



Knowledge, attitude & practice among undergraduate nursing students towards skill lab training on real clinical settings

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Abstract

Skills laboratory training for nurses is an educational intervention that helps nursing students gain experience in executing skill at real clinical settings. The skill lab is well-organised and contains all of the standard operating procedures needed for each Nursing Care. The aim of the study is to identify the knowledge, attitude and practice among undergraduate nursing students towards skill lab training on real clinical settings using a self-developed KAP questionnaire. A descriptive cross-sectional study was conducted on 137 undergraduate nursing students using convenient sampling. This study reveals a noteworthy inclination of student's knowledge, attitude and practice towards skill laboratory training. Statistical analysis revealed that though knowledge level lies below average (median=7) but there is significantly high frequency of students expressing positive attitudes ($\geq 95\%$) and good practice ($\geq 79\%$) towards skill laboratory training on real clinical settings. Undergraduate nursing students recognize skill lab training as highly beneficial towards real clinical settings.

Keywords: Knowledge, attitude, practice, nursing students, skill lab training, real clinical settings

1. Introduction

Learning and training are part of the bachelor's degree in nursing. Skills laboratory training for nurses is an educational intervention that helps nursing students gain experience in executing clinical skills to provide safe patient care and to improve their critical thinking abilities [1]. Most nursing institutions have included a skill lab as part of their complete education and training program. The Skill Laboratory (SL) is a transitional setting between the classroom and clinical areas, and it is an important place for students to learn clinical skills since it provides a safe and 'error-forgiving' environment, as well as opportunities to experience essential medical skills and procedures on manikins in a systematic and safe manner before applying them to real-life patients at their bedsides in real clinical settings [2]. The skill lab is well-organised and contains all of the standard operating procedures needed for each Nursing Care Plan. It is outfitted with equipment and simulators that simulate real-life scenarios, allowing for the training, practice, and evaluation of procedural skills until they meet the minimum standard for patient care [3]. Skill lab training follows a structured teaching concept that takes place under supervision and in consideration of methodological-didactic concepts, ideally creating an atmosphere that allows for the harmless practice of specified abilities and makes certain all students are given a chance to perform independently [4]. Simulation-based skill training is a training method that

allows students to perform interactively in a scenario that recreates or duplicates a real-world clinical setting but is not identical to "real life" [5]. Repetitive nursing skills practice focusses on ongoing practice and skills that show expanding knowledge and performance [6]. Bridging the gap between theory and practice, the nurse educator can help students transition from theory to practice by concentrating on a controlled simulation of reality [7]. Students have unique learning experiences and seek time with suitable equipment for hands-on and visual pre-clinical training, the student's experiences learning by closing the gap between 'knowing' and 'doing' [8]. According to Best Evidence Medical Education (BEME) collaboration review a list of key efficacy factors for simulation-based training in medical education. It not only enables the training of unusual emergency procedures, but it is also a necessary requirement for ensuring best practice [9]. Therefore practicing the skills, repeatedly in skill lab enhance the learning abilities of nursing students and lead to increase expertise and confidence level, decrease anxiety while performing on real patients.

2. Materials and Methods

A descriptive cross-sectional study was conducted to assess the knowledge, attitude and practice regarding skill lab training on real clinical settings among undergraduate nursing students. A self-developed questionnaire is prepared

and validation of the questionnaire is done by team of faculties of Columbia Group of Institutions. The questionnaire includes demographic information and 30 questions on knowledge, attitude and practice. A sample of 137 undergraduate nursing students was selected by convenience sampling. Data were collected through Google form which was sent to the targeted population and consent form were also obtained from each participants. The response obtained from KAP questionnaire are presented in the excel sheet and the mean values were calculated using descriptive statistics. Scores were categorized to reflect knowledge level, positive attitude, and good practice. The inclusion criteria for the participants were undergraduate Nursing students who have completed at least one clinical postings, where the exclusion criteria was 1st semester undergraduate Nursing students.

3. Results

The statistical analysis was done using SPSS 23.0. The categorical variables were represented in frequency and percentage. Association of demographic variables with knowledge, attitude and practice were found using Chi square test. A p value < 0.05 was considered statistically significant.

In terms of knowledge levels, 62.8% of participants scored below average, while 37.2% scored above average.

Table 1: Distribution based on level of knowledge

		Frequency	Percent
Knowledge (Median=7)	Below average	86	62.8
	Above average	51	37.2
	Total	137	100.0

Table 2: Distribution based on type of attitude

		Frequency	Percent
Attitude	Negative attitude	6	4.4
	Positive attitude	131	95.6
	Total	137	100.0

When attitudes were assessed, only 4.4% of participants exhibited a negative attitude, whereas an overwhelming 95.6% displayed a positive attitude.

Table 3: Distribution based on type of practice

		Frequency	Percent
Practice	Poor practice	28	20.4
	Good practice	109	79.6
	Total	137	100.0

With respect to practice, 79.6% of participants demonstrated good practice, while 20.4% exhibited poor practice.

Table 4: Based on knowledge

	Wrong	Correct
A. Primary reason for performing hand hygiene before a clinical procedure?	14 (10.2%)	123 (89.8%)
B. Patient for a blood pressure measurement, which position is recommended for the patient?	30 (21.9%)	107 (78.1%)
C. Action should be taken first step if an adult is found unresponsive and not breathing?	47 (34.3%)	90 (65.7%)
D. Best position for a female patients during urinary catheter insertion?	68 (49.6%)	69 (50.4%)
E. Performing a blood draw, you notice that the vein is difficult to locate. What should you do?	99 (72.3%)	38 (27.7%)
F. Performing a sterile dressing change, which of the following actions would break sterility?	55 (40.1%)	82 (59.9%)
G. Sign of phlebitis at an IV site?	13 (9.5%)	124 (90.5%)
H. Actions helps prevent pressure ulcers in an immobile patients?	25 (18.2%)	112 (81.8%)
I. Describes a "yellow" category in triage?	64 (46.7%)	73 (53.3%)
J. Recommended maximum duration for each suctioning attempt?	36 (26.3%)	101 (73.7%)

Based on the knowledge assessment, 89.8% of participants correctly identified the primary reason for performing hand hygiene before a clinical procedure. Regarding the recommended position for a patient during blood pressure measurement, 78.1% answered correctly. When asked about the first action to take if an adult is found unresponsive and not breathing, 65.7% responded correctly. For identifying the best position for female patients during urinary catheter insertion, only 50.4% gave the correct answer. In the scenario of locating a difficult vein during a blood draw, 27.7% responded correctly. When asked which action would break sterility during a sterile dressing change, 59.9% answered correctly. Knowledge about the sign of phlebitis at an IV site was high, with 90.5% answering correctly. For the action that helps prevent pressure ulcers in immobile patients, 81.8% responded correctly. In the question about the "yellow" category in triage, 53.3% answered correctly. Finally, 73.7% of participants correctly knew the recommended maximum duration for each suctioning

attempt.

For each of the ten skill-lab statements, at least 70% of respondents selected either "Agree" or "Strongly Agree". Specifically, 89.1% felt that the skill-lab provided a safe and positive learning environment, and 90.5% believed that hands-on training in the lab enhanced the practical application of theoretical lectures. Around 81% of participants felt that the training in the skill lab was directly applicable to real-life clinical situations. Additionally, 76% felt confident handling medical equipment in real clinical settings after the training, and 68% expressed confidence in performing basic procedures in real clinical environments. Neutral responses were modest, with percentages ranging from 6% to 28% across the different statements. Disagreement was rare, with the combined percentage of "Disagree" and "Strongly Disagree" never exceeding 4%, indicating that the majority of students had a positive attitude of the skill-lab training experience.

Table 5: Based on attitude

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Skill lab training provides a safe & positive learning environment?	1(0.7%)	1(0.7%)	13(9.5%)	59(43.1%)	63(46.0%)
Hands-on training in the skill lab enhance your practical application of theoretical lectures?	1(0.7%)	3(2.2%)	9(6.6%)	73(53.3%)	51(37.2%)
Training in skill lab directly applicable to real-life clinical situations?	0 (0%)	7(5.1%)	19(13.9%)	65(47.4%)	46(33.6%)
Feel performing procedures in a real clinical settings is more challenging than in a skill lab training?	1(0.7%)	4(2.9%)	33(24.1%)	50(36.5%)	49(35.8%)
Feel confident in performing basic procedures in real clinical settings?	2(1.5%)	4(2.9%)	38(27.7%)	63(46.0%)	30(21.9%)
Feel comfortable handling medical equipment in real clinical settings after receiving training in the skill lab?	0 (0%)	2(1.5%)	31(22.6%)	67(48.9%)	37(27.0%)
Skill lab training help you develop a professional attitude towards patient care?	2(1.5%)	3(2.2%)	9(6.6%)	75(54.7%)	48(35.0%)
Safely and effectively administer medications in real life clinical settings?	0 (0%)	4(2.9%)	36(26.3%)	64(46.7%)	33(24.1%)
Understand the importance of continuous learning and skill improvement in nursing field?	0 (0%)	3(2.2%)	14(10.2%)	65(47.4%)	55(40.1%)
Simulated clinical settings in the skill lab help you in developing better decision making skills for real patient care scenarios?	0 (0%)	5(3.6%)	21(15.3%)	73(53.3%)	38(27.7%)

Table 6: Based on practice

Item	No	Unsure	Yes
In clinical practice, are you comfortable while performing clinical procedures on real patients after the skill lab training?	6(4.4%)	25(18.2%)	106(77.4%)
Practice the procedure learned in the skill lab training, during your clinical rotations?	21(15.3%)	16(11.7%)	100(73.0%)
Practice recognizing potential complications during clinical procedures based on what you have learned in the skill lab?	12(8.8%)	22(16.1%)	103(75.2%)
Performing a procedure in the real patient, do you refer to the guidelines to ensure accuracy?	5(3.6%)	8(5.8%)	124(90.5%)
Feel there is a gap between performing procedure in a skill lab and performing them in real clinical settings?	21(15.3%)	14(10.2%)	102(74.5%)
Feel prepared to handle unexpected clinical situations such as TRIAGE based on your skill lab training?	24(17.5%)	42(30.7%)	71(51.8%)
Practice aseptic techniques in real clinical settings before and after performing the procedure?	17(12.4%)	13(9.5%)	107(78.1%)
Think the most reliable method to confirm proper placement of NG tube is injecting air and auscultating for "whooshing" sound?	22(16.1%)	20(14.6%)	95(69.3%)
Practice cleaning the wound from the center outward in a circular motion when applying a sterile wound dressing?	29(21.2%)	7(5.1%)	101(73.7%)
Practice assessing the pain level of the patient in a clinical settings using visual analogue scale?	31(22.6%)	13(9.5%)	93(67.9%)

77.4% of respondents were comfortable performing clinical procedures on real patients after skill lab training, and 73.0% practiced the procedures during their clinical rotations. A significant number, 75.2%, felt confident recognizing potential complications during clinical procedures based on the skills learned in the lab.

When it came to ensuring accuracy during procedures, 90.5% of respondents referred to guidelines. 74.5% of participants felt that there was no significant gap between skill lab training and real-world clinical settings. However, 30.7% felt unsure about being fully prepared to handle unexpected situations like TRIAGE, although the majority, 51.8%, felt somewhat prepared.

For aseptic techniques, 78.1% practiced proper methods before and after performing procedures in clinical settings, while 69.3% believed that injecting air and auscultating for a "whooshing" sound was the most reliable method to confirm proper placement of NG tubes. Additionally, 73.7% practiced the correct technique for cleaning a wound, and 67.9% assessed patients' pain levels using a visual analogue scale in clinical settings.

4. Discussion

Skill lab and simulators are now extensively used in medical

training, and there are numerous strong reasons for their implementation. The results of this study indicate that training in skill laboratory had a positive impact on student's motivation to learn clinical skills. In this specific study, it was found that theoretical knowledge is below the average level. This may be attributed to the fact that understanding complex procedures tends to happen at a slower pace compared to simpler ones, likely because simpler tasks demand less cognitive effort than their more intricate counterparts. Additionally, it seems that theoretical knowledge is more likely to be remembered over time than practical skills. On the other hand, it implies that overall lack of resources in an atmosphere of organisational deficiencies has been a hurdle for knowledge transmission. The nursing skill laboratory should also have enough equipment's and supplies in the simulation for use throughout the nursing skills demonstration and re-demonstration. The absence of high-fidelity manikins in the skills laboratory was identified as a barrier to effective knowledge and application of clinical skills procedures, and this might be due to a lack of facilities resulting from a lack of funding. This is an important finding because literature also supports that the Skill Laboratory should provide an authentic learning environment, which is only possible with

the availability of adequate equipment's and supplies, along with the appropriate use of equipment during teaching ^[10]. Furthermore, the disparity between theory and practice in the study could potentially be attributed to a lack of resources in clinical settings, which reduces student incentive to use theoretical information presented in class ^[11]. Haraldseid, *et al.* state that a poorly designed clinical skills laboratory also negatively impacts the process of demonstrating procedures to many students at the same time ^[12]. Therefore, it is important to have a well-designed clinical skill laboratory. Another study revealed that nursing students preferred skill laboratory training to practice on patients for the development of numerous clinical skills, knowledge, and attitudes ^[13].

Furthermore, the results of the present study showed that the majority of the students have positive attitude and practice towards skill lab training on applying to real clinical settings. Skill laboratory sessions are considered as part of students clinical skills orientation, enabling them to perform the vital abilities effectively in a real clinical settings. Simulation has grown progressively integrated into nursing education during the last two decades. It is extensively incorporated into the development of clinical skills for student nurses, allowing them to practice competently ^[14]. Ali Alharbi, *et al.* have emphasised the effectiveness of skills laboratory sessions, such as simulations, and how they serve as an important part of nursing student's education on knowledge and skills in clinical learning ^[15]. Porter *et al.* found that students are eager and prepared to be placed in the skills laboratory for clinical learning, which leads to the development of the confidence required to function in healthcare settings but also a crucial issues of skill transferability to clinical practice and long term retention ^[16]. However, since skills lab training in skill laboratories practice is restricted, it is necessary to allocate adequate time to practice specific nursing skills for a given session. Nursing students appreciate frequent nursing skill practice. One study found that improving hand skills helped the students enhance their knowledge and performance. They highlighted the importance of regular skill lab training as a method for safe use in real-world clinical situations ^[17].

Finally, each nursing skill laboratory requires a certain set of equipment and materials. When executing skills or processes, it serves as a guide or resource. According to the present research findings, the availability of materials and equipment's affects the quality of nursing knowledge, attitude and practice. With proper resources, students may practise a certain skill in an established atmosphere, encouraging them to do it more securely and correctly ^[18]. This response may also indicate the need to install or replace equipment. As technology progresses, it becomes more intimately linked with patient care. That is why updated equipment's are required for training in a simulated setting to reduce anxiety of making errors on the patient. Additional initiatives are required to improve the efficacy of skills laboratory training, particularly with the implementation of the new curriculum.

5. Conclusion

This study gives useful insights towards the influence of skills laboratory training on undergraduate nursing students' knowledge, attitude and practice in using skills in real-world

clinical settings. This study also reveals that the nursing skills laboratory additionally requires enough resources and equipment's. A further issue that the students encountered in the nursing skill laboratory training was a lack of time to apply the skills that were instructed, so they arises the necessity of providing the students extra time to perform a skill. The nursing skills laboratory helps students learn abilities that they will apply in real-world situations. It may be stated that nursing laboratories play an important role in strengthening and developing nursing abilities prior to exposing students to the actual world.

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6. Conflict of Interest

The study has no conflict of interest.

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