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Pre Experimental Research Study to Evaluate the Effectiveness of Structured Teaching Programme on Knowledge regarding Corona Virus among B. Sc. Nursing Students of Athina Nursing College at Bhiwadi

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Abstract: ***Aim: To evaluate the effectiveness of structured teaching programmes on knowledge regarding coronavirus among B. Sc. Nursing Students of Athina nursing college at Bhiwadi. Objectives of the study: 1) To assess the pre interventional knowledge of B. Sc. Nursing Students regarding coronavirus. 2) To assess the effectiveness of structured teaching programme on coronavirus in terms of gaining knowledge among B. Sc. Nursing Students. 3) To compare the difference between the pretest score and post test score. 4) To associate the post interventional knowledge regarding coronavirus with selected Socio demographic variables. Methodology: A pre - experimental one - group pretest - posttest research design and quantitative research approach were used in the study. The sample consisted of 60 students of B. Sc. Nursing and was selected through a quota sampling method. The data were collected through a self made structured questionnaire method. Results: Majority of the students belongs to the age group between 17 - 21 years 51 (85%), The majority of students were females 32 (53.33%), The majority of the students belong to the religion Hindu 53 (88.33%), The majority of students selected for this study are from rural areas 30 (50.00%), The majority of students belong to joint family 35 (58.34%), Among students, 50 (83.33%) are fully vaccinated. The findings of the present study are consistent with a study conducted in Athina nursing college at bhiwadi regarding knowledge on coronavirus among B. Sc. nursing students showed that about 90% of B. Sc. nursing students had inadequate knowledge regarding coronavirus. The overall knowledge score mean percentage was 45.65 % in pretest and post test mean percentage was 91.66%. It shows that the post test knowledge score mean percentage was greater than the pre test knowledge score. This indicates that the structured teaching programme was effective in improving knowledge regarding coronavirus among B. Sc. nursing students. Hence the research hypothesis H 1 stated there is a significant difference between the mean pre test and post test B. Sc. nursing students were accepted. Chi - square analysis indicated that there was significant association between knowledge scores with age, habitat, type of family and seminar participation, at p<0.05. Hence the research hypothesis (H 2) stated was accepted.***

Keywords: STP, General System Theory Multiple, Choice Question, Not Significant

1. Introduction

Humans have suffered from lethal infectious diseases including viral outbreaks 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.1

Over the past two decades, coronaviruses have been associated with significant disease outbreaks in East Asia and the 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**.1

Coronaviruses got their name from the way that they look under a microscope. The virus consists of a core of genetic material surrounded by an envelope with protein spikes. This gives it the appearance of a crown. The word Corona means **"crown"** in Latin.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." Recently, a new coronavirus **SARS coronavirus 2 (SARSCov - 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.2

Coronaviruses are zoonotic, meaning that the viruses are transmitted between animals and humans. It has been determined that MERS - CoV was transmitted from dromedary camels to humans and SARS - CoV from civet cats to humans. The source of the SARS - CoV - 2 (COVID - 19) is yet to be determined, but investigations are ongoing to identify the **zoonotic** source to the outbreak[3]

Coronavirus disease 2019 (COVID - 19) is a **highly contagious** viral illness caused by severe acute respiratory syndrome SARS - CoV - 2. It has had a devastating effect on the world's demographics resulting in more than 5.5 million deaths worldwide. It has emerged as the most consequential global health crisis since the era of the influenza pandemic of 1918.3

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 China was reported in Thailand.3

On January 30, 2020, India also reported its first case of COVID - 19 in **Thrissur** district of Kerala.3

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 "COVID19" which stands for[4] –

- Co – corona
- Vi – virus
- D – disease
- 19 – 2019

The outbreak of COVID - 19 has proven to be a world wide unprecedented disaster.

- The virus has inflicted billions of lives across the globe in many ways e. g. physically, psychologically, socially.
- Compared to MERS and SARS, COVID - 19 has had: significantly higher transmissibility; worst post - recovery implications; frequent mutations (from the initial SARS - CoV - 2 strain) leading to higher mortalities and uncontrolled virulence.
- The clinical manifestations of this particular virus has exhibited deleterious impacts on systems other than the respiratory system (primary target organ) e. g. brain, hematological system, liver, kidneys, endocrine system, etc. with no promising curatives to date.
- Lack of emergency treatments and shortage of life - saving drugs has promoted the repurposing of existing therapeutics along with the emergence of vaccines with the combined efforts of scientists and industrial experts in this short span.4

Globally, as of 4: 52 pm CET, 19 January 2022, there have been 332, 617, 707 confirmed cases of COVID - 19, including 5, 551, 314 deaths, reported to WHO.5 In India, from 3 January 2020 to 4: 52 pm CET, 19 January 2022, there have been 37, 901, 241 confirmed cases of COVID - 19 with 487, 202 deaths, reported to WHO.5

A minority group of people will present with more severe symptoms and will need to be hospitalized, most often with pneumonia, and in some instances, the illness can include ARDS, sepsis and septic shock. Emergency warning signs where immediate medical attention should be sought include:

- Difficulty breathing or shortness of breath
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face[4]

According to the WHO and Centers for Disease Control and Prevention – the incubation period of SARS - Cov - 2 was estimated to be **2–14 days.**

The diagnostic process for COVID - 19 is based on the collection of respiratory samples, which can be done by mouth swabs, nasal swabs, or lower respiratory tract secretions. A specialist will then analyze the samples to identify the virus. In most cases, patients with COVID - 19 will require hospitalization and isolation.4

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.4

The virus that causes COVID - 19 infects people of all ages. However, evidence to date suggests that three groups of people are at a higher risk of getting severe COVID - 19 disease

- Older people (people over 70 years of age)
- People with serious chronic illnesses
- People who are physically inactive

The WHO has issued and published advice for high - risk groups (older people and people with serious chronic illness) and community support. This is to ensure that these high - risk populations are protected from COVID - 19 without being isolated, stigmatized, left in positions of increased vulnerability or unable to have access to basic provisions and social care.4

WHO advice for high - risk populations

- When having visitors at your home, extend "1 - meter greetings", like a wave, nod or bow.
- Request that visitors and those who live with you, wash their hands.
- Clean and disinfect surfaces in your home (especially those that people touch a lot) on a regular basis.
- Limit shared spaces if someone you live with is not feeling well (especially with possible COVID - 19 symptoms).
- If you show signs and symptoms of COVID - 19 illness, contact your healthcare provider by telephone, before visiting your healthcare facility.
- Have an action plan in preparation for an outbreak of COVID - 19 in your community.
- When you are in public, practice the same preventative guidelines as you would at home.
- Keep updated on COVID - 19 through obtaining information from reliable sources.4

2. Methodology

Statement of the problem:
A pre experimental research study to evaluate the effectiveness of structured teaching programmes on knowledge regarding coronavirus among B. Sc. Nursing Students of Athina nursing college at Bhiwadi.

Objectives of the study:

1) To assess the pre interventional knowledge of B. Sc. Nursing Students regarding coronavirus
2) To assess the effectiveness of structured teaching programmes on coronavirus in terms of gaining knowledge among B. Sc. Nursing Students.
3) To compare the difference between the pretest score and post test score.
4) To associate the post interventional knowledge regarding

coronavirus with selected Socio demographic variables.

Hypothesis:
H1: There is a significant difference between pre and post test knowledge scores among the B. Sc. Nursing Students regarding coronavirus.
H2: There is a significant association between pre test and post test knowledge scores among the B. Sc. Nursing Students in selected socio demographic variables.

Variables:

Dependent variables:
In this study, the level of knowledge on coronavirus among B. Sc. nursing students is the dependent variable.

Independent variables:
In this study, a structured teaching programme regarding coronavirus among B. Sc. nursing students is the independent variable.

Setting of the study:
The study was conducted in the Athina nursing college at Bhiwadi.

Population of the study & Sample size:
The population for the study are the B. Sc. nursing 60 students studying in Athina nursing college at Bhiwadi.

Sampling Technique:
Quota sampling was used to select the samples of this study.

Development of the tool

Section A - Socio - demographic data:
Section A consists of socio demographic data including age, sex, religion, habitat, type of family, academic year, source of information, Family monthly income, vaccination and attend any seminar/conferences/talks/workshop.

Section B - Self Structured Questionnaire regarding corona virus:
The Knowledge questionnaire was prepared after going through an intensive review of literature including research articles and personal discussions with the experts. It included 30 questions related to coronavirus. The items were multiple choices in nature with 4 distractors. The students were expected to choose the correct response. All questions had only one correct answer.

Scoring key:
Each correct answer was given a score of one mark and each wrong answer was given a score of zero. The maximum score was 30. The Resulting score was interpreted as follows:

Score	Level of Knowledge
Below 50 %	Inadequate
51 - 75 %	Moderate
Above 75 %	Adequate

Content validity:
STP was developed on coronavirus, which was based on literature review and suggestion from the guide of the project.

Development of Structured teaching programme:
The structured interview schedule consists of following sub - topics:

- Knowledge on general aspects of coronavirus
- Knowledge on incidence, causes and symptoms of coronavirus.
- Knowledge on diagnosis and types of coronavirus
- Knowledge on prevention of coronavirus
- Knowledge on management and complication of coronavirus.

Validity of the tool:
The experts were selected from the department of medicine and from the nursing field. The tool consists of 30 items. Modifications were made in terms of language and grammar according to expert's suggestions.

Reliability of the tool:
The reliability value of the tool is r = 0.79 which indicates a high degree of reliability.

Method of data collection
The data collection was scheduled in January 2022. Prior permission was obtained from concerned authority of the Athina nursing college, Bhiwadi. During the data collection schedule, the students who met the inclusion criteria were selected by using a simple random sampling technique. At the end of the pre - test session, the STP was administered & the students were encouraged to get their doubts clarified. After 1 week post - test was done by using the same structured questionnaire on the same subjects.

Plan for data Analysis
Analysis is the systematic organization and synthesis of research data and the testing of research hypotheses by using these data.

The data obtained was planned to be analyzed based on the objectives and hypothesis of the study using descriptive and inferential statistics. To compute the data a master data sheet was prepared by the investigator.

Ethical considerations
Formal permission was obtained from the concerned authority of the Athina nursing college at Bhiwadi. Written informed consent was obtained from the study samples. There was no ethical issue aroused during the study period.

3. Result

Table 1: Assessment of the pre - interventional knowledge of B. Sc. nursing students regarding coronavirus

Aspect of knowledge	Inadequate (<50%)		Moderate (50 - 75%)		Adequate (>75%)	
	No.	%	No.	%	No.	%
Knowledge on general aspect of coronavirus	24	40%	16	26.7%	20	33.3%
Knowledge on incidence and mortality	57	95%	2	3.4%	1	1.7%
Knowledge on symptom, transmission and variants	54	90%	5	8.4%	1	1.7%
Knowledge on diagnosis, treatment and complication	46	76.7%	12	20%	2	3.4%
Knowledge on prevention	48	80%	9	15%	3	5%
Overall	54	90%	6	10%	0	0

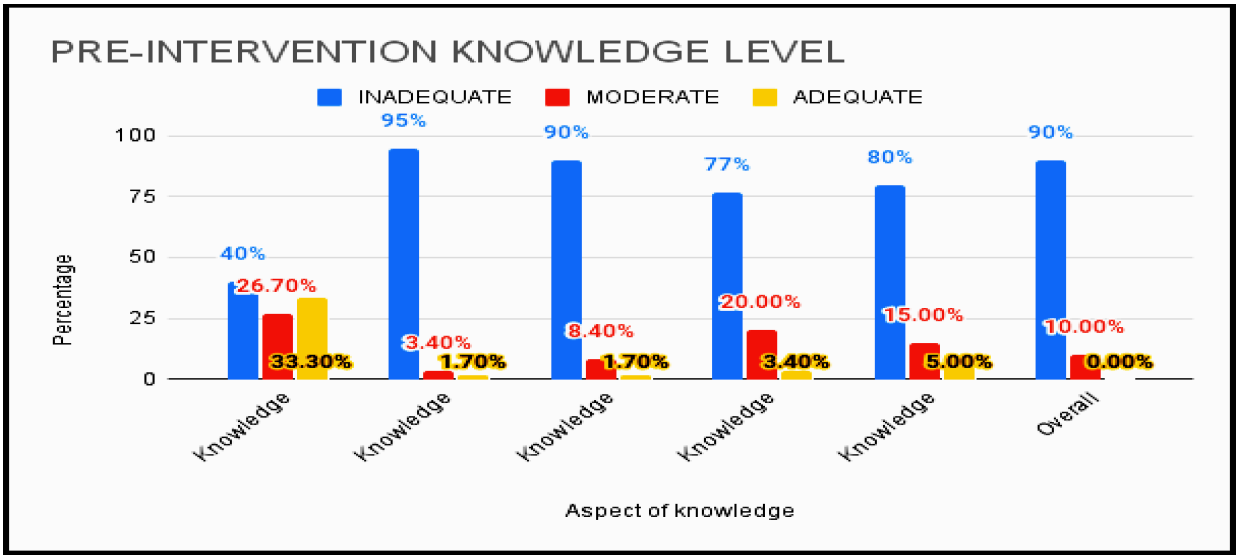

Table 1: Mean Standard Deviation and Mean Percentage for the Level of Knowledge Variables of B. Sc. Nursing Students before a Structured Teaching Programme.

Aspect of knowledge	Inadequate (<50%)		Moderate (50 - 75%)		Adequate (>75%)	
	No.	%	No.	%	No.	%
Knowledge on general aspect of coronavirus	1	1.7%	6	10%	53	88.3%
Knowledge on incidence and mortality	3	5%	10	16.67%	47	78.3%
Knowledge on symptom, transmission and variants	0	0%	03	5%	57	95%
Knowledge on diagnosis, treatment and complication	2	3.3%	8	13.3%	50	83.3%
Knowledge on prevention	4	6.7%	3	5%	53	88.3%
Overall	0	0	5	8.3%	55	91.7%

Table 2: Mean Standard Deviation and mean percentage for the level of Knowledge variables of B. Sc. nursing students after a structured teaching programme.

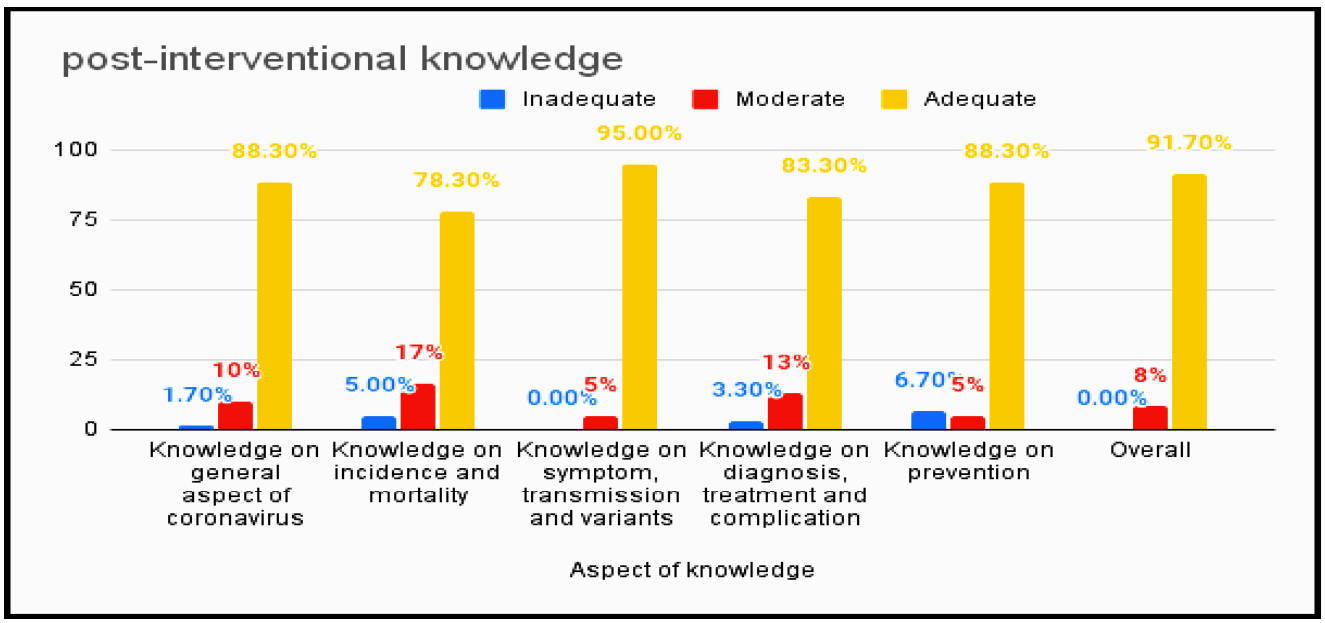

Figure 2: Post - interventional knowledge of B. Sc. nursing students regarding coronavirus

Table 3: Revealed that improvement of mean score of knowledge variables between pre and post test

Aspect of knowledge	Pre test			Post test			Paired 't' test
	Mean	SD	Mean (%)	Mean	SD	Mean (%)	
Knowledge on general aspect of coronavirus	2.71	0.72	28.56	4.12	0.97	94.76	12.76*** S
Knowledge on incidence and mortality	1.7	0.64	23.65	6.05	1.32	87.45	18.65*** S
Knowledge on symptom, transmission and variants	2.21	0.69	32.65	5.65	1.01	91.44	8.13*** S
Knowledge on diagnosis, treatment and complication	1.68	0.56	45.76	2.87	0.56	84.65	4.09** S
Knowledge on prevention	3.5	0.94	56.87	6.87	1.54	91.45	15.37*** S
Overall	11.4	2.54	45.65	27.56	3.65	91.66	33.32*** S

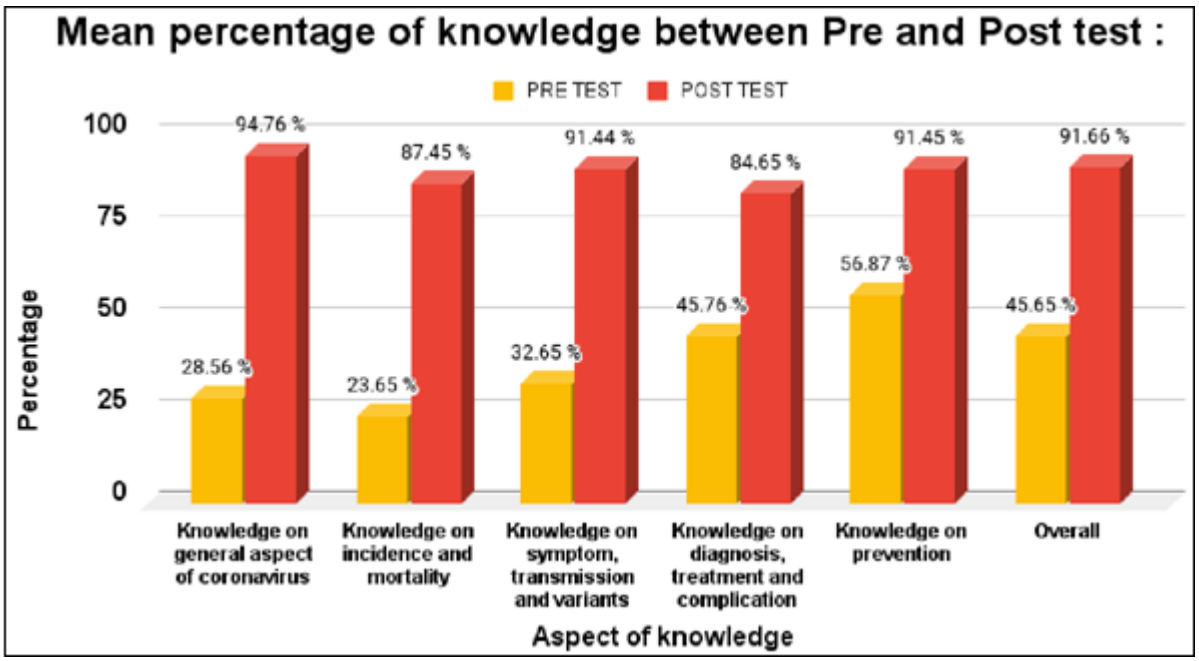

Figure 3: Mean percentage of knowledge between pre and post test

4. Discussion

Characteristics of the demographic variables of B. Sc. nursing students at Athina nursing college bhiwadi:
Age, sex, religion, habitat, type of family, educational year, monthly family income, seminar participation, source of information and both dose of vaccination. Majority of the students belongs to the age group between 17 - 21 years 51 (85%), The majority of students were females 32 (53.33%), The majority of the students belong to the religion Hindu 53 (88.33%), The majority of students selected for this study are from rural areas 30 (50.00%), The majority of students belong to joint family 35 (58.34%), Among students, 50 (83.33%) are fully vaccinated.

The 1st objective was to assess the pre test knowledge regarding coronavirus among B. Sc. nursing students:

Table - 1 shows that in the pre - test, 54 (90%) subjects had inadequate knowledge and 6 (10%) had moderate knowledge regarding coronavirus among B. Sc. nursing students and this indicates that most of B. Sc. nursing students had inadequate knowledge regarding coronavirus before the administration of structured teaching programmes.

The findings of the present study are consistent with a study conducted in Athina nursing college at bhiwadi regarding knowledge on coronavirus among B. Sc. nursing students showed that about 90% of B. Sc. nursing students had inadequate knowledge regarding coronavirus.

The 2nd objective was to evaluate the effectiveness of structured teaching programmes on knowledge regarding coronavirus among B. Sc. nursing students:

Table - 2 represents the overall knowledge score mean percentage was 45.65 % in pretest and post test mean percentage was 91.66%. It shows that the post test knowledge score mean percentage was greater than the pre test knowledge score. This indicates that the structured teaching programme was effective in improving knowledge regarding coronavirus among B. Sc. nursing students. Hence the research hypothesis H 1 stated there is a significant difference between the mean pre test and post test B. Sc. nursing students were accepted.

The 3rd objective was To compare the difference between the pretest score and post test score. Table 3 Revealed that improvement of mean score of knowledge variables between pre and post test.

In relation to knowledge on general aspects of coronavirus the obtained mean and SD of pre - test and post - test were 2.71, 0.72 and 4.12, 0.97 and paired 't' value was 12.76.

In relation to knowledge on incidence and mortality the obtained mean and SD of pre - test and post - test were 1.7, 0.64 and 6.05, 1.32 and paired 't' value was 18.65.

In relation to knowledge on symptoms, transmission and variants the obtained mean and SD of pre - test and post - test were 2.21, 0.69 and 5.65, 1.01 and paired 't' value was 8.13.

In relation to knowledge on diagnosis, treatment and complications the obtained mean and SD of pre - test and post - test were 1.68, 0.56 and 2.87, 0.56 paired 't' value was 4.09.

In relation to knowledge on prevention the obtained mean and SD of pre - test and post - test were 3.5, 0.94 and 6.87, 1.54 and paired 't' value was 15.37.

The 4th objective was to associate the post - test knowledge regarding coronavirus among B. Sc. nursing students with their selected demographic variables.

Chi - square analysis indicated that there was significant association between knowledge scores with age, habitat, type of family and seminar participation, at $p<0.05$. Hence the research hypothesis (H 2) stated was accepted.

The above findings of the study were supported by a structured teaching programme conducted in Athina nursing college, bhiwadi. This study was to assess the effectiveness of structured teaching programmes regarding knowledge on coronavirus. The study concluded that the demographic variable like age, habitat, type of family and seminar has direct association with the knowledge of the B. Sc. nursing students.

5. Conclusion

The present study evaluates the effectiveness of structured teaching on knowledge regarding coronavirus among B. Sc. nursing students at Athina nursing college, Bhiwadi. The third objective was to associate the post - test knowledge regarding coronavirus among B. Sc. nursing students with their selected demographic variables. The third objective was to associate the post - test knowledge regarding coronavirus among B. Sc. nursing students with their selected demographic variables. Results revealed that the structured teaching programme was effective In Improving Knowledge Regarding coronavirus among B. Sc. nursing students

Demographic variable of B. Sc. nursing students such as age, habitat, type of family and seminar participation had significant association between the pre test knowledge score.

6. Implications of the study

The findings of the study have implications for nursing education, nursing practice, nursing administration and nursing research.

Nursing Education

To enhance the knowledge level on coronavirus among the B. Sc. nursing students is an important aspect. The primary task of nursing education would be to intervene in health education programmes in hospitals and other institutions.

- Nursing curriculum should cooperate with activities like STP preparation and should give importance to health education.
- Seminars, symposiums and workshops can be organized regarding the aspects of coronavirus to improve the knowledge of B. Sc. nursing students.
- In - service education should be conducted to improve the knowledge and skills of health care professionals.

Acknowledgement

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