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# PERCEPTION OF NURSING STUDENTS ON SIMULATION AS A LEARNING STRATEGY AT NURSING TRAINING COLLEGES IN NAIROBI COUNTY, KENYA.

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**Abstract**

*Simulation is a teaching and learning strategy used in nursing education for the preparation of nursing students for clinical practice. The nursing education principally centre on nursing knowledge, and assisting learners acquire the necessary skills and attitudes associated with nursing practice to care for patients as they deal with and handle real- life situations. The nursing students' views are shaped by heavily by practical realities and clinical experience. This study sought to determine the perception of nursing students on simulation as a learning strategy at selected nursing training colleges in Nairobi County Kenya. The following specific objective was to assess the perception of nursing students towards integration of simulation program as a learning strategy at nursing training colleges in Nairobi County, Kenya. The study was guided by the theory of experiential learning, postulated by Kolb (1984). The study adopted a descriptive exploratory design in a quantitative approach. The target Population for the study was 1067 consisting of diploma nursing students training at medical colleges in Nairobi County. The stratified random sampling technique was used in this study and the sample size was 210 participants. The stratification was based on college block system and clinical rotation placements. The study population was stratified by the year of study. The number of students respondents per year of study was determined by the weight of classroom of the total population. The self-administered questionnaires were subjected to a reliability test through a pilot study in which the questionnaires were administered and later responses cross-checked through the test -retest. The pilot study also helped in validation of the instruments through amending unclear and obscure questions and discarding ineffective and non-functional questions. Data was collected using a closed-ended self-administered questionnaire. Data was analysed through descriptive (frequency, percentages, mean, and standard deviation) and inferential statistics (correlation coefficient, coefficient of determination, analysis of variance, and model coefficients). Pearson correlation coefficient was at a significant level of 0.01. SPSS software was used to compute analysis. The findings were that integration of simulation programs significantly influences simulation as a learning strategy for nursing students. The findings gave an R-Square of 0.868 with the standard error of estimate being 0.128. This implies that using the composite score, integration of simulation program, classification simulation, clinical experience as well as benefits of simulation significantly influences simulation as a learning strategy for nursing students. Results also provided a p-value $= 0.000 < 0.05$. This further confirms that the predictors positively and significantly influence simulation as a learning strategy for nursing students. The study concludes that the integration of simulation programs significantly influences simulation as a learning strategy among nursing students. The study strongly recommends that nursing educators should make simulation an integral part of their teaching for nursing students as embracing an integral approach will improve students' learning approach, formulation of a policy framework on the classification of simulation approaches, learners should know the classifications and practice them effectively. Students should practice clinical skills so as to generate experience that would yield positive results, the nursing colleges should embrace simulation learning strategy as it has a lot of benefits to learners.*

**Keywords**: *Simulation, perception, Learning strategy*

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## Introduction

Simulation is a teaching and learning strategy used in nursing education for the preparation of nursing students for clinical practice. The aims of nursing education principally centre on nursing knowledge, and assisting learners acquire the necessary skills and attitudes associated with nursing practice to care for patients and families as they deal with and handle real-life situations. Simulation is an educational process that can replicate clinical practices in a safe environment. Implementing simulation enables students to practice their clinical and decision-making skills for some significant issues they may face in their daily work (Gohen, 2018).

Simulation allows students to demonstrate competence and achievement of course objectives while experiencing a realistic clinical experience in a controlled environment (Frankline & Blodgett, 2021). The positive outcomes of simulation in nursing education are; improved critical thinking, patient safety, nursing skill mastery, communication, and clinical judgement (Hanshaw & Dickerson, 2020). Simulation provides immediate feedback and gives the health care professional a chance to compete the task using knowledge of errors or complications experienced during the first practice session. For healthcare trainees, simulation permits aunique learner-centred educational experience rather than a patient-centred experience in which the trainee, is attempting to acquire complex clinical skills.

Healthcare educators are moving from the traditional methods of education, such as classrooms, to content and practices that are safe and risk-free. Simulation in healthcare can thus be described as a training approach where healthcare students are engaged in a reality-like simulated medical environment (Kumar, 2023).

Traditionally simulation experience is reserved for courses with a clinical practice component rather than scaffolded across the curriculum (Aebersold, 2018). Without purposeful learning experiences, students struggle to implement theoretical knowledge into their clinical practice (Koukourikos et al., 2021). While simulation improves knowledge, confidence, and competence, most studies focused on clinical acquisition noting immediate near learning gains (Can't & Cooper, 2017). The utility of simulation in non-clinical nursing courses is less known. Siew, Wong and Chan (2021) determined that simulation helped students learn both clinical and non-clinical skills related to geriatric care while standardized patients increased confidence and communication skills while taking a health history (Anderea & Kotowski, 2017). More research is needed to determine the effectiveness of simulation in other non-clinical practice.

Simulation in its preliminary stages has been practical for decades in the form of physical models of anatomical parts of the human body. Simulation-based teaching in healthcare was first introduced in the ninth century by a French midwife, Madame du Cowdray, to better train and illustrate childbirth-related complications to midwives. Simulation has evolved to be exceptional and innovative learning and teaching, technology and teaching techniques have improved (Krishnan et al., 2017). The simulation methods allow students to freely make mistakes without harming patients; they learn at their own pace; and repeatedly practice their clinical skills until when they develop a sense of proficiency (Goeman et al., 2017).

Simulation is a method that can be designed to reflect real-life conditions, and which provides the opportunity to work in contexts that are closer and more representative of real settings. The protected environment and the sense of security enhance student's self-esteem and confidence, thus promoting learning. Nursing education seeks to provide nurses with the clinical competencies needed to function in the ever-changing healthcare settings. Clinical competence in nursing practice entails the use of knowledge understanding, and judgment, as well as the competencies of the exhibition of skills attitudes, and qualities in the delivery of safe patient care in specific situations .While practicing clinical skills, taking a health history increased confidence and communication skills .Simulation helped students learn both clinical and non-clinical skills (Anderea & Kotowski, 2017).To develop the clinical competence of nursing students, nursing education institutions ( NEIs) have relied heavily on classroom teaching and skills-based training(demonstration and return demonstration) in skills laboratory, usually complemented by clinical placements (Aebersold, 2018; Salifu et al., 2019).

Simulation-based education is an exemptional educational approach that provides appropriate learning opportunities for to students understand

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complex concepts (Haukedal et al., 2018). Moreover, it allows mastery in clinical judgment, and decision-making abilities, and enhances critical thinking (Knoesel, 2017). To ensure patient safety, simulation has been widely trusted around the world as teaching technique, because it allows a student to practice the skills and apply the knowledge that they have acquired in real -life scenarios (Krishnan et al., 2017). Students can practice nursing skills and psychomotor, critical thinking, decision -making and bedside manner skills while in the simulation laboratory. In a controlled environment, they can relax, practice, and try new things without jeopardizing the health and safety of a patient (Koukorikos, 2021). The advantage of clinical simulation helps students to raise the levels of both their proficiency and self-confidence, which will enhance productivity, performance, and even job satisfaction. The use of high-fidelity simulation in nursing education was found to be more effective than traditional clinical training. This improved the students' knowledge and skills hence reduced anxiety (Dogru & Aydin, 2020). Many resources exist to help institutions and individual units in designing their curriculum and encourage formal evaluation of such programmes to iterate the education in most essential for an individual (Atallah & Coffman, 2020: de Melo et al., Lawson et al., 2020).

For the past 20 years, simulation has been integrated into nursing education program for the students at the nursing training colleges in Nairobi County, yet nursing student's perception and experiences regarding the adoption of simulation in nursing programs and their advantages in their learning process and learning environments are not exposed.

Studying these views will help overcome the strain students encounter in a real clinical situation. Consequently, the study findings would assist educators in improving the practice through integrating the simulation into the clinical training.

Little is known about the perception of nursing students on simulation as a learning strategy in Nairobi County, therefore it is necessary to have an informative study to appraise whether simulation adds value to the students' learning.

The field of healthcare simulation has made tremendous strides forward over the past several decades. One way this revolution is made possible is through clinical simulation research being conducted across the globe. The journal Clinical Simulation in Nursing is constantly sharing updates that include article research reviews, more information on standards of best practice, research briefs, and overall innovations in medical simulations. Simulation remains a powerful ally in developing clinical decision-making with its ability to foster experiential learning and provide a platform for reflection and reinforcement. It has been one of the preferred strategies for nurses and nursing students to immerse themselves in authentic care scenarios, refine their decision-making skills, and witness the consequences of their choices (Hall et al., 2017).

Through simulation, nursing students may practice their abilities and clinical skills, make errors that will not be fatal for the patients, and repeat the process, leading to mastery. Simulation methods allow students to repeatedly practice their clinical skills until they develop a sense of proficiency; to learn at their own pace; and to freely make mistakes (Eyikara et al., 2017). Nursing simulation is a technique and not a technology. People unfamiliar with medical simulation often think that complex and sophisticated equipment is an essential component of simulation however, it is not the equipment but rather the educational methodology that is the key element and which allows students and qualified nurses to practice responding to various clinical situations and then reflect on how they performed, what went well and what needs to be changed.

Nursing simulation is being used not only in formal nursing education but also in medical facilities for ongoing training (e.g. Basic Life Support and Advance Cardiac Life Support), and to prepare nursing staff for clinical situations which occur rarely and for which, without regular practice, nurses may be unprepared (e.g. post-partum haemorrhage and paediatric critical events). Nursing simulation training is particularly useful in situations that require a rapid response team involving so-called soft skills such as communication and team interactions (Aebersold, 2018).

Simulation –based education has become popular among trainees in nursing (Happel et al., 2015). In a study to evaluate the impact of simulation education in paediatric care, Happel et al. (2015) found simulation provides an ideal platform for trainees to gain and maintain skill competence. The trainees acquire essential skills they can implement in critical

Received 17/08/2026
Revised 25/08/2026
Accepted 07/09/2026

events such as those found in emergency departments. The trainees reported improved performance, especially when handling critical events. The trainees reported they had an improved understanding of when to call for assistance. The trainees also reported a better understanding of medical management and an increase in confidence levels. The ICU is a critical department where patient safety and well-being must take priority."

Nursing simulation is being used not only in formal nursing education but also in medical facilities for ongoing training (e.g. Basic Life Support and Advance Cardiac Life Support), and to prepare nursing staff for clinical situations which occur rarely and for which, without regular practice, nurses may be unprepared (e.g. post-partum haemorrhage and paediatric critical events). Nursing simulation training is particularly useful in situations that require a rapid response team involving so-called soft skills such as communication and team interactions (Aebersold, 2018; Salif et al, 2019).

More research is needed to determine the effectiveness of simulation in other non-clinical courses (Aebersold, 2018). While simulation facilitates near transfer of theory to practice because it helps students integrate new information with existing knowledge, more research is needed to explore the impact of simulation on far transfer of theories to practice in clinical settings and patient outcomes(El Hussein & Concannon, 2022).Through simulations, nursing students may practice their abilities and clinical skills ,make errors that may not be fatal for those under their care."

Nursing education seeks to provide nurses with clinical competence needed to function in the ever-changing health care setting. Clinical competence in nursing entails the use of knowledge , understanding ,and judgement as well as the competencies of the exhibition of skills , attitudes and qualities in the delivery of safe patient care in specific situations (Notarnicola et al., 2016; Park et al., 2013) .To develop clinical competence of nursing students ,nursing education institutions have relied heavily on classroom teaching and skills-training (demonstration and return demonstration) in skills laboratories, usually complemented by clinical placements (Aebersold, 2018). Salifu et al. (2019) also found out that clinicians were dissatisfied with the level of knowledge and skills displayed by the students during clinical placements."

The technique is used to apply structured experiences such as venepuncture, patient resuscitation based on a certain protocol and to enhance the team spirit and spirit of cooperation, mostly in countries with limited educational resources (Huges, 2018). This technique minimizes errors, increases the satisfaction of students from the educational process, and enhances their self-esteem, self-confidence, and comfort in skill performance. A ramification of introducing simulations into the curriculum must be considered. Nursing educators have examined the ramifications of incorporating simulation experiences into the curriculum (Cari et al., 2021). The nursing educators, through the use of simulation experiences, can replicate the clinical environment. Although the use of simulation experiences is increasing in health care professional's curriculums, several challenges have been identified in the literature regarding the use of simulations. One of these identified challenges is the funding for the equipment necessary to run realistic simulations (Harlow & Sportsman, 2007; Haskvitz & Koop, 2004).

The objective of nursing education apart from the acquisition of solid theoretical knowledge, is the acquisition of clinical skills, which are necessary for graduate nurses to be promptly integrated into the workforce. Integrated learning, critical thinking, and optimal decision-making skills make help nurses to provide quality health care. This can be achieved through the inclusion of simulation in the education process (Morse, 2016). Development of simulation may be of great assistance in the attempt made by students to become integrated and successful healthcare professionals. Simulation has been used for educating health professionals and has evolved due to the demand to provide high-quality care, increased complexity of patients and need to minimize risks of care delivery for patients (Hall & Tori, 2017).

This promotes the critical thinking skills of students. Simulation allows students work in an environment closely resembling that of a hospital and helps them to gain healthcare and nursing experiences even before they start working as professionals (Baghcheghi et al., 2020). The students practice what they have been taught in class, cope with any difficulties and even make mistakes without causing damage to the patient

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Revised 25/08/2026
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(Eyikara et al., 2017). Simulation is a method which can be designed to reflect real -life conditions, and which provides the opportunity to work in contexts that are closer and more representative or real settings (Hogg,2016). Nursing education seeks to provide nurses with clinical competencies needed to function in the ever-changing healthcare setting (Koukourikos, 2021).

Another study was found in support of simulation, which was conducted by Karakoc and Bal in the emergency department to determine the impact and knowledge of implementing simulation scenarios on idle and service time (Karakoc et al., 2018). A randomized study was conducted by Keleekai and the college to improve clinical skills between two groups of nurses for the insertion of a peripheral intra venous catheter. The intervention group, which received a two-hour training, revealed an improvement in knowledge and skills, as compared to the waist list group. According to Parsh (2010), factors such as improvements in technology and shortage of clinical placement for learning students have pushed colleges to adopt the simulated clinical Experience SCE, which exposes nursing students to the reality of clinical environment where they can then demonstrate procedures and engage in decision making and critical thinking (Gor, 2016). Using learning objectives to determine levels of fidelity compared to traditional clinical experiences for students perceived learning effectiveness.

However, the effective use of SCE requires a qualified and experienced instructor. Parsh (2010) interviewed different nursing students regarding their opinions on what constitutes an effective an instructor. The nursing students mentioned that the instructor must have effective teaching abilities to guide students in the SCE as well as in an actual clinical setting. According to the nurse learners, the instructor must guide students through the simulation learning process without necessarily helping out and giving solutions to every problem student faces (Parsh et al., 2010). In other words, the instructor must be patient enough to allow students to evaluate the simulated scenario, engage in critical thinking, and make their own decisions during the simulated scenario. The nurse students also seek instructors who can provide an effective an evaluation of students (Haraldseid et al., 2015; Parsh, 2010). The instructors must give positive, direct, and energetic responses and demonstrate a genuine desire to see students excel during the simulation (Haraldseid et al., 2015; Parsh, 2010).

A study done by Nyamu et al. (2018) on evaluation of utilization of simulation as a teaching and learning strategy at Kenya Medical Training College, Nairobi; found out that both the tutors and students had a positive perception towards the how simulation is utilized in teaching and learning as a strategy. The study indicated that simulation models at the KMTC were yet to be fully efficiently implemented in achieving all learning objectives. The coefficient of determination square from the result showed that 29% of simulation as a teaching and learning strategy is discussed by perception on simulation, simulation models usage and of effectiveness of simulation of students .From the simulation model obtained, the simulation application had a coefficient of 0.469 , implying a relatively necessary method of teaching and learning strategy for students .The relationship was at 95% since the p-values are at less than 0.05.The study concluded that KMTC is yet to fully and successfully integrate the simulation method in their programs. The study recommended that the management to highly prioritize this during strategy formulations and budgetary allocation. They should also redesign the curricula, train the nurse tutors and sensitize the students on the importance of adoption of simulation methods.

Simulation has also been utilized to assist students in the development of clinical judgement. Lasater (2007), conducted a qualitative study utilizing focus groups following the simulation experience. The simulation experiences consisted of complex medical-surgical patient care scenarios. Laster reported that during the focus groups several themes emerged. Students felt that the scenarios required them to reflect on what they had learned and apply that knowledge to the patient care scenarios. Students stated that they felt anxious, but that they felt the anxiety heightened their awareness of the situation, allowing them to learn from both their correct actions and mistakes.

Diploma nurses are hands-on demonstration skills over lecture method. Simulation addresses their desire for practical integration of theory. Diploma curriculum is quite compressed with alot of practical skills needed which must be accomplished within a framework to meet the Nursing council requirements. Diploma nurses normally interact with low to medium fidelity

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manikins and static task trainers. Their perceptions will be heavily shaped by the availability and accessibility of the specific resources.

Simulation is a learning strategy where, following a certain scenario, students experience the actual dimensions of their future professional roles, which helps them to be more quickly integrated into the workforce of the healthcare sector. Implementing simulation enables students to practice their clinical and decision-making skills for some significant issues they may face in their daily work. Nursing educators involve a practice- oriented curriculum in which emphasis is placed on both theoretical knowledge and psychomotor skills. Simulation – based education and learning is an answer to the mainly theoretical training of students to-date and helps them to develop knowledge, and skills while creating a sense of security both for the patient and the healthcare professional. This technique rebuilds a skill or clinical experience in full or in part, without exposing the patients to any risk whatsoever.

The findings of this study will influence nursing students to have a positive attitude towards simulation as a learning strategy, embrace simulation for their learning purposes and the nursing educators will make simulation as an integral part of their teaching for nursing students, as embracing this integral approach will improve students learning. The students will practice clinical skills to generate experience that would yield positive results and nursing colleges will embrace simulation learning strategy as it has a lot of benefits to learners.

**Research Methodology**

The study adopted a descriptive exploratory design with a self-reporting survey to determine the perception of nursing students on simulation as a learning strategy. In this study the researcher was interested in the characteristics of the whole population and focused on diploma nurses training at nursing schools, in Nairobi County. Participants must be drawn from a nurse training institution and the academic programme enrolled for krchn approved by the nursing council of Kenya. The target population restricted to institutions physically located within Nairobi County.

The researcher obtained the necessary research permit and identified herself to the respondents, throughout the process confidentiality was upheld and voluntary consent maintained. The researcher followed the guidelines for good scientific practice.

The respondents were allowed to withdraw from the study at any time desired. The purpose of the study explained to the respondents and results kept available to all respondents on request."

The stratified random sampling technique was used to select the nursing students. The stratification was based on block system and clinical rotation placements. A sample size of 210 nursing students was used as recommended by Krejcie and Morgan (1970) out of a target population of 1067. The Krejcie and Morgan table (1970) was used to calculate the sample size.

$S = X^2 NP (1-P) + d^2 (N-1) + X^2P (1-P)$

S = required sample size

N = population size

$X^2$ = table value of chi-square for 1-degree freedom at the desired confidence level (3.841)

P = the population proportion (assumed to be 0.5 since this world provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (0.05)

N = Population size of 470

S = Sample size is 210

Stratified sampling was applied, under this the population was divided into several sub-group populations that are individually more homogeneous than the total population (the different sub-populations are called strata) and then selected items from each stratum to constitute a sample. Stratified sampling results were more reliable and detailed. The sampling technique used to select nursing students was a stratified random sampling procedure. The stratification was based on college block system and clinical rotation placements. The 470 students were stratified by the year of study. The number of student respondents per year of study was determined by the weight of class to the total population. Data was collected by use of closed-ended self -administered questionnaires for the capacity to solicit data from a large sample size and the result can be generalized for a whole population. Data was obtained from a Likert scale and presented in tables.

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## Results and Discussions

### *Demographic Information*

The demographic information gathered included distribution of respondents by their gender, age and year of study.

**Figure 1**

*Gender of respondents*

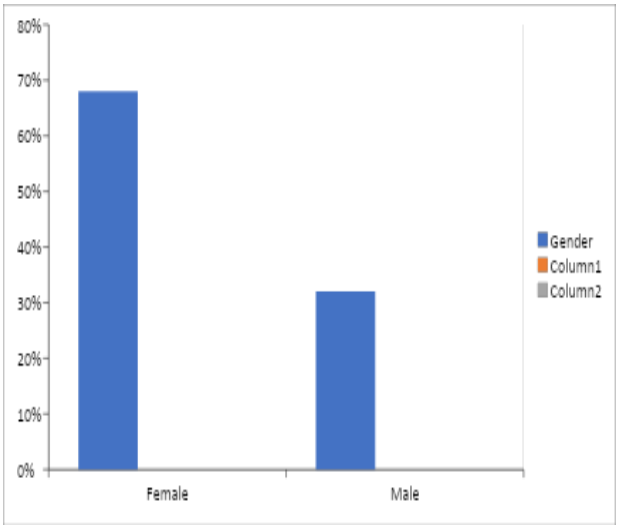


Figure 1 shows that 68% of respondents were female as 32% were male. This implies that majority of nursing students in Nairobi selected colleges are female. The perception that nursing is a female dominated career was therefore true for this case.

**Figure 2**

*Age Bracket of Respondents*

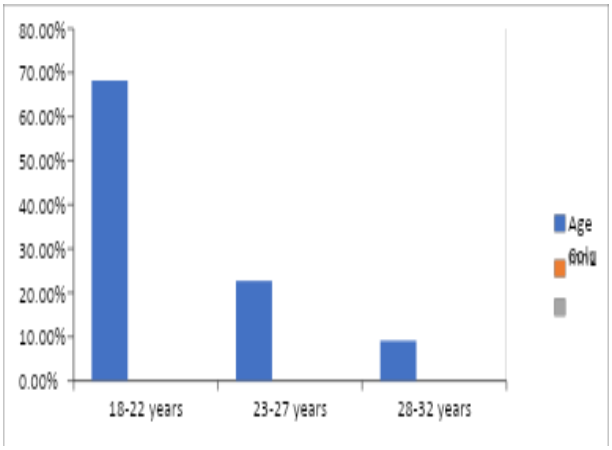


Figure 2 shows that age of the respondents was distributed between 18-22 years (68.2%), 23-27 years (22.7%), 28-32 years (9.1%). This implies that majority of nursing students in Nairobi selected colleges are youthfully age meaning joined mostly after high school hence could easily apply clinical simulation as a learning strategy.

**Figure 3**

*Year of study*

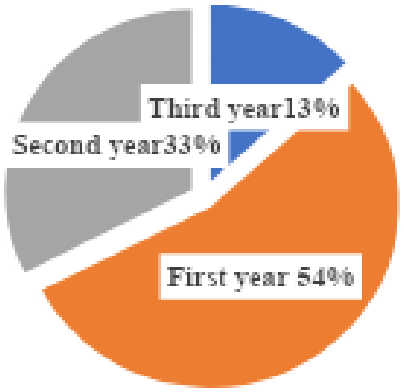


Figure 3 shows that 54% of respondents (nursing students) were first years while 33% were second year students. The remaining 13% were third years. It emerged that the number kept reducing based on year of study indicating those in senior classes were less willing to participate in research. This probably caused non-hundred percent response rate.

The Demographic information helped the researcher identify trends and patterns within the diploma nursing students. This information was used to make more informal decision about simulation as a learning strategy.

### *Descriptive Statistics for integration of simulation programme*

Response on how nursing students felt about integration of simulation programme was provided. Results were provided in Table 1

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**Table 1**
*Integration of simulation Programme*

| Statement | Disagree | Strongly Disagree | Neutral | Agree | Strongly Agree | Mean | Standard Deviation |
|---|---|---|---|---|---|---|---|
| My experience with simulation increased my level of confidence to face the real setting. | | 2.4 | 1.2 | 8.4 | 88.0 | 4.8 | 0.6 |
| Conducting the simulation motivated me to learn. | 2.4 | 1.2 | 4.8 | 15.7 | 75.9 | 4.6 | 0.8 |
| Simulation gave me confidence in my technical abilities. | 3.6 | 4.8 | 20.5 | 41.0 | 30.1 | 3.9 | 1.0 |
| I consider that, if a teacher accompanies me during the simulation, l further develops my technical abilities. | 0.0 | 2.4 | 1.2 | 4.8 | 91.6 | 4.9 | 0.5 |
| l consider that the teacher fosters the simulation to improve my learning | 3.6 | 4.8 | 22.9 | 39.8 | 28.9 | 3.9 | 1.0 |
| **Average** | **1.9** | **3.1** | **10.1** | **21.9** | **62.9** | **5.5** | **0.8** |

***Integration of simulation Programme***

As shown in Table 1 evaluated *integration of simulation programme*, nursing students of selected colleges in Nairobi revealed that, their *experience with simulation increased their level of confidence to face the real setting* which had a positive influence on simulation as a learning strategy (mean = 4.9, standard deviation = 0.5), conducting *the simulation motivated nursing students to learn* which had a positive influence on simulation as a learning strategy. (Mean = 4.8, standard deviation = 0.6) at the same time, s*imulation gave nursing students confidence in their technical abilities* which had a positive influence on simulation as a learning strategy (mean = 4.6, standard deviation = 0.8). Nursing students *considered that, if a teacher accompanied them during the simulation, it developed their technical abilities* which had a positive influence on simulation as a learning strategy (mean = 3.9, standard deviation = 1.0). Basing on the average mean *and standard deviation integration of simulation programme* had a positive influence on simulation as a learning strategy.

Nursing students perceive simulation as a good foundation phase. They feel that simulation sessions help them understand nursing care and interventions, prioritize care, relate theory to practice, and improve their knowledge and skills in a specific case. Nursing students who take part in simulation education programs perform fewer medical mistakes in clinical settings, and can better develop their critical thinking and practical skills. Simulation can foster the learning process of clinicians as it mimics clinical scenarios. Learning in a simulated environment addresses the learning needs of students in a controlled and non-threatening environment (Lamen & Dixon-Woods, 2020).

The use of simulation-based learning can help nursing students have more comprehensive learning experiences, which can lead to better patient care. Improvement of knowledge through simulation aids in improving clinical practice skills and thus contributes to more comprehensive learning experiences for the students (Khalil et al., 2023). Simulation helps students integrate new information with the existing knowledge; to explore the effectiveness of simulation on transfer of theories to practice in clinical settings and patient outcomes more research is needed (EI Hussein & Concannon, 2022).

Implementing simulation enables students to practice their clinical and decision-making skills for some significant issues they may face in their daily work. The protected environment and the sense of security enhance students' self -esteem.

***Benefits of simulation***

The study established the benefits of simulation. Results are provided in Table 2.

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**Table 2**
*Benefits of simulation*

| Statement | Disagree | Strongly Disagree | Neutral | Agree | Strongly Agree | Mean | Standard Deviation |
|---|---|---|---|---|---|---|---|
| Simulation promotes my critical thinking | 1.2 | 1.2 | 2.4 | 20.5 | 74.7 | 4.7 | 0.7 |
| Simulation reduces anxiety and fear during learning | 2.4 | 1.2 | 4.8 | 12.0 | 79.5 | 4.7 | 0.8 |
| Simulation provides timely debriefing and feedback from tutors/clinical instructors | 0.0 | 2.4 | 1.2 | 4.8 | 91.6 | 4.9 | 0.5 |
| Simulation promotes self-awareness of communication to students | 3.6 | 3.6 | 4.8 | 43.4 | 44.6 | 4.2 | 1.0 |
| Simulation helps me identify gaps in knowledge and experience. | 2.4 | 4.8 | 3.6 | 38.6 | 50.6 | 4.3 | 0.9 |
| **Average** | **1.9** | **2.7** | **3.4** | **23.9** | **68.2** | **4.6** | **0.6** |

Regarding simulation benefits, Table 2 shows that, simulation promotes nursing students critical thinking (mean = 4.9, standard deviation = 0.5), at the same time, simulation reduces anxiety and fear during learning (mean = 4.7, standard deviation = 0.7), Simulation provide timely debriefing and feedback from tutors/clinical instructors (mean = 4.7, standard deviation = 0.8). Respondents also disclosed that, simulation promote self-awareness of communication to students (mean = 4.3, standard deviation = 0.9), Simulation helps me identify gaps in knowledge and experience (mean = 4.2, standard deviation = 1.0). The average mean was found to be 4.6 with a standard deviation of 0.6. This implies that simulation has numerous benefits to learners. This finding agrees with Fink (2013) who emphasized that the importance of learners being actively engaged in satisfying significant learning experiences, students developed confidence to face the real world, and simulation motivated them to learn and developed technical abilities.

Simulation based education and learning becomes interactive and experiential, the main benefit being the consolidation of skills acquired and knowledge taught. The setting where the simulation is performed promotes learning and, through repetition of a skill, this skill becomes fully understood and clear. Wellard et al. (2021) report that the protected setting of a laboratory practically drives students to learn and understand certain skills while Freeth et al. (2022) argue that clinical laboratories and simulation substantially reduce student anxiety and fear.

Bremner et al. (2006) conducted a mixed methods study that examined novice students, perceptions of the value of high-fidelity simulation experiences. Students were asked about the teaching / utility, the reality, realism, any limitations, and the students confidence/comfort level .The study found out that 61% of the students believed the experience helped them gain confidence in their physical assessment skills and 42% believed that the simulation experience helped to reduce the stress that comes with the first day of clinical .The qualitative data relieved that the simulation experience helped students identify areas of remediation that were needed.

Fink (2013), emphasized the importance of learners being actively engaged in satisfying significant learning experiences. Fink stated that the results of significant learning experiences include preparing students for the realities of the world. Fink also emphasized the importance of students developing the desire to become life-long learners through actively taking charge of their learning. The research reviewed indicated that learner satisfaction was an important concept to consider when creating and evaluating learning experiences. When students participate in satisfying learning experiences, they may put up more effort into learning and persist longer when the learning environment is challenging. Satisfying learning experiences, where students are actively engaged in their learning may assist in increasing students, self-efficacy.

Medical-based simulation helps students act out real-life medical situations in preparation for real–life clinical scenarios. The integration of simulation as part of the learning process enables healthcare students to perform medical procedures on models under the observation and guidance of their tutors. The method

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thus eliminates the occurrence of errors (Haraldseid et al., 2015). Simulation learning is also important because it provides a platform for repeated learning, thus enhancing the accuracy and retention of the procedure (Abraham & Singaram, 2016). As a result, students leave their learning institution with confidence that they can handle real medical situations in real healthcare settings. Systemic debriefing for critical events facilitates dynamics (Gabriel et al., 2022). While a medical-based simulation will never replace real-life clinical experiences, it provides students with an ideal learning opportunity before they graduate (Abraham & Singaram, 2016). The educational strategy to achieve specific goals related to learning or evaluation in a safe and supportive environment is referred to as simulation-based learning (Salifu et al., 2019). When simulation occurs in the work place, there is a bidirectional impact on psychological safety between the two (Purdy et al, 2022).

## Conclusion

The researcher concluded that, integration of simulation programmes, classification simulation, clinical experience as well as benefits of simulation significantly influences simulation as a learning strategy for nursing students had a positive influence on simulation as a learning strategy. Students therefore embrace simulation for their learning purposes.

## Recommendations

Based on the research findings, this study presents some of the key policy recommendations that could support simulation as a learning strategy among learners:

- Nursing educators should make simulation as an integral part of their teaching for nursing students. Embracing integral approach will improve students' learning approach.
- The study strongly recommends formulation of a policy framework on classification of simulation approaches. Learners should know the classifications and practice them effectively.
- The study recommends that students should practice clinical skills to generate experience that would yield positive results.
- The study further recommends that nursing colleges should embrace simulation learning strategy as it has a lot of benefits to learners.

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## Declaration of conflict of interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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