinar and conferences, and 7 (15.56%) from their family members/relatives/friends.

Table 1: Frequency and percentage distribution of respondents according to the sociodemographic variables (*n*=45)

Demographic variables	Frequency (f)	Percentage
Age in year		
17–20 years	31	68.9
21–24 years	24	31.1
>25 years	0	0
Gender		
Male	4	8.89
Female	41	91.11
Previous qualification		
Intermediate	40	88.9
Graduate	2	4.44
Postgraduate	1	2.22
Others	2	4.44
Family background		
Medical	7	15.6
Non-medical	38	84.4
Residential area		
Rural	24	53.33
Urban	21	46.67
Previous knowledge		
Yes	37	82.2
No	8	17.8
Source of information		
Mass media	28	62.22
Newspaper	9	20
Webinar and conference	1	2.22
Family members/friends/ relatives	7	15.56

Section B: Assessment of pre-test level of knowledge regarding COVID-19

It shows the frequency and percentage distribution of B.Sc. Nursing 1st year students on the basis of the pre-test knowledge score on COVID-19. The table reveals that 9 (20%) have good knowledge, 31 (68.89%) have average knowledge, and 5 (11.11%) have poor knowledge.

Section C: Assessment of post-test level of knowledge regarding COVID-19

It shows the frequency and percentage distribution of B.Sc. Nursing 1st year students on the basis of post-test knowledge score on COVID-19. The table reveals that 37 (82.22%) have good knowledge, 8 (17.78%) have average knowledge, and no one (0%) have poor knowledge.

Section D: Comparison of pre-test and post-test level of knowledge score regarding COVID-19

Table 2 shows data on frequency and percentage distribution of the pre-test and post-test knowledge scores of the B.Sc. Nursing 1st year students regarding COVID-19.

The data indicate that 11.11% had poor knowledge; 68.89% had average knowledge while 20% had good knowledge in pre-test. In post-test, 82.22% acquired good knowledge, 17.78% had average knowledge, and 0% had poor knowledge which indicate effectiveness of PTP on COVID-19. The mean pre-test score is 15.86 with standard deviation ±4.46 and mean post-test score is 25.06 with standard deviation ±3.49. The mean difference between pre-test and post-test is 9.2. The Student's paired "*t*" test value = 14.92 was analyzed using online *t*-test calculator and was found to be highly significant at 0.001 level of significance.

Section E: Association of pre-test level of knowledge regarding COVID-19 with the selected demographic variables

Table 3 depicts the association of pre-test level of knowledge regarding COVID-19 with the selected demographic variables. The findings of the study revealed that there was a significant association between source of information and pre-test knowledge level of B.Sc. Nursing 1st year students. The calculated Chi-square value (15.235) was more than the tabulated Chi-square value (12.59) and the result was found to be significant.

Discussion

The above study was designed to evaluate the effectiveness of PTP on knowledge regarding COVID-19 among B.Sc. Nursing 1st year students in a Government College of Nursing, New Tehri, Uttarakhand, by adopting the one-group pretest-posttest research design. Forty-five samples were selected by convenient sampling technique. Data were collected with the help of an online well-structured knowledge-based questionnaire including seven demographic variables and 30 questions. The data were presented in the form of tables and graphs and were analyzed by descriptive and inferential statistics.

The research findings are discussed under the following sections:

1. Section-A: Description of demographic variables of respondents
2. Section-B: Effectiveness of PTP
3. Section-C: Association between pre-test level of knowledge and selected demographic variables.

Section-A: Description of demographic variables of respondents

A similar study was done by Kallabi Borah in 2020 to assess the level of knowledge and anxiety toward COVID-19 pandemic among B.Sc. Nursing students of College of Nursing NEMCARE Foundation, Assam. The study revealed that majority of the students were female (93%) and the rest were male.[5]

Table 2: Distribution of pre-test and post-test knowledge score of B.Sc. Nursing 1st year students on COVID-19 (*n*=45)

Knowledge grading	Pre-test				Post-test			
	Frequency	Percentage	SD	Mean	Frequency	Percentage	SD	Mean
Poor (0–10)	5	11.11	±4.46	15.68	0	0	±3.49	25.06
Average (11–20)	31	68.89			8	17.78		
Good (21–30)	9	82.22			37	82.22		

COVID-19: Coronavirus disease 2019

Table 3: Association of pre-test level of knowledge regarding COVID-19 with demographic variables (*n*=45)

Demographic variables	Knowledge			χ^2	Df	*P*-value	Significance
	Poor	Average	Good				
Age in year							
17–20 years	2	23	6	2.373	4	0.667	NS
21–24 years	3	8	3				
>25 years	0	0	0				
Gender							
Male	1	2	1	1.043	2	0.592	NS
Female	4	29	8				
Previous qualification							
Intermediate	5	27	8	8.789	6	0.185	NS
Graduate	0	1	1				
Postgraduate	1	0	0				
Others	0	2	0				
Family background							
Medical	2	4	1	2.578	2	0.275	NS
Non-medical	3	27	8				
Residential area							
Rural	3	17	4	0.401	2	0.818	NS
Urban	2	14	5				
Previous knowledge							
Yes	4	24	9	2.449	2	0.293	NS
No	1	7	0				
Source of information							
Mass media	0	21	7	15.226	6	0.018	S
Newspaper	2	7	0				
Webinar and conference	0	1	0				
Family members/friends/relatives	3	2	2				

COVID-19: Coronavirus disease 2019

The results of the study revealed that in relation to age, majority of the students (68.9%) were under 17–20 years of age group, about (31.1%) were under 21–24 years of age group and no one was under the age group of >25 years. In relation to gender, majority of the students (91.11%) were female and rest of the students (8.89%) were male. In relation to their previous qualification, majority of the students (88.9%) were intermediate qualified, 4.44% were graduated, 2.22% were postgraduated, and 4.44% were having other qualification. In relation to the family background of the B.Sc. Nursing 1st year student's, majority (84.4%) of the students was from non-medical family background and others (15.6%) were from medical family background.

In relation to residential area, most of the students (53.33%) were from rural area and rest of the students (46.67%) was from urban area. In relation to previous knowledge regarding COVID-19, majority (82.2%) of the students had previous knowledge while others (17.8%) had no previous knowledge. In relation to the source of information, most of the students acquired information about COVID-19 from mass media (62.22%), some students got information from newspaper (20%), some from family members (15.56%), and some from webinar and conferences (2.22%).

Section-B: Effectiveness of PTP

A similar study was done by H.M. Hassan in 2020 on knowledge and attitude of Al Ghad college students toward coronavirus infection using descriptive cross-sectional method from 220 samples of students therapy simplified self-administered questionnaire. The study revealed that most students have some knowledge about coronavirus and their attitude toward disease is that it is fatal and dangerous to community.[7]

The findings of the study revealed that the students of 1st year B.Sc. Nursing have an overall gain in knowledge with the administration of PTP.

On comparing, the pre-test and post-test knowledge scores of the students show the effectiveness of PTP. There was a difference between pre-test and post-test mean score. The

pre-test mean was 15.86 with SD ±4.46 and the post mean was 25.06 with SD ±3.49. The paired "*t*" test value was 14.92 at 0.05 level of significance. Hence, it shows that there was statistically significant difference between the pre-test and post-test knowledge score. Hence, the PTP was found to be effective in increasing the knowledge of B.Sc. Nursing 1st year students regarding COVID-19.

Section-C: Association between pre-test knowledge score and the selected demographic variables

A similar study was done by Kallabi Borah in 2020 to assess the level of knowledge and anxiety toward COVID-19 pandemic among B.Sc. Nursing students of College of Nursing NEMCARE Foundation, Assam. The study findings revealed that there was a significant association of level of knowledge with the selected demographic variables at 0.05 level of significance.[5]

The finding of the study revealed that there was significant association between source of information and pre-test knowledge level of B.Sc. Nursing 1st year students. The calculated Chi-square value (15.235) was more than the tabulated Chi-square value (12.59). Furthermore, there was no significant association between the other sociodemographic variables and the pre-test knowledge level.

Conclusion

In this study, the knowledge of student increased after implementation of PTP. It concluded that PTP was an effective method in providing adequate level of knowledge.

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Conflicts of Interest

None.

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