



# Final Year Nursing Students' Knowledge on Patient Safety after Attending Online Nursing Education in Nursing Academic Institution, West Bengal, India

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## ABSTRACT

**Introduction:** The COVID-19 pandemic has suddenly challenged all educational institutions globally. As a result, online education is rapidly growing as an alternative way of preparing nursing students. The world's largest future healthcare group shifted to online nursing education instead of face-to-face nursing education.

**Aims of the Study:** To assess the final year nursing students' knowledge on patient safety after attending online nursing education in nursing academic Institutions, West Bengal, India. **Method:** A descriptive survey research design was adopted. A total of 150 nursing students, who attended online classes during the COVID-19 pandemic participated in the study. Demographic Data on online education and a self-reported Knowledge Questionnaire toward Patient Safety were used for data collection using Simple Random sampling techniques.

**Results:** All, 150 final-year Bachelor's Degree and Diploma Nursing Students participated. Most of the students, 117 (78) % had attended more than 6 months of online classes using mobile phones as an online educational tool. Most of them 103 (68.67) % were from rural residency and faced educational storage problems 92 (61.33) %, and 91 (60.67) % had internet connectivity problems. As per opinion, 138 (92) % of the students shared that they needed more practice to develop themselves towards patient safety. The results revealed that the majority of students' knowledge score toward patient safety was very good, and it showed a mean of 24.56, a median of 15.50, and an SD of 5.57.

**Conclusion:** Patient Safety is a healthcare discipline. It aims to prevent and reduce risks, errors, and harm among patients. Today's nurses are the future caregivers who should possess adequate knowledge to ensure patient safety. Despite attending online classes, our final-year nursing students possess good knowledge in rendering safe patient care.

**Key Words:** Online nursing education, Patient Safety, Knowledge.

## 1.0 Introduction

The new Corona virus (COVID-19) pandemic has undoubtedly posed a huge challenge to education systems worldwide, disrupting the normal teaching-learning trajectories and threatening public health. Face-to-face teaching-learning mode was converted to online mode based on WHO safety guidelines (World Health Organization 2020). During Online education, students and teachers have faced different technological and infrastructural problems which makes online education more challenging (John. 2021). A fundamental area of

quality care depends on nurses' knowledge (Mainz. 2023) Whether she is a nurse administrator or a novice nurse to reduce the probability of error (Gallina et al., 2021). Nursing is a challenging and disciplined stream (Glerean. 2023). Nurses' knowledge is the most important dimension of any healthcare organization, they are working in a pivotal role (Zhao. 2023). It includes prevention of errors and adverse effects on patients associated with health care. During the provision of healthcare, any procedural harm to patients is recognized as one of the top ten (10) causes of disability or death in the world (Harvard Global Health Institute. 2020) thus, during COVID-19 attending online classes and nursing students' knowledge towards patient safety is an important area of evaluation.

## 2. Methodology

Strengthening patient safety involves a wide range of actions in the recruitment, training, and retention of healthcare professionals, performance improvement, environmental safety, and risk management, including infection control, safe use of medicines, equipment safety, safe clinical practice, and safe environment of care (World Health Organization. 2021)

A total of 150 Bachelor of Nursing and Diploma of Nursing students who had attended online nursing education, participated in this study. Data was collected using a simple random method; demographic data on online educational information and WHO modified knowledge questionnaire (KAP) on patient safety were used for data collection. Reliability was calculated using the Cronbach alpha reliability Formula,  $r = 0.71$  and it was found reliable for data collection.

**Results:** Though Nursing Students attended online classes, they have a good level of knowledge on patient safety. The table values in the table below describe the study findings.

### Tool-1: Demographic Data

**Table-1: Part-A- Sample characteristics**

		N=150	
Sample	Criteria	Frequency	Percentage (%)
<b>Age in years</b>	22-25	98	65.33%
	18-21	52	34.67%
<b>General Education</b>	Above HS	91	60.67%
	HS	59	39.33%
<b>Professional education (Nursing)</b>	Nursing	150	100.00%
<b>Year of Nursing student</b>	3rd year GNM	75	50.00%
	4th year Bachelor of Nursing	75	50.00%
<b>Previous perception about online class</b>	Yes	124	82.67%
	No	26	17.33%

Data presented in Table-1(Part-A) under sample characteristics, showed that out of 150 nursing students, 98(65.33) % were within the age group of 22-25 yrs., whereas 18-21 were 52(34.67) %. Data also revealed that out of 150 samples, 3<sup>rd</sup> yr. GNM students, 75 (50.00) % and 4th yr. Bachelor Nursing students, 75 (50.00) %. Data also revealed that the majority, 124(82.67) % of students had previous perceptions about online classes in comparison to the lowest frequency 26 (17.33) %.

**Table-1: Part-B- Sample Characteristics**

**N=150**

Sample	Criteria	Frequency	Percentage (%)
<b>Occupation of father</b>			
	Service	70	46.67%
	Business	50	33.33%
	Self Employed	30	20.00%
<b>Occupation of mother</b>			
	Service	33	22.00%
	Homemaker	117	78.00%
<b>The income of parents' monthly</b>			
	<8 lakh	136	90.67%
	>10 Lakh	60	40.00%
	8-10 Lakh	3	2.00%
<b>Presence of siblings</b>			
	Absent	41	27.33%
	Present	109	72.67%
<b>Type of residence</b>			
	Rural	103	68.67%
	Urban	29	19.33%
	Semi-urban	18	12.00%
<b>Presence of family members in health services</b>			
	Present	45	30.00%
	absent	105	70.00%

Table-1: Part-B revealed that most of the students' fathers were government servants (70) 46.67 %, and mothers(117) 78.00 %. were home-makers. Out of 150participants, the majority (136) 90.67 % of the family income was less than 8 lakhs per year. Most of the nursing students (103) 68.67 % were from rural areas, and the majority 105(70.00) % of students had no family members who were working at any health department as a resource person.

**Table-1: Part-C: Online Educational Information of the Samples****N=150**

Sample	Criteria	Frequency	Percentage (%)
<b>Duration of online classes attended</b>			
	<6months	92	61.33%
	>6months	117	78.00%
<b>Type of Online Teaching Learning Tool Used</b>			
	Smart Phone	150	100%
	Desktop	00	0%
<b>Online data storage on your mobile</b>			
	Problematic	92	61.33%
	Manageable	58	38.67%
<b>Type of practical online class attended</b>			
	Scenario Based	108	72.00%
	Simulation-Based	42	28.00%
<b>Learning Environment at home for online education</b>			
	Supportive	116	77.33%
	Problematic	34	22.67%
<b>Technical support at home for online education</b>			
	Yes	141	94.00%
	No	9	6.00%
<b>Internet connectivity during online classes</b>			
	Supportive	59	39.33%
	Problematic	91	60.67%
<b>Opinion about online classes</b>			
	Confident	12	8.00%
	Need Practice	138	92.00%

The table-1: Part-C highlighted the results of online educational information. The data reported in the table that the majority 117(78) % of students attended more than 6 months of class, and 150(100) % used Smartphone as an online educational tool. A maximum of 92(61.33%) of students faced problems in the storage of educational data, 91(60.67) % of students faced internet connectivity problems, and 108(72) % of students attended online scenario-based practical classes during the COVID-19 pandemic. Table value also revealed that after attending online classes most of the students' 138(92) % opinion they need more practice for developing their confidence.

**Table-2****Knowledge Score on Patient Safety****N=150**

Range of Knowledge	Knowledge Score	Frequency (f)	Percentages (%)
31-40	Excellent	14	9.33%
21-30	Very Good	111	74.00%
11-20	Good	22	14.67%
01-10	Poor	03	2.00%

**Scoring****Minimum Score-5****Maximum Score-34**

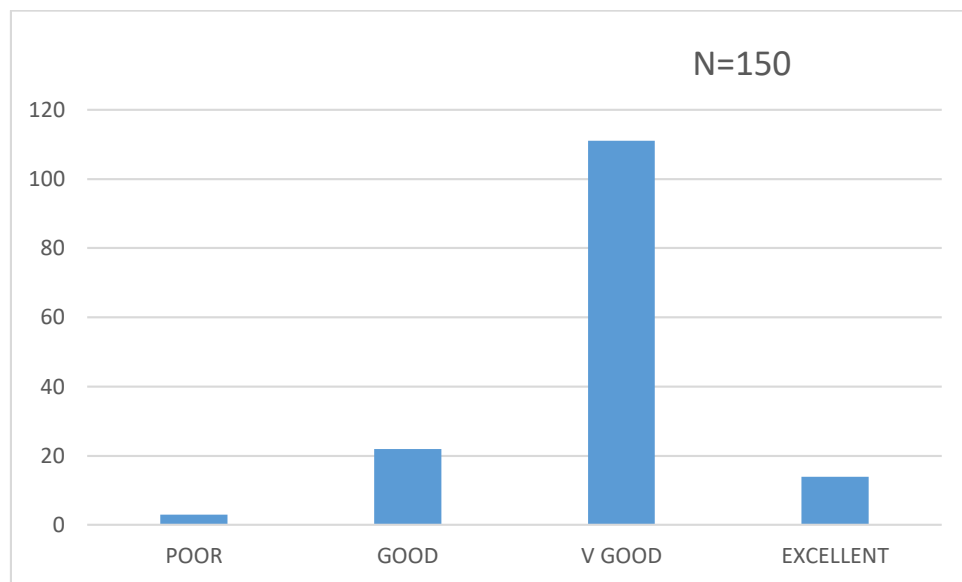
The data presented in Table 2 highlighted that the maximum knowledge score of nursing students regarding patient safety after attending online classes was 35 and the minimum score was 05. Revealed data also highlighted that among 150 students, 14(9.33) % of students had excellent knowledge on patient safety and other students 111 (74) % had very good knowledge, only 22(14.67) % had good knowledge, and 03(2.00) % had poor knowledge on patient safety. The table value showed that despite of attending online nursing education, the nursing students had very good knowledge on patient safety.

**Table-3****Range, Mean, Median, and SD of Knowledge Score Towards Patient Safety****N=150**

Variables	Range	Mean	Median	Standard Deviation
Knowledge	05-34	24.56	15.50	05.57

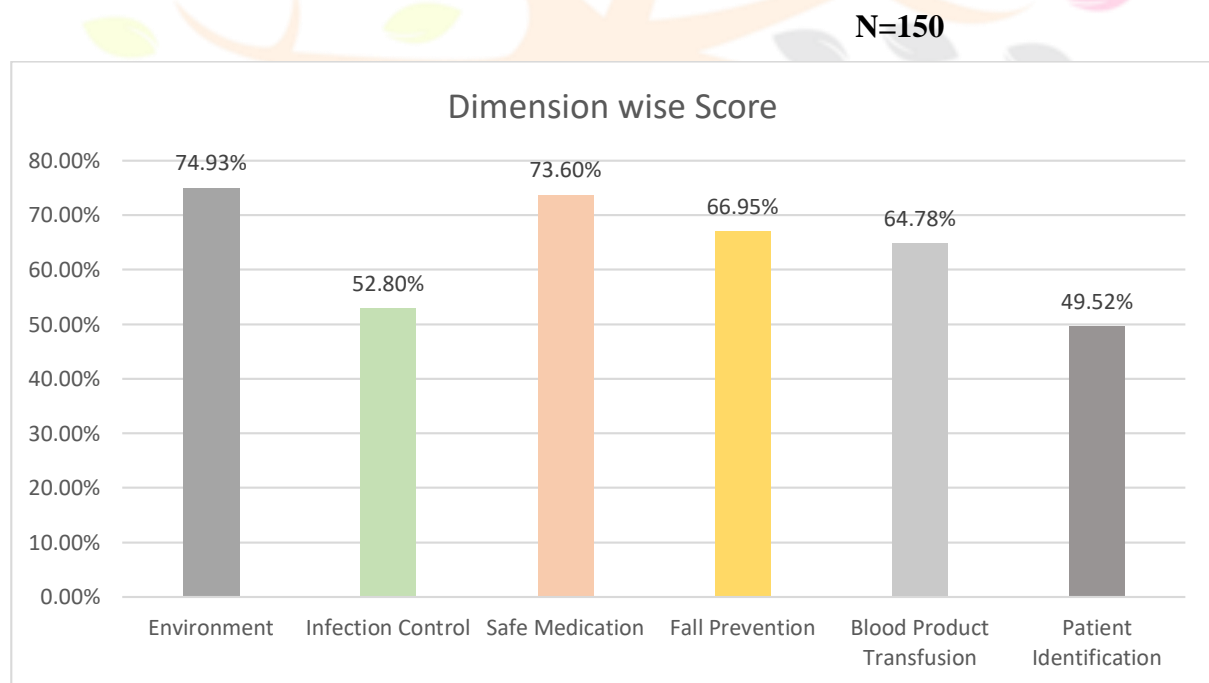
The data presented in Table 3 showed that the range of knowledge score was between 05-34, and the mean knowledge score was 24.56, the median score was 15.50 and the standard deviation was 05.57.





**Figure-1: Bar Diagram Highlighting Final Year Students' Knowledge on Patient Safety**

Figure-1 revealed that Most of the nursing students' knowledge on patient safety was very good in spite of attending online classes.



**Figure-2: Bar Diagram Highlighting Dimension Wise Knowledge Score on Patient Safety**

Figure-2 shows the areas of knowledge score on patient safety. Data frequency shows that Nursing students had 74.93% knowledge on patient safety related to the environment, 73.60% on safe medication, 66.95% on fall prevention, 64.78% on blood and blood product transfusion, 52.80% on infection control and 49.52% on patient identification and communication.

## Discussion

### The present study is supported by the findings of the following study;

- ❖ The spread of the novel COVID-19, SARS-COV-2 Virus forced all countries around the world to adhere to rigorous practices of distance teaching through online educational mode (Priyashantha. 2022) during the lockdown period and the study report showed 52% of participants positively adopted this online education in Sri Lanka. Spread of COVID-19 as part of a physical distancing policy (Ilankoon.2020). Teaching and Learning activities have been converted to online distance learning via platforms with face lots of problems regarding internet connectivity, storage of educational data, and rural residency because of the distance to attend online classes (Ilankoon. 2022). However patient safety and nurses' knowledge are always under assessment for quality patient care. despite classes being either online or offline (Staines.2021). Distance learning, lack of computers, assignment submission and storage problems, lack of field practice, lack of mobile data, and trouble in continuing online education may hamper quality learning(Cengiz. 2020).Through simulation methods, clinical practices temporarily achieved clinical competency but need more practice to meet the expected learning outcomes of clinical areas(Dewart. 2023). Worldwide different nursing schools can implement effective international collaborative partnerships in education to strengthen and standardize nursing education to maintain patient safety (Ortega. 2023).
- ❖ Patient safety is a challenging discipline in medical and nursing education. Nursing Education plays a dynamic role in rendering patient safety care (Nabilou. 2015). One study was conducted to assess the student's knowledge, attitudes, and perceptions toward patient safety among 134 medical and nursing students. A knowledge questionnaire was used to collect the data. Study findings revealed that out of 134 students, 121 agreed to provide some information and out of them 50% had good knowledge regarding patient safety.
- ❖ Patient Safety can be defined as the absence of preventable harm or error to a patient while providing care. Healthcare delivery systems require the protection of patients without causing harm. Evaluating the nursing students' knowledge and attitudes toward patient safety is most important. One cross-sectional study was conducted in Malaysia at one Private University College among 92 nursing students using a purposive sampling technique. Data was collected by a self-reported questionnaire. The data highlighted that out of 92 student majority (98. 9%) students had good knowledge on patient safety (Zulkifli. 2021)
- ❖ Patient safety is identified as a global priority area and the most challenging issue in any healthcare system. Day by day the rising number of patient mortality in hospitals is due of unsafe practices. One cross-sectional study was conducted to assess the knowledge, attitude, and practice among 172 working nurses toward patient safety using a questionnaire (Wake. 2021). The study results highlighted that the level of knowledge 58.7%, attitude 52.9%, and practice 50% among nurses toward patient safety which was supported by the present study.

- ❖ Patient safety focuses on the foundation of health care quality, while education represents the quality of care. One descriptive study was conducted to assess the nursing students' level of knowledge and attitude toward patient safety. Data was collected from 370 nursing students using the WHO patient safety questionnaire. Study results revealed that final-year students had significantly higher knowledge (Svitlica.2021).
- ❖ Patient safety became a challenging issue in nursing education and administration for future nursing. One study was conducted in Saudi Arabia using a Knowledge Attitude Practice (KAP) questionnaire on Biomedical Waste Management among 229 undergraduate nursing students. The study results showed inadequate nursing students' knowledge of biomedical waste management (Abou Hashish. 2020). This study supports selecting the study to assess nursing students' knowledge of patient safety.
- ❖ Patient safety activities contributed to the reduction of preventable adverse events associated with health care. One comparative descriptive study was conducted among undergraduate students at Cyprus University and Greece. A Health Professional Education Patient Safety survey was done to assess nursing students' knowledge in classroom and clinical settings. Data revealed that the mean knowledge score in the classroom was (04) than in clinical settings (3.7). The study also concluded that nursing students have higher knowledge of patient safety than technical aspects of patient safety (Dimitriadou, M.et al.2021)
- ❖ Maintaining a patient safety environment is a top priority for any healthcare system. One randomized controlled trial study was conducted from September 2019 to January 2020 among 78 4<sup>th</sup> year nursing students to assess knowledge, attitude, and perceptions toward patient safety. Study results highlighted that the mean age group was 23 years plus and the nursing students' knowledge was significantly higher in post-test than pretest (Jamshidi.2021)
- ❖ One research study revealed that nursing students showed competency in patient safety before or after the intervention of educational programs and it is increasingly higher among 3<sup>rd</sup> year and 4<sup>th</sup> year-level of students(Kim.2022).

## 5.0 Conclusion

Quality health care always depends on nurses' adequate knowledge and should be safe, effective, and patient-centered (Valenta. 2021). Nurses' Knowledge towards Patient safety is an important element of the health care system. The study results showed that the nursing students' have very good knowledge toward patient safety. Both final year students, Diploma and Bachelor Degree student nurses had very good knowledge on Patient Safety in all patient safety dimensions. This study's results also proved that nursing student's principle of learning on patient safety knowledge after attending online classes was very good.

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