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Original Research Article

PARA MEDICAL STUDENTS' PERCEPTION REGARDING SKILL LAB TRAINING – A DESCRIPTIVE CROSS SECTIONAL STUDY

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ABSTRACT

Background: Skill laboratory training is increasingly recognized as a key component of competency-based health sciences education, yet its impact among paramedical students remains underexplored. This study aimed to assess paramedical students' perceptions of the value, effectiveness, and educational impact of skill lab training. **Materials and Methods:** A descriptive cross-sectional study was conducted among 100 undergraduate paramedical students from nursing, physiotherapy, radiography, and medical laboratory technology programs in a private institution in Kanchipuram, India. Data were collected using a validated, self-administered 18-item questionnaire on a 5-point Likert scale. Descriptive statistics were used to analyze responses. **Result:** The majority of students (94%) agreed that skill lab training is essential to their medical education. 90% reported improved learning, and 95% felt more confident in clinical performance. Active participation was credited with enhancing real-world care by 89% of respondents. Experiential learning was preferred by 86%, and 89% agreed that hands-on practice is the best method for mastering procedures. Mentorship was highlighted as critical: 92% valued supportive instructors, 90% appreciated demonstrations, and 93% found feedback beneficial. Skill labs also contributed to professional growth, motivation, and clinical readiness, with 88% confident in supervised practice and 75% expecting independent competence. **Conclusion:** Skill lab training plays a vital role in developing clinical competence, confidence, and motivation among paramedical students. Early, structured, and mentor-supported simulation training should be emphasized in curriculum design to enhance clinical preparedness.

INTRODUCTION

The need for healthcare professionals with clinical expertise and knowledge is growing as healthcare systems become more complex. Medical schools have increased the importance of skill laboratory training as a component of competency-based education in order to satisfy this demand. While it is not implied mandatory in paramedical students' curriculum. Before putting their clinical skills to use in the real world, students can hone them in a safe, monitored, and controlled environment in skill laboratories. Both patients and students are safer as a result.[1-3]

Through simulation-based training, students in the medical and paramedical fields can repeatedly practice practical skills using mannequins, task trainers, and virtual reality technologies. It is well known that experiential learning techniques aid in the acquisition and retention of psychomotor skills, particularly when combined with organized evaluation and feedback.[4,5] In paramedical fields such as nursing, radiography, physiotherapy, and laboratory sciences, skill labs are crucial for bridging the gap between classroom learning and practical application.

Students' involvement and learning outcomes may be significantly impacted by their feelings regarding these training modules. Research indicates that students who are satisfied with their skill lab

training perform better academically, are more self-assured, and experience less anxiety in clinical settings.[6,7] However, a lack of access to structured skill lab training could worsen clinical readiness and compromise patient care.[8]

Medical students have been the subjects of the majority of research on skill lab training. Less is known about the attitudes of paramedical students toward it, particularly in underdeveloped nations or areas with few resources. Given that paramedical professionals form the foundation of the healthcare system, this deficiency is crucial. When making decisions about curriculum and educational policy, it's critical to understand how people feel about the caliber, accessibility, and educational impact of skill lab experiences.

Peer learning techniques and technology-enhanced simulation are also effective in skill labs, according to recent research. It has been discovered that these models aid in the technical skill development of undergraduate health science students.[9,10] Teachers may be able to improve hands-on training for all health professionals if they have a better understanding of how paramedical students feel about these novel concepts.

Finding out how paramedical students feel about skill lab training and how it impacts their learning—particularly how beneficial and successful it is—is the aim of this study. The findings will assist us in refining skill lab courses to make them more beneficial for aspiring healthcare professionals.

MATERIALS AND METHODS

This study employed a descriptive, cross-sectional approach to ascertain paramedical students' perceptions on the role and efficacy of skill laboratory training in their medical education. The research was conducted at a private institution in the Kanchipuram area, which provides undergraduate paramedical programs such as nursing, physiotherapy, medical laboratory technology, and radiography. The academic year in question was 2024–2025. The objective of the study was to ascertain students' perceptions on the impact of skill lab experiences on their clinical preparedness, confidence, motivation, and learning outcomes.

We selected 100 students by selective sampling to ensure representation from several paramedical disciplines and academic years. Prior to participation, all individuals were required to have attended skill lab sessions as a component of their curriculum. Students who had not participated in any skill lab exercises were excluded from the research. Participation was entirely at the discretion of the respondents, all of whom provided written consent after being informed about the research's purpose and requirements.

We employed a tailored, self-administered questionnaire specifically designed for this study to gather data. The questionnaire had 18 questions formulated in English, addressing several aspects of skill lab training, including its use, personal confidence, experiential learning, and preparedness for clinical practice. Each item was constructed with a 5-point Likert scale, with 1 denoting “Extremely Disagree,” 2 “Disagree,” 3 “Neutral,” 4 “Agree,” and 5 “Completely Agree.” The questionnaire's content was established through a literature research and subsequently revised with feedback from medical education specialists to guarantee relevance and clarity.

To make sure the tool was accurate and reliable, five academic faculty members who were experts in medical education and clinical skills training reviewed the tool's face and content. 20 students who were not part of the final study sample took part in a pilot study to test the internal consistency, clarity, and ease of administration. Based on what the pilot found, some small changes were made. The final instrument's Cronbach's alpha score was 0.87, which means that it is very reliable and has high internal consistency.

The questionnaire was administered in person during regular college hours to minimize non-responses and ensure controlled data collection. The students were instructed to respond anonymously and refrain from discussing their replies, so preserving their individual perspectives and mitigating social desirability bias.

We consolidated all the data in Microsoft Excel and utilized IBM SPSS Statistics version 25 for analysis. We employed descriptive statistics, such as frequencies and percentages, to identify patterns and summarize student perceptions for each Likert-scale item. The data were organized into tables and presented in bar charts for enhanced clarity.

Prior to data collection, approval was secured from the Institutional Ethics Committee. The research method ensured the confidentiality of all participants' information, and they were informed that their responses would solely be utilized for academic and research reasons.

RESULTS

Perceived Value and Effectiveness of Skill Lab Training

The data show that most paramedical students agree that skill lab training is an important part of their professional education. A huge 94% of people who answered said they agreed or completely agreed that skill lab training is an important part of medical education. This overwhelming agreement shows that a lot of people see simulation-based practice as a key part of modern health sciences curricula.

Also, 90% of students said that skill lab training helped them learn, which supports the idea that it is useful and relevant. It's important to note that 95% of participants said that skill lab training made them more confident in their clinical performance. This is a very important result for students who are getting

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ready to move from school to working with patients. When asked how skill lab activities affected their real-world clinical skills, 89% said that being actively involved helped them do better when caring for real patients. This idea backs up the teaching idea that practicing skills in a low-risk, simulated setting improves both technical accuracy and decision-making in real clinical settings.

Also, most students (86%) thought that learning by doing is better than just learning by reading. In the same way, 89% agreed that the best way to learn clinical procedures was through hands-on experience. These results show that experiential learning not only makes people more competent, but it also helps them remember what they learned and solve problems. This supports the idea that skill labs are an important part of training health professionals.

Mentorship, Feedback, and Instructional Strategies

Mentorship turned out to be an important part of how well skill lab sessions worked. 92% of students agreed or strongly agreed that mentors should be friendly and helpful while teaching. This result shows that how teachers interact with each other is very important for how engaged and comfortable students are with learning.

Also, 90% of people who answered said it was helpful when mentors showed them how to do clinical procedures before they did them themselves. This shows how important modelling is for learning new skills. Such demonstrations let students see the right way to do things, learn the details of how things work, and make mental plans before they try to do things on their own.

Feedback was also important, as 93% of students said that getting constructive criticism on their work made them learn a lot more. Feedback is not only a way to check on someone's performance, but it is also a way to help them get better over time, especially with tasks that require a lot of accuracy.

Also, 88% of the people who took part said they needed one-on-one help and attention during skill lab sessions. This result suggests that peer learning and group activities are helpful, but having mentors who are attentive and responsive is essential for building skills and clearing up confusion. All of this information shows that a well-structured teaching method with clear demonstrations, ongoing feedback, and helpful mentorship is the best way to get the most out of skill labs.

Personal Growth, Clinical Readiness, and Motivation

Students said that skill lab training helped them grow both personally and professionally, in addition to giving them technical skills. About 82% thought that the experience helped them develop a professional attitude toward working in healthcare. This means that skill labs might help change people's attitudes, behaviours, and sense of right and wrong, which are all very important for future healthcare providers.

In terms of being ready for the future, 88% of students were sure they would be able to do clinical skills with supervision by the end of their course. Also, 75% thought they would be able to use those skills on their own, which shows that as training goes on, people are becoming more independent. These results are in line with the goals of competency-based education, which focuses on helping students move from guided practice to independent performance.

Skill labs also had a motivational effect: 80% of respondents said that taking part in skill labs made them more interested in pursuing a career in medicine. This finding suggests that realistic simulation could be a strong internal motivator that makes students more committed to their careers.

Students also stressed how important it is to get early and Symmetrical exposure to skill lab training. About 87% of people agreed that starting hands-on training early in their education was important, and 91% said that they needed to mentally prepare before doing skill-based tasks. These kinds of preparations can help lower stress, boost concentration, and create a mindset that is good for learning.

Lastly, 86% of students said that doing skill lab training made them feel safe while they were learning. This psychological benefit—feeling safe to make mistakes, get feedback, and get better—is especially important in the early stages of clinical education, when building confidence is just as important as building skills.

Table 1: Perception of the Paramedical students regarding skill lab

No.	Statement	Extremely Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Completely Agree (%)
1	I prefer practicing in a skill lab before performing procedures on patients	0	2.7%	10.8%	32.4%	54.1%
2	I believe that mentors should be friendly and helpful during teaching sessions	2.7%	2.7%	5.4%	27%	62.2%
3	Engaging in skill lab practice boosts motivation	2.7%	0	2.7%	37.8%	56.8%
4	Students require guidance and attention from mentors during skill lab sessions	0	2.7%	13.5%	24.3%	59.5%
5	It is beneficial as procedures are demonstrated to make them easier for students	2.7%	0	8.1%	18.9%	70.3%
6	I've developed a professional approach	2.7%	0	5.4%	29.7%	62.2%

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	through skill lab experiences					
7	Active participation in skill labs improves performances during patient care	2.7%	0	8.1%	24.3%	64.9%
8	Skill laboratory training enhances confidence	2.7%	0	5.4%	29.7%	62.2%
9	Skill lab training is essential	2.7%	0	8.1%	24.3%	64.9%
10	Preparing mentally for skill lab learning is important	2.7%	0	13.5%	21.6%	62.2%
11	Starting skill lab training early in syllabus is crucial	10.8%	2.7%	13.5%	27%	45.9%
12	Skill lab training proves to be useful in integrating cognitive domain with psychomotor domain	2.7%	0	10.8%	24.3%	62.2%
13	Feedback from teachers about skill performance is valuable	2.7%	0	10.8%	21.6%	64.9%
14	Practical skills are better learned through hands-on training	2.7%	2.7%	10.8%	13.5%	70.3%
15	I anticipate being able to perform clinical skills under supervision by the end of the course	0	0	8.1%	37.8%	54.1%
16	I aim to apply clinical skills independently on patients	2.7%	0	2.7%	35.1%	59.5%
17	Skill lab practice instils a sense of security during the learning process	5.4%	0	5.4%	32.4%	56.8%
18	Practical skill training leads to better learning outcomes	2.7%	0	5.4%	29.7%	62.2%

DISCUSSION

This study examined paramedical students' perceptions of skill lab training and discovered that nearly all participants regarded it as beneficial and advantageous. An impressive 94% of students concurred or strongly concurred that skill labs are a vital component of medical education. Ninety percent indicated that these sessions significantly enhanced their learning, while ninety-five percent reported increased confidence in their clinical competencies. Ninety percent of students reported that active participation in laboratory activities enhanced their competence in providing care to actual patients. A significant majority shown a preference for experiential learning, with 86% favoring practical methods over theoretical approaches, and 89% asserting that direct experience was the most effective means of acquiring clinical skills.

The mentorship and the organization of the courses were crucial for the efficacy of the skill lab sessions. A majority of students (92%) indicated that accessible and supportive mentors were significant. Ninety percent indicated that observing process demonstrations prior to independent practice was beneficial. A significant majority of individuals (93%) said that constructive criticism facilitated substantial learning, while 88% indicated that personalized attention during sessions was highly valuable. The laboratories facilitated students' professional development while also imparting new skills. 82% of students reported that the encounter altered their perceptions about a career in healthcare. Students reported increased motivation (80%) and preparedness for clinical employment. Eighty-eight percent expressed confidence in supervised practice, whereas seventy-five percent shown confidence in solitary practice. Generally, early, regulated, and psychologically safe exposure to skill labs is considered crucial for cultivating skills, confidence, and enthusiasm in a profession.

The results of our study robustly affirm the use and efficacy of skill lab training for paramedical students. Their findings closely resemble those of previous research conducted in other health education contexts. The overwhelming consensus among participants (94%) about the significance of skill lab training aligns with prior literature. Bugaj and Nikendei emphasized that skill laboratories have become a crucial component of medical education, providing students with a secure and organized environment to practice prior to engaging with patients (Bugaj & Nikendei, 2016).[11] Similar to our findings, their data indicate that simulated settings enhance technical abilities, reduce stress, and augment preparedness.

Ninety percent of the students in our study believed that skill lab sessions facilitated their learning, a finding corroborated by studies on simulation-based training. Mohamed and Fashafsheh demonstrated that nursing students who participated in simulation-based programs significantly improved their communication skills, confidence, and clinical competence (Mohamed & Fashafsheh, 2019).[12]

Our findings indicate that skill labs significantly enhance individuals' confidence. This aligns with research indicating that simulation training enhances performance and students' self-efficacy (Menzel et al., 2025). Ninety-five percent of our participants reported an increase in confidence. Confidence is crucial for the move from pre-clinical to clinical settings. Our findings substantiate the notion that early and systematic exposure is crucial.[13]

Our research demonstrates the significance of mentorship, modeling, and feedback as pedagogical strategies. Alzaabi et al. (2021) discovered that peer learning and organized demonstrations significantly

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enhanced students' acquisition of clinical skills; nevertheless, teacher mentoring remained crucial for refining technique and clinical judgment.[14]

We also discovered that 86% of students favored experiential learning techniques over didactic approaches. This aligns with Liu et al., who implemented a segmented teaching approach in clinical training and discovered that when students actively interacted with the content rather than passively absorbing it, their practical skills, communication, and professional conduct enhanced (Liu et al., 2024).[15]

Ultimately, our findings on personal development and clinical preparedness align with those of Bugaj and Nikendei, who asserted that organized simulation training enhances both technical competencies and the cultivation of professional identity and ethical conduct (Bugaj & Nikendei, 2016).[11] Furthermore, the assertion that 80% of students expressed heightened interest in healthcare occupations introduces an additional dimension of engagement, supported by recent studies emphasizing the significance of realistic simulations in fostering career desire. Overall, our findings indicate that skill lab training is crucial for students, facilitating their development across several domains, including academics, jobs, and personal life. These findings corroborate prevailing trends in health education and the ongoing utilization and expansion of skill laboratories in educational settings.

CONCLUSION

This study indicates that paramedical students see skill lab instruction as very helpful and effective. The findings indicate that experiential, simulation-based education significantly enhances students' clinical confidence, practical abilities, and preparedness for actual healthcare environments. The substantial endorsement for skill labs underscores their significance in reconciling theoretical knowledge with practical application, particularly in enhancing technical precision, analytical reasoning, and professional conduct.

The study emphasizes the significance of organized teaching methodologies for optimizing skill lab sessions. These encompass mentor-guided demos, critical critiques, and individualized assistance. Students reported significant enhancements in their desire, confidence, and ethical preparedness for clinical responsibilities, alongside their technical competencies. The findings robustly advocate for the early and systematic integration of meticulously crafted skill lab programs into health sciences curriculum to cultivate practitioners who are proficient, self-assured, and prepared to engage with patients.

REFERENCES

1. Nabilou B, Feizi A, Seyedin H. Patient safety in medical education: Students' perceptions, knowledge and attitudes. PLOS ONE. 2015;10(8):e0135610.
2. Recker F, Neubauer R, Dong Y, et al. Exploring the dynamics of ultrasound training in medical education. BMC Med Educ. 2024;24(1):6092.
3. Vogel D, Harendza S. Basic practical skills teaching and learning in undergraduate medical education – a review. GMS J Med Educ. 2016;33(4):Doc63.
4. Yu JH, Chang HJ, Kim SS, et al. Effects of high-fidelity simulation education on medical students' anxiety and confidence. PLOS ONE. 2021;16(5):e0251078.
5. Gunn T, Jones L, Bridge P, et al. The use of virtual reality simulation to improve technical skill in undergraduate medical imaging students. Interact Learn Environ. 2017;25(8):1033–48.
6. Alzaabi S, Mascarenhas S, Nasaif M, et al. Medical students' perception and value of peer learning in clinical skills education. JMIR Med Educ. 2021;7(3):e25875.
7. Rawekar A. Skill learning through early clinical exposure: Experience from an Indian medical school. J Clin Diagn Res. 2016;10(1):JC01–JC04.
8. Grosjean J, Dufour F, Benis A, et al. Digital health education for the future: SaNuRN Consortium's journey. JMIR Med Educ. 2024;10:e53997.
9. Ali M. The role of AI in reshaping medical education: Opportunities and challenges. Clin Teach. 2025;22(1):e70040.
10. Togou MA, Cornetta G, Muntean GM, et al. Assessing Fab Lab-based learning on student attitudes toward STEAM. IEEE Trans Educ. 2020;63(1):56–63.
11. Bugaj TJ, Nikendei C. Practical clinical training in skills labs: theory and practice. GMS J Med Educ. 2016;33(4):Doc63.
12. Mohamed SA, Fashafsheh IH. The effect of simulation-based training on nursing students' communication skill, self-efficacy and clinical competence for nursing practice. Open J Nurs. 2019;9(8):890–902.
13. Menzel M, Philipp S, Schulz K, Fankhänel T, Rehmer S, Hardecker S, et al. Evaluation of skills lab communication training in a bachelor's programme in psychology based on communicative self-efficacy. GMS J Med Educ. 2025;42:Doc22.
14. Alzaabi S, Mascarenhas S, Nasaif M, Zary N, Khamis AH, Otaki F. Medical students' perception and perceived value of peer learning in undergraduate clinical skill development and assessment: mixed methods study. JMIR Med Educ. 2021;7(3):e25875.
15. Liu C, Ren M, Luo C, Asfandyar K, Dai H, Yang J, et al. The application effect of the segmented teaching method in training medical students on clinical practice skills. BMC Med Educ. 2024;24:627.

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