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Perception Of Undergraduate Nursing Students Towards Simulation-Based Education At Selected Colleges Of South Gujarat: A Cross-Sectional Study

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ABSTRACT

Simulation-based education (SBE) has emerged as an effective pedagogical tool to connect the world of academia with the working environment in nursing education. It offers students opportunities to practice clinical skills in a safe, structured environment without compromising patient safety. The purpose of this study is to find out the perception of undergraduate nursing students concerning the implementation and effectiveness of SBE in their academic curriculum. A cross-section of non-experimental and observational survey design was carried out on students of nursing from selected colleges in South Gujarat. A total of 226 participants across different academic years were acquired through a probability stratified sampling method. Data were chosen through a self-structured tool, designed to capture perceptions on a 5-point Likert scale. The results revealed that students have a favourable perception toward SBE, recognizing it as a beneficial supplement to conventional learning methods. The finding reveals strong connection between perception levels along with the demographic variables of the semester, age, and previous simulation experience at a 0.05 level of significance. Gender did not show a significant association with perception levels. The study highlights the importance of SBE in fostering clinical competencies and suggests practicing it as a routine component of nursing education.

Keywords: *Simulation-based education, nursing education, undergraduate nursing students, student perception, clinical competencies.*

1. INTRODUCTION

In recent years, simulation-based education (SBE) has gained prominence in nursing programs worldwide, offering innovative learning experiences that allow students to bridge theory with practice. Unlike conventional classroom learning, SBE provides an immersive environment where students can perform clinical tasks and develop problem-solving abilities in a controlled and risk-free setting. The growing complexity of healthcare demands highly skilled nurses who can make critical decisions confidently, making it essential for nursing students to gain hands-on experience early in their academic journey[1].

Simulation-based education is rooted in experiential learning theories and is designed to replicate real-life clinical situations. It enables students to develop technical competencies and enhances non-technical skills like communication, teamwork, and critical thinking[2]. Nursing educators strive to incorporate SBE within curricula to provide students with meaningful experiences, especially given the increasing limitations on clinical placements and patient safety concerns[3]. Studies indicate that students exposed to simulation-based training show greater preparedness and confidence during clinical practice compared to those relying solely on traditional methods[4].

However, the effectiveness of SBE largely depends on students' acceptance and engagement with the methodology. Understanding their perceptions is crucial to refining the curriculum and optimizing learning outcomes. This research focuses on assessing the perception of undergraduate nursing students toward SBE in selected colleges in South Gujarat. The findings will provide valuable insights into how students perceive the benefits, challenges, and overall relevance of simulation-based learning in their professional development.

The Need for the Research Global Scenario

The demand for better clinical education has grown worldwide due to the increasing complexity of healthcare systems and patient conditions. International nursing programs have integrated SBE to ensure that students develop not only technical but also cognitive and behavioural competencies essential for patient care[5]. Several studies report that simulation training enhances clinical reasoning and reduces the anxiety students face during real-life interactions with patients[6]. High income countries, like the USA, Australia, and the United Kingdom, have adopted simulation as a core element in nursing curricula, emphasizing its role in improving student self-efficacy, teamwork, and clinical performance[7].

However, despite its growing popularity, challenges such as the high cost of simulation equipment, lack of trained faculty, and the need for continuous upgrades pose barriers to widespread adoption globally[8]. As healthcare systems worldwide focus on patient safety and quality care, incorporating SBE into nursing education has become a priority to produce well- prepared graduates capable of managing complex clinical situations[9].

India Scenario

In India, the healthcare sector is evolving rapidly, with an increasing demand for skilled nurses to meet the needs of a growing population. However, nursing education in India often relies heavily on traditional classroom-based teaching, with limited opportunities for clinical exposure due to constraints such as overcrowded hospitals, patient safety concerns, and insufficient clinical placements[10]. These limitations have created a need for innovative teaching methods, such as SBE, to supplement traditional learning and ensure that nursing students acquire practical skills.

The Indian Nursing Council (INC) has recognized the importance of simulation-based training and encouraged its inclusion in nursing curricula. Research indicates that Indian nursing students exposed to simulation-based learning report improved confidence and preparedness for clinical practice compared to those who follow traditional teaching methods alone[12].

Given these challenges and opportunities, it is crucial to explore how students perceive SBE in various educational settings across the country. Understanding the perceptions of undergraduate nursing students in this context will help identify areas for improvement and promote SBE as a critical component of nursing education across India.

I selected this study because simulation-based education (SBE) provides students valuable exposure to clinical scenarios in a controlled, risk-free environment. This approach enhances their ability to handle complex procedures and situations that they may not have the opportunity to experience in traditional clinical settings. By engaging in simulations, students can build confidence in their cll skills, make critical decisions, and develop problem-solving abilities, all essential for success in real-world healthcare settings. This research helps students link their theoretical understanding to real-world applications, getting them to face challenges confidently and competently in their future nursing careers.

Statement of the Problem:

Perception Of Undergraduate Nursing Students' Towards Simulation-Based Education: A Cross-Sectional Study

Objectives:

1. To evaluate the level of perception of undergraduate students of nursing towards simulation-based education.
2. To analyse the relationship between students' perception levels and their demographic characteristics.

Hypotheses:

- **H1**: There is a considerable association between the level of perception of undergraduate nursing students towards simulation-based education and their demographic variables at a 0.05 level of significance.

Methodology

For this study, a non-experimental cross-sectional research design was employed. A quantitative research approach was used for this study.

Setting: The study was carried out in selected nursing colleges in South Gujarat.

Sampling Scheme:

The target population for this study consisted of undergraduate nursing students enrolled in selected nursing colleges in South Gujarat. These students, from various semesters of the nursing program, were included to capture diverse perceptions of simulation-based education (SBE) as a learning tool within their academic curriculum. A stratified sampling technique was used to divide students into specific strata based on academic progress (semester), age, gender, and previous SBE experience. Information on eligible students was obtained from the college administration, and students were randomly selected from each stratum to ensure a balanced representation. The inclusion criteria mandated students to be within the age range of 17-20, possess at least three months of clinical experience, and have been exposed to SBE as part of their training. Students who declined participation, lacked sufficient clinical exposure, had cognitive impairments, or were enrolled in institutions outside

the designated region were excluded from the study.

The sample size was determined for single proportion using COCHRAN's formula with a 95% confidence level, a 5% margin of error, and an estimated population proportion of 50% to maximize sample size under conditions of maximum variability. Accounting for a projected 20% non-response rate, the least sample size needed was 388. However, for greater precision and to improve representativeness, a final sample of 226 students was collected through convenient sampling, ensuring a balanced distribution across semesters. This included 58 students from the 2nd semester, 57 from the 3rd, 56 from the 4th, and 55 from the 5th semester, maintaining proportional representation across the academic years. This approach facilitated a comprehensive comparison of perceptions across the different demographic groups while minimizing potential biases.

Tool development:

The two parts of the tool are:

- **Section A**: Demographic data, including batch, age, gender, and previous experience with Simulation-Based Education (SBE).
- **Section B**: Self-structured Perception items evaluating confidence, practical application, and critical thinking. This tool includes a 5-point Likert scale, with 15 items making the total score of 75 with options Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree. The tool achieved a Cronbach's Alpha reliability score of 0.8 in a pilot study conducted with 23 students.

Data analysis

➢ The analysis of the data was performed using the following approaches: 1. Descriptive statistics, focusing on percentage and frequency 2. Inferential statistics, utilising the Chi-square method.

2. RESULTS

- The analysis and interpretation of the present study were completed in alignment with the study's objectives. The outcomes of the study are presented under these headings.
- **Section 1**: Representation of sample characteristics
- **Section 2:** Depiction of the perception level of undergraduate nursing students.
- **Section 3:** Relation between student perception level with particular demographic variables.

3. SECTION 1:SAMPLE CHARACTERISTICS

Table 1: Distribution of frequency and percentage of sample characteristics (N=226)

S.No	Demographic variable	Percentage (%)
1.	Semester	
	a) 2nd semester	25.66%(58)
	b) 3rd semester	25.22%(57)
	c) 4th semester	24.77%(56)
2.	Age	
	a) 17-18 years old	29.64%(67)
	b) 18-19 years old	46.02%(104)
3.	Gender	
	a) Male	3.38% (19)
		91.59% (207)
4.	Previous experience on SBE	
	a) Yes	69.02% (156)
		30.97% (70)

Table 1 emphasises regarding the semester distribution of participants, 58 students (25.66%) were in the 2nd semester, 57 students (25.22%) were in the 3rd semester, 56 students (24.77%) were in the 4th semester, and 55 students (24.33%) were in the 5th semester. Age distribution indicated that 104 students (46.02%) were aged 18-19 years, 67 students (29.64%) were

aged 17-18 years and 55 students (24.33%) were aged 19-20 years. The gender distribution showed that 207 (91.59%) were female 19 (3.38%) were male. Regarding previous experience with simulation, 156 students (69.02%) reported having prior experience, while 70 students (30.97%) had no experience.

4. SECTION 2 –OBJECTIVE 1:

Assess level of perception of undergraduate students of nursing.

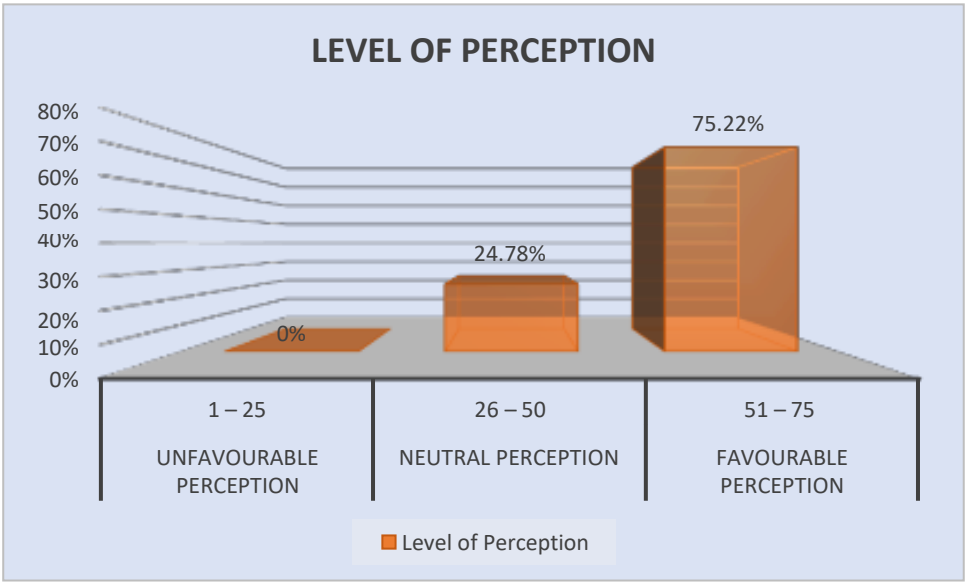
Table 2: Frequency and percentage distribution of level of perception among students

N= 226

Category	Range	Frequency	Percentage
Unfavourable Perception	1 – 25	0	0%
Neutral Perception	26 – 50	56	24.78%
Favourable Perception	51 – 75	170	75.22%

Table 2 displays that the Favorable Perception: 75.22% (170 students), Neutral Perception: 24.78% (56 students), Unfavorable Perception: 0%

Figure 1: Graphical representation of the level of perception



Objective 2: To analyse the association between the perception level of undergraduate students of nursing towards simulation-based education with their preferred demographic variables.

Table 1: Association of Perception Levels with Demographic Variables:

N=226

S.No	Demographic variable	Neutral Perception	Favourable Perception	df	Chi- Square	PValue	Inference
1.	**Semester**						
	a) 2nd semester	**11**	**56**				
	b) 3rd semester	**11**	**53**	**3**	11.20484	7.815	**S****
	c) 4th semester	**16**	**33**				
2.	**Age**						
	a) 17-18 years old	**12**	**67**				
	b) 18-19 years old	**26**	**75**	**2**	9.030721	5.991	**S****

3.	**Gender** **a) Male**	**4** **52**	**16** **154**	**1**	0.268833	3.841	**NS**
4.	**Previous experience on SBE** **a) Yes**	**34**	**133**				

'NS' = Non- Significant, 'S'= significant at the level of 'p' <0.05.**

Table depicts that as per semester, the calculated chi square value (11.204, df 3) was greater than the table value (7.815) . It implies that there was a significant association between age and level of perception of students.

According to age calculated chi square value (9.031, df 2) was greater than the table value (5.991) It indicates that there is a relationship between age and level of perception of students.

With regard to gender calculated chi square value (0.269, df 1) was less than Table value (3.841). It implies that there is no significant relation between gender and level of perception of students.

In view to old experience of students calculated chi square value (6.703, df 1) was more than the Table value (3.841) . It means that there is association between previous experience of students and level of perception of students.

The outcomes show significant associations between perception levels and the demographic variables of the **semester**, **age**, and **previous simulation experience on SBE** at a 0.05 level of significance. Gender did not show a significant association with perception levels. These findings highlight specific demographic factors that may influence students' attitudes toward simulation-based education in nursing.

Limitations

1. The study was performed within a limited geographic area, which might affect the overall significance of the findings.
2. Reliance on self-reported data may introduce response bias.
3. The study did not include qualitative interviews, which could provide a deeper understanding of student perceptions.

Recommendations

1. Further studies can be conducted with larger and more diverse samples across different regions to enhance generalizability.
2. A longitudinal study could be valuable to assess the long-term impact of simulation-based education on clinical competencies.
3. Incorporating a qualitative approach would provide more comprehensive insights into students' attitudes and experiences with simulation.
4. Nursing curricula should consider integrating SBE as a core component to foster clinical readiness among students.

5. CONCLUSION

This study highlights the positive impact of simulation-based education on clinical competence & readiness of nursing students. Most students demonstrated favourable perceptions, recognizing simulation as an effective bridge between theoretical knowledge and practical application. Significant associations were observed between perception levels and demographic factors such as batch, age, and previous experience with simulation. Based on these findings, incorporating simulation-based education into the nursing curriculum can significantly enhance skill acquisition, confidence, and preparedness, making it an essential element in modern nursing education.

REFERENCES

[1] Cant, R. P., & Cooper, S. J. (2010). Simulation-based learning in nurse education: Systematic review. *Journal of Advanced Nursing*, *66*(1), 3-15. https://doi.org/10.1111/j.1365-2648.2009.05240.x

[2] Gaba, D. M. (2004). The future vision of simulation in healthcare. *Quality and Safety in Health Care*, *13*(suppl 1), i2-i10. https://doi.org/10.1136/qshc.2004.009878

[3] Jeffries, P. R. (Ed.). (2012). *Simulation in nursing education: From conceptualization to evaluation*. National

League for Nursing.

[4] Lapkin, S., Levett-Jones, T., Bellchambers, H., & Fernandez, R. (2010). Effectiveness of patient simulation manikins in teaching clinical reasoning skills to undergraduate nursing students: A systematic review. *Clinical Simulation in Nursing, 6*(6), e207-e222. https://doi.org/10.1016/j.ecns.2010.05.005

[5] Hayden, J. K., Smiley, R. A., Alexander, M., Kardong-Edgren, S., & Jeffries, P. R. (2014). The NCSBN National Simulation Study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation, 5*(2), S1-S64.

[6] Bland, A. J., Topping, A., & Wood, B. (2011). A concept analysis of simulation as a learning strategy in the education of undergraduate nursing students. *Nurse Education Today, 31*(7), 664-670. https://doi.org/10.1016/j.nedt.2010.10.013

[7] Yuan, H. B., Williams, B. A., & Fang, J. B. (2012). The contribution of high-fidelity simulation to nursing students' confidence and competence: A systematic review. *International Nursing Review, 59*(1), 26-33. https://doi.org/10.1111/j.1466- 7657.2011.00964.x

[8] Gough, S., Hellaby, M., Jones, N., & MacKinnon, R. (2012). A review of undergraduate interprofessional simulation-based education (IPSE). *Nurse Education Today, 32*(4), 408-417. https://doi.org/10.1016/j.nedt.2011.03.010

[9] Indian Nursing Council. (2022). *Guidelines for Simulation-based Clinical Training in Nursing Education*. Retrieved from https://www.indiannursingcouncil.org

[10] Thakur, R., & Gautam, S. (2021). Role of simulation in undergraduate nursing education: An emerging trend in India. *International Journal of Nursing Education, 13*(2), 89-94.

[11] Thomas, S. (2020). Clinical simulation: A teaching strategy to foster clinical competence in nursing education in India. *Indian Journal of Nursing Sciences, 5*(3), 24-30.

[12] Verma, A., & Bhattacharya, A. (2019). Perceptions of nursing students towards simulation-based education: A cross-sectional study. *Journal of Nursing and Health Sciences, 8*(4), 11-18.