

Journal of Health, Medicine and Nursing (JHMN)

ASSESSMENT OF INFRASTRUCTURAL RELATED FACTORS INFLUENCING PRE- SERVICE SKILLS LABORATORY TRAINING PROGRAM IN BOMET KENYA MEDICAL COLLEGE

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ASSESSMENT OF INFRASTRUCTURAL RELATED FACTORS INFLUENCING PRE- SERVICE SKILLS LABORATORY TRAINING PROGRAM IN BOMET KENYA MEDICAL COLLEGE

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Abstract

Purpose: The study aimed at assessing infrastructural related factors that influence pre- service skills laboratory training program in Bomet Kenya Medical College.

Methods: Semi-structured questionnaires were used to collect primary data from respondents. The study was a cross- sectional descriptive survey, where 150 students in the 1st year of study in nursing school, in Kenya Medical Training College, Bomet campus were systematically selected. The data was analysed using Statistical Package for Social Sciences SPSS version 22. Analysed data was presented using simple tables, percentages, bar graphs, pie charts and chi-square.

Results: The study concluded that skills laboratory area was adequate and can accommodate at least 10 students per session. Additionally, skills laboratory had equipment they needed to practice nursing procedures. Moreover, skills laboratory equipment was in good working condition.

Unique contribution to theory, practice and policy: The study recommends that; Nurse training schools management should ensure adequate infrastructure in skills laboratory program as well as enable students access the skills lab on a daily basis. Management should also make arrangements to enable accessibility of skills laboratory after 5pm to ensure continuity of practice.

Keywords: *Pre-service, nursing students, infrastructural related factors, perception of competence, skills, laboratory, training, Kenya Medical Training College*

1.0 INTRODUCTION

1.1 Background Information

A clinical skills laboratory is a facility whose main purpose is to support the acquisition, enhancement and maintenance of clinical skills of the health care students and qualified staff. Staff and students learn communication, clinical and information technology skills to a specified level of expected competence prior to direct patient contact. They can also acquire and update acquired competencies during their professional life. Therefore skills laboratory training method represents aspects of clinical care in a real life manner (Basgnasco, 2014).

Skills laboratory training has been part of clinical education since 1950s. Skills laboratories were established in order to mitigate clinical challenges. Over the years skills laboratory training through simulation has evolved tremendously. Initially simulators consisted of stationery models that were used to learn basic nursing skills (Brown & Chronister, 2009).

As simulation technology changed the models used in skills laboratory training were able to closely mimic physiological states. Recently more countries, have adopted the use of high fidelity human like mannequin to simulators patients, which include software inside the mannequin that can be accessed and manipulated using a computer (Kaddoura, 2010).

Harris (2011) cites that a nursing skills laboratory plays an important role in nursing education. It enables students to acquire psychomotor skills, to put theoretical knowledge into practice, to get prepared for real life conditions and to gain experience in self-directed learning.

The main objective of skills laboratory training is for the student to obtain clinical skills related to the psychomotor domain. Furthermore it can as well be used to attain knowledge and communication skills.

According to Jeffries (2002) simulation technology is the main teaching method in skills laboratory training and incorporates a various teaching strategies to teach students about the real world of nursing. These strategies include using role playing, observing the simulated role play, cases , reviewing video clips of simulated sessions, debriefing, computer games, and skills-based trainers to patient manikins or human patient simulation. These varieties of teaching strategies be utilized to accommodate students' diverse learning styles.

Simulation as a teaching method has been gaining wider acceptance in nursing education in both academic and clinical settings. Nurse educators have incorporated simulation into nursing programs. Factors that contribute to the growing interest in simulation include; patient safety, concerns about medical error, limited clinical instruction time, and increased competition for clinical placements, and a desire to provide specific and/or consistent clinical experiences for students and staff (Comer, 2005).

Rhodes and Curran (2005) described the advantages of simulation for nursing education, which include consistent clinical experiences, active learning, unique patient scenarios, no threats to patient safety, and correction of error without real danger.

Suzette and Donna (2005) assert that pre-service education/ training in nursing, has an important role in ensuring students acquire the essential pre-requisites, to be able to safely manage real patients.

These enhance nursing students' critical thinking abilities and improve clinical reasoning abilities in complex nursing care situations. It also aids the student in developing confidence and self-efficacy in their own clinical abilities.

Skills laboratory training is usually introduced very early in pre-service training for students training for nursing to bridge the gap between theory and practical. Through simulation, the nursing educator in the skills laboratory facilitates the transfer from theory to practical skills by focusing on a controlled simulation of reality.

Since this training is done in a secure setting these student's experiences stimulate learning by bridging the gap between knowledge and skills therefore simulation allows the student to build their assessment, critical thinking and decision-making skills in safe and supportive environment (Comer, 2005).

There is no standardized program of initiating skills laboratory training, therefore nursing schools integrate skills laboratory training differently and this has resulted in differences in levels of competencies acquired by the students. Some nursing colleges may complete the classroom theory teaching then embark on an intensive non- interrupted skills laboratory training while others prefer interlinking the practical immediately after a procedure has been taught.

In Kenya, just like other countries, skills laboratory training had not been standardized; therefore each Nursing college implements its own program as long as they adhere to the Nursing Council requirements of prescribed hours of skills laboratory training (NCK, 2012).

In 2000, the Belgium organization Volleyball Vereniging Barger- Oosterveld (VVBO) introduced the skills laboratory methodology program in the Kenya Medical Training College (KMTC) curriculum for nurses and clinical officers. The aim was to improve and keep up the level of clinical competence of the health professionals in Kenya with respect to clinical skills. The program is a two weeks intensive skills laboratory training and thereafter mastery of skills assessed through an examination- OSCEs (objective structured clinical examination) in which a student has to attain seventy per cent as the pass mark (KMTC, 2009).

Despite these efforts several challenges have emerged in integration, structure of the training, sustainability and uncertainty about structures through which KMTC will continue these functions.

The goal of this research is therefore to carry out an evaluation of skills laboratory based training strategies utilised among pre-service nursing students in Bomet Medical training College and how the pre-service nursing students perceive their competence in these skills.

1.2 Problem Statement

Although the clinical laboratory/ clinical practicum in the pre- nursing training curriculum provide invaluable learning/training experiences for nursing students, its transfer to patient's care

during clinical practice is not to be guaranteed. Reports that pre- service nursing students are not sufficiently prepared to implement clinical skills even after six weeks skills laboratory learning and practice are of concern to educators and other stakeholders in health sector in Kenya (UN, 2006). In addition, the nurses in service have voiced the opinion that the pre- service nurse students are inadequately prepared to transfer clinical skills and lack self confidence in patient care on their clinical placement thus contributing to compromised patient care (Ross, 2011). There is a critical need to build a strong and competent health care workforce to properly staff health care facilities and to provide quality services (Goldenberg, Andrusyszyn & Iwasiw, 2005).

The total number of pre-service first year students in Bomet KMTTC are 246.

The researcher through her inquiry discovered that all first year students passed their OSCE examinations with an average of 70%. Of these 50% reported that they were not confident in handling basic nursing procedures when they report to the clinical areas. Furthermore, the training hospital also reported 11% of first year pre-service nursing students have been commenced on post exposure prophylaxis (PEP) within two months of reporting to the clinical areas. This observation raised questions about the preparation of these students in the skills laboratory. It is in this view that this study intends to assess infrastructural related factors that influence pre- service skills laboratory training program in Bomet Kenya Medical College.

Bomet KMTTC is among Medical training colleges that implemented Belgium development organization (VVOB) skills laboratory training program and since its inception in 2000 no documented evaluation of this program is available in KMTTCs. Also few studies have evaluated infrastructural related factors in nursing schools in Kenya.

1.3 Specific Objective

To identify infrastructural related factors that influence pre- service skills laboratory training program in Bomet Kenya Medical College

2.0 LITERATURE REVIEW

2.1 Skill Acquisition Theory

According to Dekeyser (2007), Skill Acquisition Theory, "is that the learning of a wide variety of skills shows a remarkable similarity in development from initial representation of knowledge through initial changes in behaviour to eventual fluent, spontaneous, largely effortless, and highly skilled behaviour, and that this set of phenomena can be accounted for by a set of basic principles common to acquisition of all skills" (p. 97). As mentioned by Speelman (2005), skill acquisition is considered as a specific form of learning; here learning has been defined as "the representation of information in memory concerning some environmental or cognitive event". Therefore, to him, skill acquisition is learning where "skilled behaviours can become routinized and even automatic under some conditions". This theory assigns roles for both explicit and implicit learning in skills acquisition.

As a general theory of learning, it sites that adults commence learning new things through largely explicit processes, consequently with subsequent sufficient practice and exposure they move into implicit processes. Progress, within this theory, entails the utilization of knowledge that is declarative followed by procedural knowledge, with the automatization of the latter (Vanpatten & Benati, 2010).

Richards & Schmidt (2010) outline, declarative knowledge as conscious knowledge of concepts, facts, or ideas that can be internalized as propositions. And procedural knowledge refers to unconscious knowledge of how an activity done. Important Concepts in this theory include three concepts; skill, priming, automaticity

Vanpatten and Benati (2010) define skill as; being able to perform as opposed to underlying competence or mental representation. They further elaborate these by nine defining attributes of "skill" and "skilled performance" from a psychological view; these are most valid in skill acquisition and performance by individuals. The defining attributes are: skill is learned; skill involves, purpose, motivation and goals; schemas are preliminaries for skilled performance; skills require context and content knowledge; skills are done and transferred in the presence of certain stimuli; skills involve problem solving related to the context; skill involves judgments with individual differences in performance evident; standards of excellence are equally important; skill involves comparable replication; certain periods of time are required to reach expected levels of skill.

Priming is an important concept in this theory. Trofimovich & McDonough (2013), refers to priming as a cognitive repetition phenomenon whereby prior exposure to specific action meaning or forms facilitates individual's behaviour processing. For example, an action or structure used by an instructor will influence the comprehension and production of that action or structure by the student. Therefore, it may underlie the interactive, communicative use of an activity since it often happens with little awareness and conscious effort on the part of the student

The other concept within this theory is automaticity. DeKeyser (2007) sites, skill acquisition and learning processes involved in the acquisition of skills entails a progressive transition from attentive towards automatic mode. Hulstijn (2002) concurs that performance is the outcome of implicit learning, and an accompaniment; automatization is an incidental feature of implicit learning.

Automatization as per Dekeyser (2007), is the whole process of how knowledge changes from presentation format to the final stage of wholly spontaneous, effortless, fast, and error free use of that information, often without being conscious of it anymore. In another sense, it refers to the process of reducing, reaction time, error rate and interference with and from other tasks that occur after proceduralization. More specifically, it designates a simple quantitative change in subcomponents of procedure based knowledge to the exclusion of any quality initiated change or restructuring. The following core set of phenomena seem to reappear in most automaticity; accelerated performance with practice following the law of power; diminishing requirements for attention with practice, with commitment to release from attention based control - or

involuntariness (the involuntariness of processes that are automatic); immunity from interference with other competing processes, and the requirement that practice be “mapped consistently” for these phenomena to develop. DeKeyser (2007) chose to refer to automatized knowledge as; knowledge which may be conscious but a learner has access to the knowledge in actual communication.

In the area of practice, DeKeyser (2007) cites that practicing a given task gradually decreases time for reaction and error rate, whereby practice is defined as; repeated performance of the same and/or closely similar routines. Newell and Rosenbloom (1981, as cited in DeKeyser, 2007) to be more precise, cites “Practice is the subclass of learning that deals only with improving performance on a task that can already be successfully performed”. Practice required for learning in Skill Acquisition Theory, accordingly should be meaningful.

In the concept of power law of practice Newell & Rosenbloom (1981) noted that practice is associated with individual performance improvements which should be both theoretically and experimentally. Theoretically, the 'chunking theory of learning' formulated is rooted in cognitive psychology. And on experimental side, they argued that a single law, i.e., the "log-log linear learning law" or the "power law of practice" describes all of the practice data. According to Newell & Rosenbloom, this ever present quantitative law of practice, states that plotting the logarithm of the time of performing a task against the logarithm of trial always yields a straight line or there about. Hulstijn (2002) concurs that automatization aligns to the power law of learning in both; "repetition priming" and "skill learning". The former occurs during the process of identical stimuli repetition (i.e., the same action is processed severally), the latter happens when ones processes some varrying stimuli which is at the surface, but share similarities and/or regularities at an underlying levels of structure.

2.2 Infrastructural Related Factors that Influence Pre-service Skills Laboratory Training

Infrastructure in skills laboratory is a critical aspect, skills laboratories are expected to be equipped up to date equipment to enable nursing students acquire pre-requisites of clinical practice. Ideal skills laboratory lay out standards are usually clearly defined and mainly consists of, training and lecture areas.

The lecture area needs be spacious to accommodate nursing students for pre- lecture, task or situation based training and conducting debriefing sessions. The training area ideally should be able to hold a minimum of ten students per session and have additional space to perform team-based exercises, such as in an emergency scenario. Skills laboratory the training should be separated from the surrounding lecture halls so as to allow nursing learners focus on performance. Adequate modern equipment are also required to enable performance of basic nursing skills, for example trolleys, kidney dishes, forceps for standard wound dressing skills; taps, running water, soap, hand sanitizer etc. for training hand washing technique, a washing machine and sterilizer for surgical instruments and a room ventilation system to demonstrate operating theatre environment. An animal room for dealing with live animals should also be available as well as an organ storage area may necessary for storing some organs. However it is

very exorbitant to construct a nursing skills laboratory in which all aforementioned functions are integrated (Ahmed, 2008).

Several studies have shown that an efficiently equipped skills lab is paramount to competencies that students acquire. In a study by Bagnasco et al (2014) 90% students appreciated the availability of models and mannequins in practicing nursing skills at the skills laboratory. They observed that the models and mannequins exposed them to a scenario that mimics the real humans and so enabled them to be more confident in handling a patient. The same study 60% of the students also cited that equipment that are in good condition, also enabled the students familiarize better with their use. This shows how important adequate facilities, equipment and related materials are to obtain high quality, clearer simulations of different clinical situations. Similarly 72 % of the nursing students reported that practicing and development of skills was positively impacted by availability of audio and visual equipment which enhanced simulations as they watched real situations.

Through watching they were able to apply critical analysis of the relational dynamics observed. Strand, Naden & Slettebe (2009) and Mwale & Kalawa (2016) study echo's the above sentiments whereby students emphasis was on a well-equipped clean and tidy skills laboratory had a positive influence on skill acquisition.

A study outcome done by Baker et al; 2008 supports these sentiments whereby 61% of students reported lack of equipment used at the skill laboratories in the training institutions of the health department affected the whole training program. The students (52%) reported that lack of enough space and equipment frustrated their efforts of practicing the basic nursing skills. The skills laboratory training area could not accommodate the students as per standards and 94% reported that they were not allowed to access the room after normal working hours. Most of the nurse students; (70%) did not feel confident to apply the skills they had acquired to patients because time allocated for practicing was not adequate.

A study done at the International Medical College in Malaysia, had a similar report whereby most of the students (88%) felt that skills laboratory learning is influenced by large numbers of students in a small clinical skill unit at a given time which causes students to lack adequate time to practice (Stark & Fortune, 2009).

Similarly in a study by Spouse (2001) students (77%) reported lack of adequate practice time and overcrowded skills laboratories are factors affecting skills lab training and wished more time for practice and guidance to be allocated, because acquisition of basic practical skills called for a focused integration of theory and practice.

These studies suggest that the management should enhance the effectiveness of skill laboratory use by increasing financial allocation to buy the equipment so that the students will obtain sufficient practical training exposure before they undergo clinical practice at the accommodations in which they are assigned.

On the contrary Ahmed (2008) cites that as much as this equipment may be available, structures should be put in place whereby students embrace self-training, most may be underutilized

because skills laboratory training takes considerable time and effort and it may be difficult for beginner nurse students to master a technique during stipulated time lines and therefore skills laboratory need to be accessible to students after normal working hours so that students can practice through peer to peer and self-training.

2.3 Theoretical Framework

2.3.1 Novice to Expert Theory

The theory describes the pattern of knowledge growth from beginner-novice to the expert level and was coined by Benner (2004) who introduced this concept that “expert nurses develop skills and understanding of patient care over time through a sound educational base as well as a multitude of experiences”. It proposes that a nursing student could gain knowledge and skills without necessarily learning the theory.

The theory further explains that one can develop knowledge in applied disciplines (medicine and nursing) through extensive exposure to practical knowledge (know how) through continuous research and the characterization and deep understanding of the know-how of clinical experience. It conceptualizes that nursing skills are acquired through experience as a prerequisite for becoming an expert (Waldner & Olson, 2007). The theory’s five levels of nursing experience include; Novice, Advanced beginner, Competent student, Proficient student and Expert.

Novice is the beginner student, with nil experience who is taught general basic rules to help perform tasks these rules are: free of context, independent of any specific cases, and applied by universal tenets. In this stage governed behavior is limited and not flexible. The Advanced beginner is a student who demonstrates acceptable performance and with time has gained some prior experience in real life situations, he/she is able to recognize recurring significant components and the principles are experience based. These aspects begin to guide action. In Level three; the competent student is more aware of goals for long-term actions and gains insight from planning his/her own actions based on abstract, conscious, and analytical thinking and these assists to achieve greater efficiency and organization. The Proficient student; at level four perceives and understands occurrences as whole parts, has a more holistic understanding to situations which improves decision-making and learns from previous exposure what to expect in certain encounters and how to modify plans. The last level is the Expert; here the student has developed significantly and no longer relies on strict principles, rules, or outlined guidelines to connect situations and decide on actions to take. The student has much enriched background of experience, has intuitive sense of clinical situations and performance is flawless, flexible, and highly proficient (Benner, 2004).

The theory is significant to skills laboratory training as its levels reflect progress from reliance on past abstract instructions to the use of past concrete encounters as paradigms and change in how one perceives a situation as a complete whole in which only certain parts are relevant. Each step impacts on the previous one as abstract principles are improved and expanded by experience and the nursing student gains clinical expertise.

2.4 Conceptual Framework

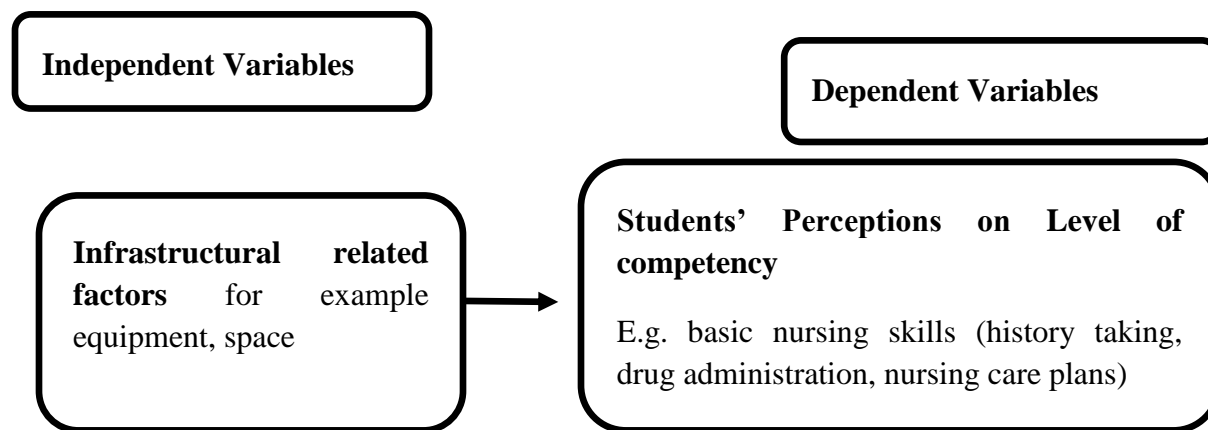


Figure 1: Conceptual Framework (Phillisters, 2016)

3.0 METHODOLOGY

The study was a quantitative cross-sectional descriptive survey; this research approach examines the situation, as it exists in its current state. The target population for this study consist of all the KMTC nursing students of Bomet campus medical training college because they have scheduled skills laboratory training. There are 600 nursing students studying diploma in community health nursing. The study population consisted of first year students of Bomet campus medical training college because they have scheduled skills laboratory training where a target of 246 students was used. Information was collected from a sample size of one hundred and fifty students. Systematic sampling was used whereby individuals were selected at regular intervals using a sampling frame. For this study 246 students were divided by 150= 1.6 (rounded off to 2), the sampling interval was therefore 2. The number of the first student was picked randomly from the register. Number 4 was picked then every 2nd student was included in sample starting with student number 4 until 150 students had been selected.

Systematic collection of data was applied to give a clear picture of the problem. Both qualitative and quantitative methods of data collection were used. Self-administered questionnaires were used to collect responses from the sampled respondents. A preliminary pretest using a semi structured questionnaire was conducted in order to establish validity and reliability. Fifteen (15) individuals with a population of similar characteristics to that of the targeted population at Litein KMTC which constituted 10% of target population were selected. Quantitative data analysis was used to give descriptive statistics such as mode, mean and median that was presented in various form; charts, tables, graphs, percentages and figures, for easy understanding and interpretation. The qualitative data was cleaned, put into categories, themes and patterns and finally subjected to statistical analysis using chi-square.

4.0 RESULTS AND DISCUSSION

4.1 Response Rate

Figure 2 gives the results on the response rate. It shows that out of the 150 questionnaires that were issued out to the respondents, 141 (94%) was a response while 11 (6%) were non respondents.

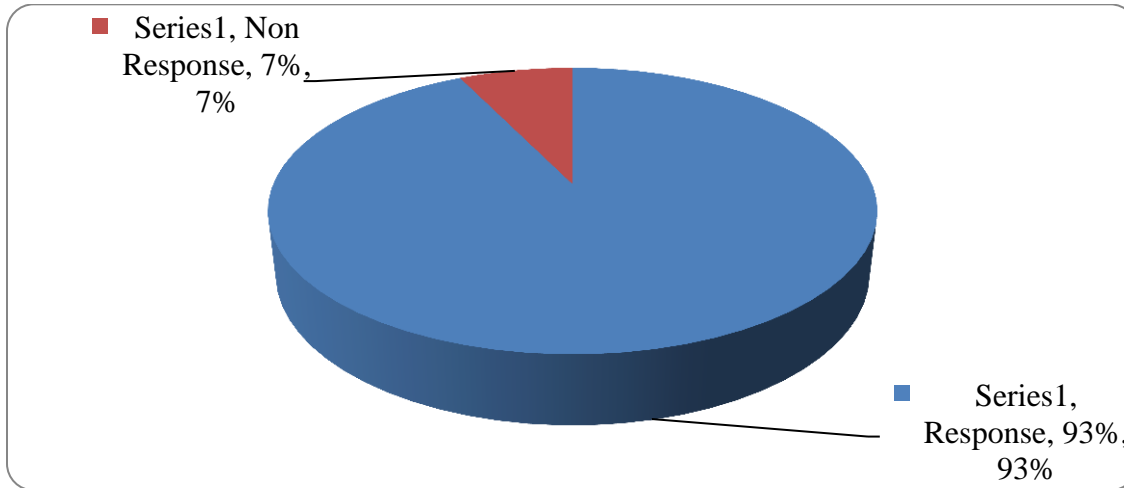


Figure 2: Response Rate

4.2 Background Characteristics of the Respondents

Table 1: Background Characteristics of the Respondents

Background Characteristics	Frequency	Percent
Gender		
Male	77	55
Females	64	45
Scheduled Skills Lab Training		
Yes	129	92
No	12	7.8
Skills Lab Instructors		
Yes	126	90
No	15	10

4.2.1 Gender of the Respondents

According to the results in table 1, majority of the respondents 77 (55%) were male students while 64 (45%) of the respondents were female students.

4.2.2 Scheduled Skills Lab Training

As presented in table 1 above, majority 129 (92%) of the respondents reported that the school had scheduled skills lab training for the students whereas only 12 (7.8%) reported that the school did not offer scheduled skills laboratory training.

4.2.3 Skills Lab Instructors

As indicated in table 1 above, 126 (90%) of the respondents reported that their skills laboratory had skill instructors who helped them in undertaking the skills laboratory practices while 15 (10%) of the respondents reported that their skills laboratory had no laboratory instructors.

4.3 Infrastructural Factors Influencing Skills Laboratory Training

Several infrastructural factors influencing skills laboratory training were identified and the respondents were required to indicate the extent to which they agree or disagree. From the responses percentages were calculated for ease of interpretation. A Likert Scale of 1-5 where 1- strongly agree, 2- agree, 3- not sure, 4- disagree, 5- strongly disagree was used.

As shown in the findings in Table 2, 118 (83.7%) of the respondents agreed that skills laboratory had equipment they needed to practice nursing procedures 15 (11.3%) of the respondents disagreed.

The study revealed that 119 (84.4%) of the respondents agreed that skills laboratory area is adequate to accommodate at least 10 students per session 5 (4.2%) of the respondents disagreed. The study found out that 107 (75.9%) of the respondents agreed that Skills laboratory was clean and well organized with labels indicating where equipment were stored 15 (10.7%) of the respondents disagreed with the statement. The findings of the study indicated that 94 (66.7 %) agreed that Skills laboratory had adequate procedure manuals while 30 (21.3%) of the respondents disagreed with the statement.

The study found out that 111 (78.8%) of the respondents agreed that Skills laboratory equipment was in good working condition, 19 (13.5%) of the respondents disagreed. The study revealed that 54 (38.3%) of the respondents agreed that skills laboratory was open every day from 8am- 5pm, 68 (48.9%) of the respondents disagreed on the statement. The study established that 87 (62.4 %) of the respondents disagreed that there are mechanisms in place to access skills laboratory after 5pm (27.6%) agreed on the statement.

Table 2: Infrastructural Factors Influencing Skills Laboratory Training (n=141)

Statement	Strongly Agree (%)	Agree (%)	Not Sure (%)	Disagree (%)	Strongly Disagree (%)
Skills laboratory has equipment I need to practice nursing procedures	53.2	30.5	5	2.8	8.5
Skills laboratory area is adequate to accommodate at least 10 students per session	51.1	33.3	11.3	1.4	2.8
Skills laboratory is clean and well organized with labels indicating where equipment is stored	21.3	54.6	13.5	5	5.7
Skills laboratory has adequate procedure manuals	43.3	23.4	12.1	4.3	17
Skills laboratory equipment in good working condition	43.3	35.5	7.8	7.8	5.7
Skills laboratory is open every day from 8am- 5pm	16.3	22	12.8	19.1	29.8
Mechanisms in place to access skills laboratory after 5pm	16.3	11.3	9.9	14.2	48.2

4.4 Chi-Square Test

4.4.1 Association between Infrastructural Factors and Perception of Competence

From the findings in Table 3 below, infrastructural factors was cross tabulated against perception of competency (no and yes). The Chi-square statistic showed a significant relationship between the statement that skills laboratory has equipment I need to practice nursing procedures with the level of competence ($\chi^2=22.100$ and $p= 0.009$) at 0.05 level of significance.

Moreover, the Chi-square statistic showed a significant relationship between the statement that Skills laboratory area is adequate to accommodate at least 10 students per session with the level of competence ($\chi^2=34.934$ and $p= 0.000$) at 0.05 level of significance.

The findings revealed an indication that there was a strong association between infrastructural factors and the level of competence acquired by pre service nursing students. Therefore adequate infrastructure enhances competency whereas poor infrastructure will have a negative impact on competency among pre-service nursing students.

Table 3: Association between Infrastructural Factors and Perception of Competence (n=141)

Infrastructural Factors	Categories	Level of Competence		χ^2	p-value
		No	Yes		
Skills laboratory has equipment I need to practice nursing procedures	Strongly agree (n=72)	19	53	22.100	0.009
	Agree (n=45)	14	31		
	Not sure (n=10)	1	9		
	disagree(n=5)	4	1		
	Strongly disagree (n=8)	7	1		
Skills laboratory area is adequate to accommodate at least 10 students per session	Strongly agree (n=81)	27	54	34.934	0.000
	Agree (n=38)	1	37		
	Not sure(n=7)	7	0		
	disagree(n=6)	0	6		
	Strongly disagree(n=9)	2	7		
Skills laboratory is clean and well organized with labels indicating where equipment is stored	Strongly agree (n=79)	27	52	17.567	0.018
	Agree (n=36)	8	28		
	Not sure(n=15)	15	0		
	disagree(n=2)	2	0		
	Strongly disagree(n=9)	7	2		

4.5 Discussion

4.5.1 Infrastructural related factors that influence pre-service skills laboratory training

On Infrastructural Factors Influencing Skills Laboratory Training, the study revealed that 119 (84.4%) of the respondents agreed that skills laboratory area is adequate to accommodate at least 10 students per session 5 (4.2%) of the respondents disagreed with a mean of 1.63 and standard deviation of 0.866. The study revealed that 118 (83.7%) of the respondents agreed that skills

laboratory had equipment they needed to practice nursing procedures 15 (11.3%) of the respondents disagreed with a mean of 1.75 and standard deviation of 1.042.

The study outlines that 111 (78.8%) of the respondents agreed that Skills laboratory equipment was in good working condition, 19 (13.5%) of the respondents disagreed with a mean of 1.9 and standard deviation of 1.036.

The finding concurs with that of Baker et al (2008) who supports these sentiments where lack of equipment used at the skill laboratory in the nurse training institution affected the whole training program. A study by Bagnasco et al (2014) also supports these sentiments where 90% students appreciated the availability of models and mannequins and their importance in exposing students to scenarios that mimics the real humans ultimately enabling them to be more confident in handling a patient.

The study found out that 107 (75.9%) of the respondents agreed that Skills laboratory was clean and well organized with labels indicating where equipment were stored 15 (10.7%) of the respondents disagreed. Similarly Strand, Naden & Slettebe (2009) study echo's the above sentiments whereby students emphasized that a skills laboratory that is well-equipped and well organized influences positively on skills acquisition.

The study revealed that 54 (38.3%) of the respondents agreed that skills laboratory was open every day from 8am- 5pm, 68 (48.9%) of the respondents disagreed on the statement, however 87 (62.4 %) of the respondents disagreed that there are mechanisms in place to access skills laboratory after 5pm (27.6%) agreed on the statement. The above outcome resonates with Spouse (2001) study whereby 77% of the students reported crowded skills laboratories and lack of adequate time as factors affecting skills lab training and wished additional time to be allocated for skills laboratory practice, because the acquisition of basic nursing skills called for a rigorous integration of theory and practice.

This concurs with Akaike (2012) who cites that as much equipment may be available, structures should be put in place whereby students embrace self-training by being accorded extra time and exposure to skills training to avoid underutilization of skills laboratory because skills training takes significant time and effort and it may be difficult for nursing students who are beginners to master a technique during stipulated time lines; therefore skills laboratory should be accessible to students after normal working hours so that students can practice through peer to peer and self-training.

4.6 Correlation analysis

The findings revealed a strong association between infrastructural related factors and perceived level of competency at $p=0.000$.

Yuan, Williams, Fang & Ye (2012) observed that adequate infrastructure enhances perceived level of competence whereas a skills laboratory that is inadequately equipped reduces the perceived competence among pre-service nursing students. Similarly observations by Bagnasco

et al (2014) recommend availability of competent staff in skills laboratory to guide students so as to enhance perception of competence among nursing students.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The study revealed that infrastructure in the skills laboratory is adequate, the working area is able to accommodate at least 10 students per session, it had equipment they needed to practice nursing procedures, equipment were in good working condition and skills laboratory was clean and well organized with labels indicating where equipment were stored.

5.2 Conclusions

The study concluded that skills laboratory area was adequate and can accommodate at least 10 students per session. Additionally, skills laboratory had equipment they needed to practice nursing procedures. Moreover, skills laboratory equipment was in good working condition. The Skills laboratory was clean and well organized with labels indicating where equipment was stored.

The study also concluded that there is a statistical significance between infrastructural related factors and the perception of competencies acquired in skills lab training.

These conclusions are in tandem with the Nursing Council of Kenya standards for skills training program for pre-service nursing students, which stipulates that skills laboratory size should be of 100m by 50m and should be able to accommodate at least 10 students per session.

However the inability of students to access the skills laboratory after 5pm could be having a negative impact since 24.1% of students were able to acquire other skills apart from the ones assessed. The fact that the skills lab was clean and had adequate equipment enabled students to acquire pre-requisites of nursing procedures in a conducive environment.

5.3 Recommendations

Skills laboratory training is an integral aspect of nursing training and therefore primary acquisition of nursing skills depends on several factors that influence the training. The results of this study clearly revealed how these factors influence competencies acquired by the students.

To ensure that pre- service nursing students acquire desired pre-requisite skills before clinical engagement the study recommends that:

- Nurse training schools management should ensure adequate infrastructure in skills laboratory program as well as enable students access the skills lab on a daily basis. Management should also make arrangements to enable accessibility of skills laboratory after 5pm to ensure continuity of practice.

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