



A Descriptive Study to Assess the Knowledge and Attitude Regarding Simulation as a Learning Method Among Nursing Students undergoing various Nursing Courses.

Sapna Sharma,

Saraswati Nursing Institute Kurali, Punjab

Dr Raman Kalia,

Principal,

Saraswati Nursing Institute Kurali, Punjab

Ms. Ravita Verma,

Professor,

Saraswati Nursing Institute Kurali, Punjab

Abstract:

In the ever-evolving landscape of education, simulation has emerged as a powerful tool for learning. This innovative approach creates immersive, realistic scenarios that enhance student engagement and deepen understanding, effectively bridging the gap between theoretical knowledge and concepts related to its application. In the present study, a quantitative, non-experimental descriptive approach was used to assess the knowledge and attitude regarding simulation as a learning method among the nursing students of selected institutes of Punjab. The convenience sampling technique was used to collect data from 610 Nursing Students. The data was collected with the help of Google Forms. Analyses were done using descriptive and inferential statistics. In the present study result revealed that 54% of the participants were between 21 and 23 years old, 85% were female, and 56% of the total participants had average knowledge scores. Students showed positive attitude toward simulation. Significant associations were found with some of the selected variables like Course year, source of knowledge and attending training programs related to simulation. The study highlighted the importance of knowledge and attitudes towards simulation-based education among nursing Students.

Keywords: simulation, nursing students, knowledge, attitude.

Introduction

A "tool, gadget, or environment replicating an aspect of health care" is the general definition of simulation used in the medical field. It is well known for its ability to replicate specific clinical practices and give students a safe practice environment. Simulators are divided into various groups. Simulators can be categorized as low-fidelity, medium-fidelity, or high-fidelity based on how well they mimic reality.¹ Simulation plays a significant role as an evidence-based teaching technique that gives students the necessary skills for practice. Technology utilization creates new opportunities for teaching scenarios, critical thinking, practices, and life experience reflection.² Simulation technologies can replace real patients. To make mistakes and grow from them, trainees do not have to fear hurting their patients.³ Learners' cognitive, technical, and behavioral skills all increase with simulation. In addition to concentrate learning experiences in clinical courses like adult health, critical care, maternity and child health, mental health, and community health nursing, simulation integration offers a safe and effective learning environment that is structured and clinically similar. Nursing courses that use simulation-based learning effectively improve students' clinical competency, self-efficacy, and communication abilities.⁴

Material And Methods

This research follows a quantitative non-experimental approach with a descriptive design. The study was conducted in five nursing colleges of Punjab. The sample comprises 610 nursing students, selected using a convenience sampling technique. Data was collected using a self-structured tool, which included a demographic tool, knowledge questionnaire, attitude rating scale, and practice checklist. Descriptive

statistics such as Mean and Standard Deviation were used for analysis and interpretation, while inferential statistics were applied using the Chi-Square test.

Ethical Consideration

Ethical clearance was obtained from the Institutional Ethical Committee and BFUHS, Faridkot. Written permissions were obtained from the Principal, Saraswati Nursing Institute, Dhianpura, Punjab. All participants were informed that their participation in the study is voluntary and they can refuse to participate and withdraw from the study at any time. Throughout the research, information confidentiality and anonymity were maintained.

Result

Table 1 Demographic Data of Participants in Terms of Frequency and Percentage.

N=610

S. No.	Characteristics	Categories	n	%
1.	Age	Below 18 years 18-20 years 21- 23 years Above 23 years	002 260 330 018	00.33 42.62 54.10 02.95
2.	Gender	Male Female	091 519	14.92 85.08
3.	Current Course	GNM Nursing/post-Baic Nursing B.Sc. Nursing M.Sc. Nursing	108 482 020	17.70 79.02 03.28
4.	Current year of Course	1 st year 2nd year 3 rd year 4 th year	114 264 121 081	18.69 43.28 19.84 13.28

Table 1 depicts that the majority (54%) of participants were falling within the 21-23 year of age group. There was significant gender disparity, with females making up 85.08% of the participants. Most participants were enrolled in the B.Sc. Nursing program (79.02). The largest group of participants were in their 2nd year (43.28%).

Table 2 Previous Knowledge Regarding Simulation in Terms of Frequency and Percentage.

N=610

S. No.	Characteristics	Yes N (%)	No N (%)
1.	Do you know about term simulation?	370(60.66)	240(39.34)
2.	Source of knowledge on simulation · Participated in training/ courses · Communicating with colleagues · Observing simulations conducted by others · Reading relevant literature on simulation · Not aware	145 (23.77) 076 (12.46) 091 (14.92) 059(09.67) 239 (39.18)	445 (76.23) 524 (87.54) 509 (85.08) 541 (90.33) 361 (60.82)
3.	Do you have a Simulation lab?	183 (30)	427 (70)
4.	Have you attended training on simulation-based learning training sessions?	271 (44.43)	339 (55.57)

Table 2 shows that 60.66% of participants were familiar with the term "simulation". Regarding the source of knowledge on simulation 61% aware of simulation through some or another source. Additionally, 30% of participants had access to a simulation lab. In terms of training, 44.43% have attended simulation-based learning courses, workshops, seminars, or conferences.

Figure 1 Level of Knowledge Among Students.

N=610

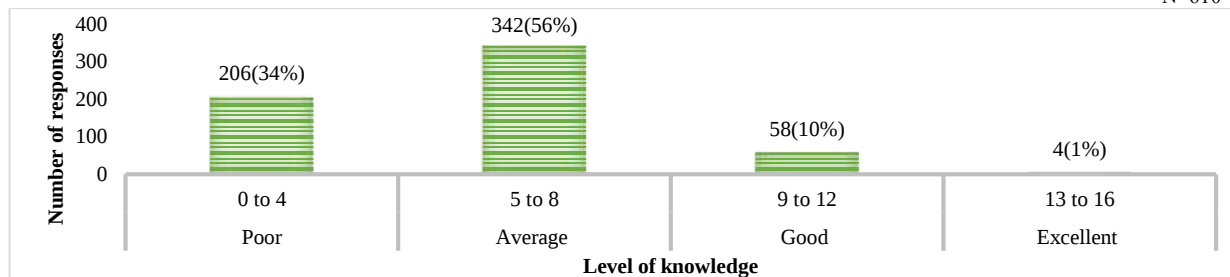


Figure 1 represents the distribution of responses regarding the level of knowledge among participants. The majority of respondents, 342 (56%), fall into the "Average" category (scores 5 to 8).

Figure 2 Attitude of Students Related to Simulation

N=610

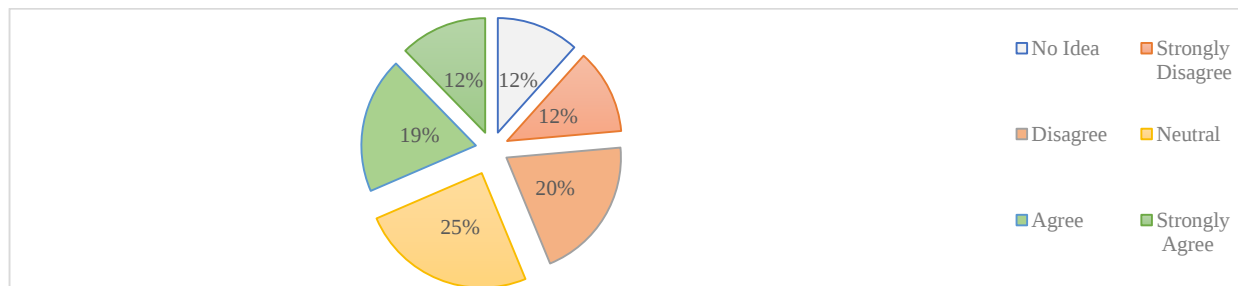


Figure 2 shows that 31% of students view simulation positively, while 32% see it negatively. A significant portion, 25%, remain neutral, and 12% have no opinion.

Table 4-Association of Demographic Variables and Level of Knowledge Among Students.

S. No.	Categories	Knowledge level				Df	X ²	p-value
		Poor	Average	Good	Excellent			
1.	Age Below 22 years 22-25 years 26-29 years Above 30 years	000 083 121 002	002 155 173 012	000 022 032 004	000 000 004 000	9	13.8	0.127 (NS)
2.	Gender Male Female	032 174	052 290	007 051	000 004	3	0.15	0.764 (NS)
3.	Course GNM/ P.B. Sc. Nursing B.Sc. Nursing M.Sc. Nursing PhD. Nursing	041 161 004 000	056 273 013 000	011 044 003 000	000 004 000 004	6	4.18	0.652 (NS)
4.	Course year 1st year 2nd year 3rd year 4th year	058 080 045 023	070 164 061 047	015 020 015 008	001 000 000 003	9	23.9	0.004 (S)
5.	Do you know about simulation as a method of teaching-learning? No Yes	084 122	140 202	016 042	000 004	3	6.49	0.090 (NS)
6.	Source of knowledge on simulation -Participated in training/ courses -Communicating with colleagues -Observing simulations conducted by others -Reading relevant literature on simulation -Not aware	050 024 021 026 085	083 045 056 026 132	008 007 014 007 022	004 000 000 000 000	12	26.4	0.009 (S)
7.	Do you have a Simulation lab? No Yes	145 061	241 101	037 021	004 000	3	2.82	0.419 (NS)
8.	Have you attended training on simulation-based learning courses, workshops, seminars, or conferences? No Yes	121 085	196 146	022 036	000 004	3	13.5	0.004 (S)

Significant p-value taken ≥ 0.05

Table 4 examines the relationship between various demographic factors and students' knowledge levels using Chi-square tests. The analysis indicates that knowledge levels significantly vary by course year and are notably higher among students who have received training or attended workshops on simulation-based teaching. The source of knowledge on simulation also significantly affects knowledge levels, with those engaged in training or reading literature demonstrating greater understanding.

Discussion

The data revealed that a significant portion 54% falling in the range of 21 to 23 years old, With the majority 85% being female, and 56% having average knowledge scores, regarding attitude related to simulation showed that 31% of students view simulation positively, while 32% see it negatively. A significant portion, 25%, remained neutral, and 12% had no opinion. Significant associations were observed with some of the demographic variables.

A Similar study was conducted by **Poonam Yadav P, et. Al. (2022)** to assess the knowledge and attitude regarding the simulation-based learning method of nursing students. 89 students made up the sample that was chosen using the non-probability purposive sampling technique. The students' attitudes and knowledge were investigated using a 5-point Likert scale in a semi-structured questionnaire. In the result majority of participants were familiar with simulation, according to section I, "Tool of knowledge," with 10% having strong knowledge, 45% having moderate knowledge, and 35% having low knowledge. The majority of participants highly endorsed the simulation-based approach to teaching and learning, according to section II "Tool for attitude," which also revealed that 50% of students strongly agree, 23% of individuals agree, 15% are neutral, 7% disagree, and 5% strongly disagree.⁵

A similar study was carried out by **Awad MS, et. al. (2019)**, which aimed to evaluate the attitudes of nursing students towards simulation technology. The study used a descriptive survey methodology, involving 150 nursing students. According to the findings, the majority of students have good opinions toward the use of simulation technology in nursing education. Of those surveyed, 42% and 48.9% agreed or strongly agreed that simulation technology is relevant for use in learning. The study concluded that incorporating simulation technology in nursing education is beneficial for improving student engagement and competency.⁶

A similar study was conducted by **Howard VM, et. Al.** that aimed to assess the students and faculty perspectives for integration of simulation across undergraduate curriculum. The mixed-methods research design (survey and focus group) was used to measure student and faculty perception. 151 students and 6 faculty already encountered with simulation were part of the study. In the result it was found that students showed highly positive response toward the integration of simulation in curriculum.⁷

Nursing Implications of the Study

- **Nursing Education**

The study findings can inform curriculum developers about the existing knowledge and attitude related to simulation-based education among nursing students.

- **Nursing Administration**

The study finding help in encouraging the adoption of simulation-based training.

- **Nursing Research**

Identifying barriers to the adoption of simulation and evaluating the impact of simulation on clinical competence

- **Nursing Practice**

The study findings can influence CNE programs for practicing nursing students and encourage advances in healthcare practices and enhance clinical skills.

Limitation

- Factors such as ongoing exams and clinical duties affected the data collection procedure.
- The findings may be specific to the context of Punjab and will not apply to nursing institutes in other regions or countries.
- Participants may provide socially desirable responses or overestimate their knowledge and attitude regarding simulation.

Recommendations

- Use the study findings to inform future improvements in nursing education, such as curriculum revisions, student development initiatives, and resource allocation for simulation-based learning.
- Use a stratified random sampling technique to ensure representation from different nursing institutes in Punjab, considering factors such as urban/rural location, institute size, and program level (e.g., undergraduate vs. Postgraduate).
- Alongside quantitative data collection; incorporating qualitative methods, such as interviews or focus group discussions, will provide a greater knowledge of participants' perspectives and experiences with simulation; especially for assessing the attitude related to simulation.

Conclusion

The study encompassed student respondents, revealing diverse demographic data, knowledge and attitude towards simulation-based education. Students, predominantly from B.Sc. Nursing programs, had varied knowledge levels about simulation, with positive attitudes towards its efficacy. The study highlighted the importance of experience and continuous education in enhancing knowledge and attitudes towards simulation-based education among nursing students. Overall, the data underscores strengths of simulation-based education in nursing.

Conflict of interest

There is no conflict of interest.

References

1. Lamé G. et.al. Using clinical simulation to study how to improve quality and safety in healthcare. *BMJ Simulation and Technology Enhanced Learning* [Internet]. 2018 Nov 8;6(2). Available from: <https://stel.bmj.com/content/early/2018/11/08/bmjstel-2018-000370>
2. Al-Elq A. et.al. Simulation-based medical teaching and learning. *Journal of Family and Community Medicine* [Internet]. 2010;17(1):35. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3195067/>
3. Maurya A. et.al. Effectiveness of Simulation Teaching on Neonatal Resuscitation Skill Procedure among Nursing Students. *International Journal of Science and Research (IJSR)* ISSN [Internet]. 2013 [cited 2024 May 4]; 4:2319–7064. Available from: <https://www.ijsr.net/archive/v4i1/SUB15938.pdf>
4. Al Khasawneh E, et al. Efficacy of Simulation Using NLN/Jeffries Nursing Education Simulation Framework on Satisfaction and Self-Confidence of Undergraduate Nursing Students in a Middle-Eastern Country. *SAGE Open Nursing*. 2021 Jan;7:237796082110113.
5. Yadav P, et.al. editors. Knowledge and Attitude of Nursing Students Regarding Simulation-Based Teaching Learning [Internet]. *BEPLS Spl* [4] November 2022 720 | Page ©2022 AELS, INDIA Bulletin of Environment, Pharmacology and Life Sciences; 2022. Available from: https://www.researchgate.net/publication/372742371_Knowledge_and_Attitude_of_Nursing_Students_Regarding_Simulation-Based_Teaching_Learning
6. Awad MS. et.al. Nursing Students' Attitudes Toward Simulation Technology in Nursing Education. *International Journal of Emerging Technologies in Learning (iJET)*. 2019 Jul 24;14(14):31.
7. Howard VM et.al. Integration of Simulation Across the Undergraduate Curriculum: Student and Faculty Perspectives. *Clinical Simulation in Nursing*. 2011 Jan;7(1):e1–10.