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Aims and Scope

Nursearcher (Journal of Nursing and Midwifery Sciences) is a semi-annual, open access, double blind peer-reviewed international journal that aims to foster the production and dissemination of knowledge that is directly relevant to all areas of nursing practice.

Topics of interest include:

- Nursing education
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- Healthcare systems
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- Nursing role in COVID-19 and other infectious diseases
- Family planning, birth control, gynaecology

The major goal is to encourage high-quality clinically linked knowledge that improves and supports nursing practice and discipline. The Journal also strives to contribute to the expanding field of nursing practice by providing a platform for researchers, physicians, and healthcare workers. Furthermore, NURSEARCHER aims to broaden understanding of clinical need and its implications for nursing intervention and service delivery methods.

Types of Articles

- Research Papers
- Short Communications
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- Commentaries
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- Meta Analysis
- Case Reports
- Case Studies
- Case Control Studies

Reviews on recent progress in nursing are commissioned by the editors. The purpose of the Nursearcher is to publish scientific and technical research papers to bring attention of International Researchers, Scientists, Academicians, and Health Care Professionals towards recent advancements in nursing practise. The articles are collected in the form of reviews, original studies, clinical studies among others. It may serve as a global platform for scientists in relevant fields to connect and share ideas mutually. This journal is open to all the research professionals whose work fall within our scope. Submissions are welcome and may be submitted here.

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Title
The title of the paper should provide a concise statement of the contents of the paper. A good title is very important and will attract readers and facilitate retrieval by online searches, thereby helping to maximize citations. The title should include topical keywords and allude to the interesting conclusions of the paper. A title that emphasizes the main conclusions, or poses a question, has more impact than one that just describes the nature of the study.

Running Head
Running head should be added in the header along with the page numbers.

Type of Article
Research Article/ Case Report/ Review Article/ Opinion/ Short Communication/ Mini Review/ Letter to Editor.

Running Title: A short version of the paper title.
Keywords: The major keywords used in the article have to be mentioned.

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Abstract
Abstract should include a brief content of the article. It should be structured and not more than 250 words. It should include following sub headings: Objective, Methods, Results, Conclusions.

Abbreviations
If there are any abbreviations in the article they have to be mentioned.

INTRODUCTION
Provide a context or background for the study (i.e., the nature of the problem and its significance). State the specific purpose or research objective of, or hypothesis tested by, the study or observation; the research objective is often more sharply focused when stated as a question. Both the main and secondary objectives should be made clear, and any pre-specified subgroup analyses should be described. Give only strictly pertinent references and do not include data or conclusions from the work being reported.

METHODS
The Methods section should include only information that was available at the time or plan of the protocol. All information gathered during the conduct of study should be included in the method section.
Study Design, Inclusion / Exclusion Criteria, Data Collection Procedure and Statistical Analysis.

RESULTS
Present your results in logical sequence in the text, tables and illustrations, giving the main or most important findings first.

Do not repeat the data that is already present in tables and illustrations.emphasize or summarize only important observations. When data are summarized in the results section, give numeric results not only as derivatives (for example, percentages) but also as the absolute numbers from which the derivatives were calculated, and specify the statistical methods used to analyze them. Table font should be 10 and caption should be above the table and below figure.

Data should not be duplicated in both figures and tables. The maximum limit of tables and figures should not exceed more than 4. Mention the findings of the study in paragraph, while mentioning figure and table number in text in sequential order.

TABLE

Table should not be copy pasted or in picture form.

DISCUSSION

Discuss your findings by comparing your results with other literature.

REFERENCES

References should not be less than 20.
In text references should be in number style. For Example [1].
Follow the Pubmed Referencing style.
Provide the DOI link.

Example

Cook NR, Rosner BA, Hankinson SE, Colditz GA. Mammographic screening and risk factors for breast cancer. American Journal of Epidemiology. 2009 Dec; 170(11): 1422-32. doi: 10.1093/aje/kwp304.

If there are more than six authors, write *et al*. after the first six names.

CONCLUSION(S)

Conclusion should elucidate how the results communicate to the theory presented as the basis of the study and provide a concise explanation of the allegation of the findings.

ACKNOWLEDGEMENT

Provide the list of individuals who contributed in the work and grant details where applicable.

Plagiarism policy

Similarity index should be less than 19, and less than 5 from individual sources.

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TABLE OF CONTENTS

VOLUME 05 ISSUE 01

ISSN (E) 2958-9746
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TABLE OF CONTENTS

VOLUME 05 ISSUE 01

ISSN (E) 2958-9746
ISSN (P) 2958-9738

TABLE OF CONTENTS

DOI: https://doi.org/10.54393/nrs.v5i1.151

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The Growing Role of Business Models in Modern Nursing

OPEN ACCESS

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Nursing practice has both challenging opportunities and positive prospects for change that business models provide. Nurses ought to strive for clinical excellence but also possess business intelligence skills tied to the measurement of value and operation models. Both aspects have so much influence in modern healthcare operations, therefore, healthcare institutions are now asking for nurses to have medical expertise as well as business-focused abilities, as such. Nurses now need to focus on economic frameworks of health care services rendering as opposed to attending to patients.

Capable leaders of these projects are nurses who can bridge the understanding of the clinical and business side of technology implementations. One form of value that is hard to obtain but extremely important for organizations to have is the ability of staff who do analyses, using both utilization data and patient satisfaction scores often with cost-effectiveness metrics as well.

First healthcare organizations considered electronic health records to be administrative hassles but later became powerful business intelligence platforms. Nurse leaders get ahead by using these systems to uncover care patterns to improve workflows and acquire resources that support factual data as opposed to subjective observations. Another essential region for the utilization of nursing practices and business strategies is mobile apps and remote monitoring devices as part of patient engagement technologies. Healthcare organizations determine the investments that improve the treatment success and operational stability by registered nurses, monitoring patient technologies from both clinical and financial perspectives.

This sign of nursing entrepreneurship reveals how closely the two sectors have merged. Business knowledge and practice combined with medical knowledge can be used by nurse leaders nurse practitioner's consultants and nurse-owned businesses to achieve a new model of patient care. Nursing education must evolve accordingly. The leadership principles and technology evaluation along with the healthcare economics have been included in the current nursing education system. There exist additional healthcare strategies that strengthen these clinical abilities rather than reducing their importance, thus helping nurses to perform their duties as it should be done in a modern health service delivery.

Major advantages are derived by organizations that condone nurses as business partners rather than constitute them into cost-oriented assets. This is because they already have frontline insights which are active nurse participation in business decisions through their participation in strategic planning, technology assessment, and performance improvement work. Integration of business models in nursing practice is essential success in the complicated upcoming scenario of healthcare. The integration process does not result in 'corporatization' in nursing practice as this allows nurses to construct healthcare systems combined with financial sustainability and delivery of excellent care to patients.

Next-generation nurses should base the next level of practice frameworks on business understanding and medical expertise to provide quality care.

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Review Article

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Difficulties Encounter by Undergraduate Nursing Students in Clinical Settings

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ABSTRACT

Nursing students can utilize their theoretical knowledge to build a range of psychomotor and practical skills that are necessary for delivering high-quality care in the clinical context, as well as obtain practical experience via research projects. Nursing undergraduates have the chance to improve their psychological, psychosomatic, and psychomotor skills, all of which are essential for patient care in the clinical teaching and learning setting, despite its complexity and diversity. The focus and aim of nursing education is to develop insight and development of professional skills in individuals to work independently in clinical settings. One of the most crucial aspects influencing the learning process in clinical settings is the student's lack of or limited exposure to the clinical learning environment. By finding the difficulties nursing students face in the clinical setting, the focus on clinical training and skill development should be emphasized more, along with the sound integration of theoretical knowledge into clinical practice.

INTRODUCTION

In the clinical setting, nursing students can gain practical experience through research projects and can apply theoretical knowledge to develop a variety of psychomotor and practical skills that are essential for providing high-quality care [1]. Students receive practical training as part of their nursing education to help them get ready for their future roles as nursing care providers [2]. A component of nursing education is the teaching of clinical skills [3]. The goal of clinical practice training is to equip students with the abilities and information required to apply what they have learned in theoretical education, identify challenges, and come up with solutions [4]. This nurse training plan component helps nursing students advance professionally by providing them with the opportunity to apply their theoretical knowledge in a practical setting [5]. Despite the complex and multifaceted nature of the clinical teaching and learning environment, it provides nursing undergraduates with the opportunity to enhance their psychological, psychosomatic, and psychomotor skills, all of which are crucial for patient care [6]. These issues may make it challenging for nurses to deliver high-quality care and may create a dangerous atmosphere for learning [7]. To improve the system, it is imperative to comprehend the encountered by student nurses in clinical settings and to enhance the educational setting. Students learning can be greatly impacted by their experiences in the clinical nursing setting, and the clinical learning environment can have a positive or negative effect on that [1]. Nursing students encounter several challenges in the classroom and real-world environments [8]. Because of the many factors influencing their learning in clinical settings, students often struggle with tension and anxiety [9]. One of

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the most frequently mentioned challenges was students' lack of readiness for clinical learning. The main cause of students' lack of motivation was their lack of interest and excitement. One of the main things impeding the clinical learning environment is that educators' limited opportunities to advance their knowledge create serious problems for clinical supervision and teaching. A significant challenge for nursing students participating in patient-related clinical practice is hospitalized patients' hostile demeanor. Many patients have difficulty expressing themselves clearly and can become aggressive at times. Their learning capacity is impacted by these issues. This major issue in the experimental setting is the lack of nursing practice execution in the teaching phase. Practical nursing is not successfully implementing the nursing process due to malpractices [8]. The lack of clinical practice areas, the scarcity of experienced nurses and instructors, the high number of nursing students enrolled, the attitudes of healthcare professionals, and communication problems are all cited as reasons why nursing students struggle [4]. The overburden of preceptors and their lack of support from nursing faculty members hindered their ability to conduct successful clinical experiences for learning and teaching. Overworking and receiving little support from training organizations and colleagues led to several issues, including fatigue, burnout, and demotivation. [5]. Subsequent studies have to concentrate on assessing how well intervention techniques, such as mentoring programs and simulation-based training, enhance students' clinical readiness. Furthermore, investigating how these difficulties affect students' psychological health and performance may offer a more profound understanding of the support systems that are required. Nursing education may be improved by tackling these issues, which will eventually result in more qualified medical professionals.

This study aims to Ascertain the Difficulties Undergraduate Nursing Students Encounter in Clinical Settings

Sources

This article contains 35 selectively reviewed sources obtained from an extensive literature survey to obtain information regarding "The Challenges Faced by Undergraduate Nursing Students in Clinical Settings". The sources utilized to conduct this literature survey included Google Scholar, PubMed, CINAHL, EBSCO, Science Direct, Scopus and Web of Science.

Review of Literature from International Countries from 2019-2023

Rashawn *et al.*, suggested that environmental Conditions for Clinical Learning Knowledge and Contentment with nursing. this study used a descriptive correlation method with 176 undergraduate nursing students at the College of Nursing in Port Said, Egypt. According to the findings, students were most satisfied with the ward environment (49.35%). Male and female students were less satisfied with their learning environment than the majority of students (52.3%) [10]. Rezakhani *et al.*, study evaluated the challenges that nursing students face when working with nursing staff. The research, which employed a qualitative methodology, was completed in Khalkhal, in the Iranian province of Ardabil. Data were gathered on 20 undergraduates using purposeful sampling, with each one participating in in-depth semi-structured interviews. The three main categories of learning challenges that nursing students encountered were frequently inappropriate social norms, inadequate resources, and a bad work environment. This topic has several subcategories, such as false patterning, abusive behaviour, poor nursing cooperation, interpersonal mistrust, and mutual contempt. The participants felt that the research on hospital nurses' lack of commitment to their patients hinders these nurses' ability to add to students' knowledge and prevents them from learning in clinical settings. In the realm of applied education, nurses are unable to assist students because, failing to meet their responsibilities, they will also fail to perform their teaching duties [11]. Panda *et al.*, examined the challenges faced by aspiring nurses and midwives in real-world settings. There was a qualitative investigation.In this study, 853 students enrolled in nursing and midwifery programs, along with clinical instructors and clinical nurses. Students' learning outcomes in the clinical setting were significantly impacted by the haughtiness of medical staff, instructors, and other influential individuals. Among the demotivating factors were a lack of intelligence or personality, a lack of commitment to learning, and an apparent fear of making mistakes. Other significant issues facing the CLE (Clinical Learning Environment) included discrepancies between theory and practice, a lack of personnel, employment, and a lack of funding to support need-based physical activity. Understanding the difficulties that students encounter during their clinical rotations can assist in removing barriers to the development of competent and self-assured nurses and midwives [12]. Another study found that how do students feel about collaboration in a clinical environment as a result of inter-professional education? Utilizing qualitative research. The third and fourth years of college were occupied by the nursing students who participated in the program. These students had finished their four-year educational program at Northwest Academy Northwest College. Most of the third and fourth academic years were devoted to clinical practice work for these students. Twenty-two interviews were conducted in addition. Students observed: 1) a sharing of knowledge on particular subjects; 2) a general comprehension of each other's responsibilities; 3) a collapse of the social hierarchy; and 4)

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an improvement in medical treatment [13]. Bux *et al.*, study in Shaheed Benazir Abad Peoples University of Medical and Health Sciences employed a qualitative design to examine the challenges nursing students face during their clinical rotations. Since nursing is a hands-on profession, theoretical education is essential to becoming a competent nurse practitioner. All undergraduate nursing students, however, will find clinical learning to be an amazing and difficult experience.By identifying and recording these issues, nursing schools can devise plans to alleviate, eliminate, or alter the difficulties and problems that nursing students face in clinical environments, thereby providing them with additional learning opportunities. Numerous factors influence clinical learning, such as inadequate theoretical training for effective practice, announcement assistance, unfamiliar surroundings, unlucky ability self-preparation, and inadequate student support. These issues can be resolved to build a more robust nursing workforce, which will help with the challenges of nursing shortage and burnout [14].

Varghese *et al.*, opinions of nursing students about the clinical setting for education a quantitative method using a descriptive cross-sectional survey design was employed to assess nursing students' sentiments regarding the ideal clinical learning environment.Gulf Medical University before the commencement of the study. Participants in the study included first- through fourth-year BSN students. In total, ninety samples were included, and all of them were nursing students. According to the current study's findings, 88 nursing students, or 97.7% of the total, had positive ideas about what the perfect clinical learning environment should be like. However, none of them expressed disapproval of the ideal environment for clinical learning. This implies that all of the health professions programs' environments satisfied the students' needs for education. However, in several areas, medical students significantly underestimated their medical education settings when compared to their nursing or physiotherapy counterparts [15]. Dag *et al.*, perceived the thoughts of the undergraduates regarding the clinical learning setting. 199 nurse academicians comprised the study's sample in this descriptive research. Researchers developed two forms a survey on the difficulties nurse trainers face during clinical education and a form for collecting sociodemographic records to be used for data collection in an electronic setting. Turkish clinical nurses who work in hospitals and nursing school instructors. Conduct clinical instruction in nursing education as a general practice. Clinical education faces certain difficulties in Turkey. The study revealed that the difficulties encountered by nurse educators included a high workload (41.7%), a clinical training environment (30.29%), a large number of students (64.8%), and the capacity to devise nursing care plans (25.6%), a diminished physical environment in clinics, and issues with patients in healthcare groups (29.7%) [16]. Kalyani *et al.*, study was qualitative and employed the grounded theory method to investigate what nurse students perceive about the clinical setting and how they respond to it. This study was conducted in academic settings at nursing schools in Iran. Participants included three clinical nurses, four nursing instructors, and nineteen nursing students. Pupils stated that "confusion of identity," which was caused by the subpar learning environment, was their biggest concern. They used a range of strategies to solve this conundrum, some of which helped them avoid awkward circumstances. These approaches prevented students from accepting their professional responsibilities and did not help them solve problems [17]. Aksoy *et al.*, analyzed the Nursing Students' Perceptions of Occupational Danger and A Cross-Sectional Investigation of the Clinical Learning Environment. 552 having undergraduates Participants in this cross-sectional, descriptive training were volunteers. Two questionnaires were utilized in the data collection process: the "Clinical Learning Setting Measure" and the "Work-related Risk Consciousness Measure in Nursing Students". The data and the distribution of numbers and percentages were assessed using multiple linear regression. Nursing students scored 71.36 with an inclusive regular of 8.17 on the work-related threat alertness rule and 62.30 with an inclusive regular of 9.02 on the medical education environment rule. Phase, sexuality, relational message difficulties in medical settings, anxiety brought on by them, knowledge of averting severe injuries, and contemplation of the state of medical education were all determined to be significant variables [18].

Adnan et al., find out how student-clerk candidates at Gulf Medical University in the United Arab Emirates felt about the role of work education in the experimental knowledge background, exploratory research was carried out. To find out what the students thought about the experimental knowledge atmosphere, the study employed focus groups and a qualitative methodology. Two focus group discussions (n=8 +/- 10) were conducted to identify common issues with workplace learning and potential solutions. A thematic analysis was used to look through the data. A detailed examination of the students' perceptions of their experimental knowledge setting was made easier by the focus groups. In that one, they clarified the challenges that the undergraduates had to deal with, such as the price of hiring staff and providing students with the necessary orientation, the language barrier, the accessibility of learning opportunities, and observation. The emphasis clusters generated enlightening suggestions for improving the learning opportunities occurring in the experimental knowledge environment [19]. A cross-sectional study was conducted to examine

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undergraduate nursing student's perceptions of the challenges associated with clinical education. To comprehend the challenges that nursing students face when receiving clinical instruction, Descriptive research methodology. There was a cross-sectional study conducted. Through convenience sampling, 187 nursing students were selected from three Jordanian universities—two private and one public. The largest barriers to clinical education were the lack of care planning skills and readiness on the part of students, the lack of collaboration from clinical staff, the lack of facilities access and preparation on the part of students, and the lack of knowledge about nursing among patients and the community [20]. Tolyat et al., using a qualitative satisfied examination methodology, a study was conducted on nursing education with consideration to the COVID-19 pandemic in 2020–2021. The participants were chosen through purposeful sampling from nursing programs. The data was gathered through in-person, in-depth, unstructured conversations. After the conversations were digitally recorded, verbatim transcriptions were produced. The conventional content analysis method was applied to the data analysis. The 232 codes that were generated fell into four main categories: opportunities during coronavirus outbreaks, changes in the priorities of training for nurse educators, mandated modifications to nursing education, and inadequate clinical competence [21].

The following section contains a literature review of articles which are published in various journals from the following countries (Table 1).

Table 1: Literature Review of Articles from 2019-2023

Study	Aims	Sample Size	Conclusions	References
Cross-Sectional Research Study	To assess nursing students' learning environment and judge just how undergraduate nursing students thrive in their education setting.	891 undergraduate nursing students	Knowledge of averting severe injuries and contemplation of the state of medical education were all determined to be significant variables	[22]
Qualitative Explorative Descriptive	To assess the experiences of undergraduate nursing students on clinical placements in particular teaching institutions in Ghana	35 undergraduate nursing students	Inadequate application of the nursing method Make touch with complex medical devices and situations	[23]
Descriptive Survey Study	To determine anxiety-inducing scenarios encountered by undergraduate nursing students during their clinical practicums.	93 participated undergraduate	The older student group reported lower levels of nervousness related to asking faculty inquiries and being watched by instructors in clinical settings.	[24]
Descriptive Cross-Sectional Study	Nursing students' coping strategies and stress in Saudi Arabia throughout their clinical rotations.	125 nursing students	Noise, shifting locations, social contact, and personal disease, were the primary stresses.	[25]
Qualitative research design	To examine the challenges and programs used to support nursing students' academic success at a Western Cape university.	1131 were undergraduate students	Nursing students confront challenges, including living off-campus in an inappropriate living arrangement, holding a part-time job, the current curriculum, and a lack of academic and clinical support.	[26]
A mixed-methods strategy	To examine the perception and experiences of undergraduate nursing students	90 participated undergraduate	Seven factors influence the clinical learning experience of nursing students	[27]
Cross-Sectional Study	To investigate the challenges that Bachelor of Nursing students face when applying theory to practice in medical environments.	10 nursing students	The study's findings highlight the need for long-term plans to ensure the successful integration of theory and practice in nursing education	[28]
Descriptive cross-sectional approach	To examine the perception and experiences of undergraduate nursing students	72 nursing interns	Insufficient clinical instructors, too many pupils under one teacher's supervision, too many written assignments for the students	[29]
Descriptive design	To identify students' experiences throughout their clinical rotations in hospitals.	38 nursing undergraduate students	Their learning was negatively impacted by having to do the job alone without the ward staff's supervision.	[30]
Cross-Sectional Study	To identify the academic challenges faced by nursing students at Tirana's Faculty of Technical Medical Sciences.	51 undergraduate students,	The findings revealed challenges faced by nursing students, a low percentage of clinical practice participation, limited nursing courses, passive teaching techniques, unfair assessment processes, high test loads, employment and financial constraints.	[31]
Exploratory sequential design	To examine ethical dilemmas faced by Iranian nursing students in practice	120 Iranian nursing students	The findings revealed three main categories: inadequate assistance, lack of authority, and little attention to patients' choices.	[32]

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Qualitative descriptive technique	To explore strategies for closing the theory-practice divide in UAE nursing education.	25 nursing students	Students believed they would benefit more from their clinical training if it took place at medical facilities that belonged to their college	[33]
Descriptive cross-sectional approach	To investigate nursing students' perspectives and obstacles to the development of clinical reasoning and critical thinking.	20 nursing students	The primary source of the unfavorable attitudes exhibited by staff nurses in this study was their excessive workloads, which therefore left them with little time to mentor nursing students.	[34]
Cross-sectional study design	To examine the difficulties associated with a clinical approach	163 nursing educators and students.	The component of educational planning lacks qualified clinical educators	[35]

CONCLUSIONS

It was concluded that this study sheds light on the numerous difficulties undergraduate nursing students have in clinical settings, such as poor supervision, heavy patient loads, insecurity, and communication difficulties with medical staff. These challenges may impair their educational experience, lower their self-esteem, and affect their general clinical competency. A multifaceted strategy is needed to address these issues, including better mentoring programs, organized clinical training, and more cooperation between educational institutions and medical facilities.

Authors Contribution

Conceptualization: AN
Methodology: AN, SMH
Formal analysis: AH
Writing review and editing: AN, S

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Original Article

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Concept Mapping as a Learning Tool among BSN Students at a Private College Karachi

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ABSTRACT

Concept Mapping (CM) is a learning tool that plays an important role in education and provides a systematic path towards improving nursing knowledge, clinical skills and curriculum development. **Objective:** To assess whether CM is a useful learning tool for the students of nursing at a private college in Karachi. **Methods:** A descriptive cross-sectional approach using a non-probability convenient sampling technique was applied, and a well-structured questionnaire containing 20 questions was distributed among the participants. Data were collected from post-RN BSc N students at Horizon School of Nursing from October to December 2023. Written consent was obtained from the participants. Data analysis was done using statistical package for social science (SPSS version 26.0). **Results:** Results showed that majority (30.0%) of the participants were in age group 31-35 years, most of them were females (87.5%), regarding level of education majority (87.5%) were in 2nd year and 82.5% were married. The data overwhelmingly supported concept mapping's usefulness among undergraduate nurses, with 80% to 95% of the responses were in favor of its benefits. Participants, ranging from 87.5% to 97%, agreed that CM aids in understanding topics thoroughly, promotes critical thinking, and enhances study skills. Moreover, 80% of the students told that CM is a useful learning tool. **Conclusions:** CM in higher education is a useful learning tool supported by the students, they agreed that it enhances understanding and critical thinking making it a highly valued learning strategy. Therefore, the use of this tool should be implemented in all nursing schools and colleges.

INTRODUCTION

Many teaching-learning techniques have been created to quicken students' learning [1]. To improve the educational system, especially the health care educational system and curriculum development concept mapping (CM) is considered as one of the most helpful learning tools [2]. It has a positive impact on students' quality of learning and retention of knowledge. This teaching learning strategy has been widely used in education since the 1970s. Undergraduate and postgraduate nursing students are frequently asked to develop concept maps or mind maps during their clinical rotations and in their classes as well. These assignments are usually given to groups or sometimes to individuals to map up clinical cases in their workplaces. These projects are considered graded assignments and starting points for the students [3]. The visual depiction of concepts and ideas is as old as the 3rd century [4] and the CM learning strategy was developed between the 1960s-70s by Dr. Joseph Novak, who was a child educationist at Cornell University. This tool has helped students to understand ideas clearly and enhance brainstorming. Moreover, this tool also helped students in learning different concepts in a meaningful way [5]. The pattern of mapping different concepts, propositions, and their integration with one another helps students to

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logically develop the sense of a central concept by seeing the big picture. In addition, CM identifies the most comprehensive central concept, especially for the knowledge domain [6]. Creating concept maps that connect various ideas to the clinical environment can be helpful for nursing students to exercise, how theoretical knowledge translates into practical applications [7]. The clinical environment refers to the setting where healthcare professionals deliver direct patient care and where patients receive medical treatment, diagnosis, and other healthcare services [8, 9]. The CM tool is proven to enhance learning quality in higher education and transform abstract knowledge into a more concrete one [10, 11]. Similarly, another study which was done in 2020, in Ethiopia, to understand effectiveness of concept mapping teaching method, study results showed that students treated with concept mapping method exhibited better understanding of the science subject as compared to the lecture method [12]. Additionally, a quasi-experimental research design was used in 2022, in faculty of nursing in Al-Mansoura University, Egypt, to determine the effectiveness of mind mapping learning technique among undergraduate nursing students, results showed that mind mapping learning method was superior than any other method used for learning subjects [13].

Therefore, this study aimed to assess whether CM is a useful learning tool for the students of nursing at a private college in Karachi.

METHODS

This was a descriptive cross-sectional study among Post RN BSN students (Post Registered Nurse, Bachelor of Science in Nursing) at Horizon Institute of Nursing and Health Sciences, Karachi. The study took about three months from October to December 2023. The respondents were selected by "non-probability- convenient sampling technique". Moreover, 103 students were selected for the study, sample size was calculated with the help of openepi.com, with 95% confidence interval and 5% margin of error. Students who had clinical experience of more than one year and had utilized the CM as a tool in their clinical as well as academic setting were included and those who were on leave and were unwilling to participate in the study were excluded. Permission was taken from the Institutional Review Board and Ethical Committee (IRB and EC) for data collection with reference no (IRB#102/23) and Informed consent was taken from the participants before filling out the questionnaire. Every participant had the right to refuse to be a part of the study. The principal investigators visited the above-mentioned study settings and collected the data with the help of a well-structured and well-designed questionnaire, containing 26 questions, 6 for sociodemographic characteristics, age, gender, year of education, qualification, experience, and marital status and 20 questions for concept mapping with a dichotomous scale ("yes," "no") were used. The questionnaire was first validated by 3 experts in the field of education and reliability was checked by a pilot study for which the cronbach alpha value was found to be 0.72 showing that the tool is reliable to be used. The data were analyzed by using Statistical Package for Social Sciences (SPSS) version 26.0.Frequency and percentages were computed for demographic variables and summation of all positive questions showed the usefulness of concept mapping as a learning tool.

RESULTS

In table 1 the demographic data presents information on 103 participants in the study. In terms of age distribution, the majority fall within the 31-35 years range (30.0%), followed closely by those aged 36-40 years (25.0%). Participants above 40 years and those between 26-30 years make up 22.5% and 10.0% of the sample, respectively, while the smallest proportion was in the 20-25 years' age group (12.5%). Gender distribution shows a predominance of females (87.5%) over males (12.5%). Regarding nursing education level, the majority were in Post RN year II (87.5%). Academic qualifications of Post RN BscN students vary, with most having an intermediate qualification (57.5%), followed by matriculation (32.5%), and smaller proportions holding other degrees (10%). In terms of professional experience, the largest group has more than 15 years of experience (42.5%), followed by 5-10 years (32.5%), 11-15 years (22.5%), and less than 5 years (2.5%). The majority of Post RN BscN students were married (82.5%) as compared to singles (17.5%).

Table 1: Demographic Characteristics of the Study Participants

Variables	Frequency (%)
Age	
20-25 Years	13 (12.5%)
26-30 Years	11 (10.0%)
31-35 Years	30 (30.0%)
36-40 Years	25 (25.0%)
above 40 Years	24 (22.5%)
Gender	
Male	14 (12.5%)
Female	89 (87.5%)
Nursing Education Level	
Post RN Year 1	14 (12.5%)
Post RN Year 2	89 (87.5%)
Academic Qualification of Post RN BscN Students	
Matriculation	34 (32.5%)
Intermediate	58 (57.5%)
Other	11 (10.0%)

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Professional Experience of Post RN BscN Students	
>05 Years	3 (2.5%)
05-10 Years	33 (32.5%)
11-15 Years	24 (22.5%)
More than 15 Years	43 (42.5%)
Marital Status of Post RN BscN Students	
Single	19 (17.5%)
Married	84 (82.5%)

Table 2 illustrates the percentages of affirmative and negative responses to a wide range of questions regarding the usefulness and utility of CM as a learning tool among students in higher education. Overall, the results showed that CM is a useful learning tool with responses ranging from 80% to 95% in favor of its benefits. Specifically, the majority of participants (ranging from 87.5% to 95%) agreed that CM aids in various aspects of learning, including understanding topics thoroughly, promoting critical thinking, and enhancing logical thinking and study skills. Moreover, CM is favored over other assessment tools by 92.5% of respondents for its ability to facilitate meaningful learning and retention. Despite some concerns about the time-consuming nature of creating concept maps and their engagement level in class activities, the consensus remains strongly positive, with responses ranging from 82.5% to 97.5%, indicating the use of CM in promoting group understanding and collaboration.

Table 2: Responses of The Students to Concept Mapping as a Learning Tool (n=103)

Questions	Yes (%)	No (%)
Do the students have positive attitude towards Concept Mapping as a learning tool in higher education?	97.50%	2.50%
Is Concept Mapping supportive and encouraging in students' learning?	97.50%	2.50%
Does concept mapping help understand the topic well and relate new information to what the student already knows?	95%	5%
Do students choose concept mapping as a learning strategy for a better understanding?	92.5%	7.5%
Does Concept Mapping exhibit the extent of re-organizing students' knowledge structure?	92.5%	7.5%
Can concept maps help in the enhancement of critical thinking ability of nursing students?	97.50%	2.50%
Do the CM show explanations require deeper or more dynamic thinking?	95%	5%
Do CM produces a measurable increase in student problem-solving ability and a decrease in failure rate?	93%	3%
Does concept mapping contribute to students' learning and ensure that an appropriate structure is promoted within any mapping activity?	87.5%	12.5%
Is concept mapping utilized where assessment is focused on retainable and meaningful learning?	97.50%	2.50%
Is CM useful as a teaching, learning tool and illustrates how the knowledge is arranged in students' minds?	80%	20%
Is CM as effective as personal interviews at revealing different patterns of knowledge?	97.50%	2.50%
Does the process of developing a concept map enhances meaningful learning by instructing students to think aboutthe relationships among different ideas?	100%	0%
Can concept maps help enhance critical thinking by revealing relationship among different concepts that can simplify new concepts?	94%	6%
Is it time-consuming to create concept maps during class activity without engaging all students.	82.5%	17.5%
Can a concept map also be used for discussions to document class progress and provide stimuli for in-depth conversations?	95%	5.0%
Will concept maps indicate that your students are thinking logically and help you to generate ideas for improvement in their understanding?	97.50%	2.50%
Do mapping tools facilitate students with opportunities to determine their understanding?	91%	9%
Do the assessments through CM provide a different perspective on student understanding ability that endorse selected-response and performance-based instruments?	92%	8%
Does concept map provide a prompt assessment of knowledge and group understanding, learning with collaboration?	91%	9%

Figure 1 shows that CM is a useful learning tool among the students.The figure illustrated that 95.25% of the respondents told that CM is a usefulness learning tool, only 4.75% expressed disagreement.

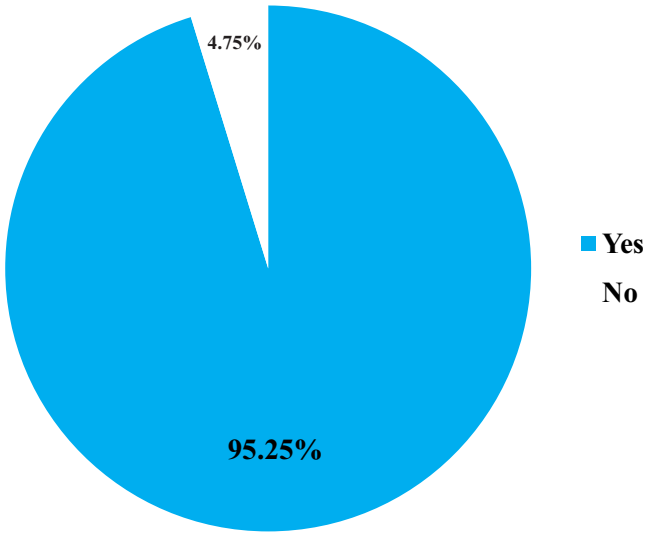

Figure 1: Perception of Concept Mapping as a Useful Learning Tool among students

DISCUSSION

In nursing education, developing deep conceptual comprehension, critical thinking abilities, and successful information integration is crucial, yet conventional teaching approaches might not be sufficient to meet these demands. Additionally, the complex and interdisciplinary nature of nursing practice requires innovative approaches to learning that can effectively support students in

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developing necessary cognitive skills and competencies [14]. Therefore, this study aimed to explore alternative educational strategies, such as concept mapping, to enhance learning outcomes and better prepared BSN students for the demands of contemporary nursing practice. The current findings showed that 97.50% agreed CM helps students to think and generate different ideas for improving their understanding. In the same way, another study showed that CM can improve their level of interest in studying accounting by using ideas mapping to better understand integrate, and explain accounting concepts [15]. These findings indicated that 97.50% agreed that concept maps help develop critical thinking in nursing education. Similarly result of another research showed that CM improves academic performance and is considered a useful tool for learning the progress and assessment of the students. Moreover, CM also fosters the enhancement of critical thinking skills, makes it easier to integrate theory into practice, promotes meaningful learning, encourages the inclusion of technology, and fosters student collaboration [16]. Current findings showed that 95.25% agreed that creating a concept map promotes meaningful learning which is necessary for undergraduate students to think about the relationships among different concepts. Another study also showed that concept maps are useful tools for assessment, instructional planning, meaningful learning, and identifying related concepts [17]. Moreover, the current study showed that 95% of the participants agreed that developing a concept map requires more dynamic and deeper thinking skills. In the same way, another review showed that concept mapping is a teaching and learning strategy that helps nurse educators teach students to think critically in a complicated healthcare environment [18]. Present findings showed that 93% of the study participants agreed providing feedback on CM produces a remarkable increase in student problem-solving ability and reduction in failure rates and reflects on their learning process as they organize and construct their maps [19, 20]. In the current study, 95.25% of students agreed that CM is a useful learning tool, in the same way, a pre-post study showed that teaching with a CM approach significantly affects students' retention and meaningful learning. It is advised that more nurse educators would try to apply the idea-mapping technique to promote meaningful learning by addressing these challenges [21]. Another study showed that CM can lead to better long-term retention of information compared to traditional learning methods [22].

CONCLUSIONS

It is concluded from the study that concept mapping (CM) is a very useful tool in learning in nursing education as well as in clinical settings to understand different ideas and concepts. Moreover, the teaching-learning strategy of CM can enhance knowledge retention in a meaningful way and promote critical thinking skills which is an integral component in nursing education and practice. Therefore, this tool may be implemented in all nursing schools and colleges.

Authors Contribution

Conceptualization: AURY, SUF
Methodology: NA, ZA
Formal analysis: JK, A
Writing, review and editing: H, MA, AQA, AKJ

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Original Article

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Correlation of Smart Phone Addiction and Academic Performance among Nursing Students of Private Nursing Colleges in Swat

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ABSTRACT

Smartphone addiction has become a growing concern among students, negatively impacting their academic performance. **Objective:** To examine the correlation of smartphone addiction among nursing students with academic performance. **Methods:** A cross-sectional study was conducted from August 2024 to November 2024 in five private nursing colleges in Swat. The study included 249 nursing students from the 4th, 5th, and 8th semesters, selected through convenience sampling. Data were collected using a self-administered questionnaire, incorporating the Academic Performance Scale (APS) and the Smartphone Addiction Scale-Short Version (SAS-SV) (Cronbach's alpha=0.911). **Results:** Findings revealed that 67.9% of students were addicted to smartphones, while 32.1% were not addicted. Academic performance assessment showed that a majority of students exhibited poor performance, with only a small proportion achieving good or excellent results. A strong negative correlation ($r=-0.934$, $p<0.01$) was observed between smartphone addiction and academic performance, confirming that excessive smartphone use significantly hampers academic success. **Conclusions:** It was concluded that smartphone addiction is a major factor contributing to poor academic performance among nursing students. To address this issue, awareness programs, time management strategies, and institutional policies should be implemented to promote responsible smartphone use.

INTRODUCTION

A smartphone is an improved mobile device designed to solve common accessibility problems. Beyond simply sending and receiving text messages and having phone conversations, smartphones are capable of much more. Moreover, it become a very popular device due to its capacity to perform both basic and sophisticated computing activities. These days, a single touch can solve any issue. As a result, they are now necessary for modern life and are necessary for human survival. Due to the widespread use of cell phones in our society, addiction and overuse have become major worldwide issues. Numerous research looking into the connection between academic success and cell phone use have produced inconsistent results. The majority of students' self-reported course grades have been used in research [1]. Furthermore, younger students are more likely to become addicted to smartphones, according to the majority of research on college students. For example, a survey of 198 college students in Austria revealed that smartphone addiction was more common among younger students. This is because younger generations are more prone to accept new technology than older generations, which increases

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their susceptibility to smartphone addiction [2]. In addition, people who use smartphones for a variety of purposes may grow less conscious of their limitations and, as a result, be more prone to misuse them. As a result, academic performance could decline [3]. In addition to the detrimental effects that cell phones have on college students' overall academic performance, the increasing use of smartphones poses additional challenges for higher education institutions. In addition, young people are becoming more distracted and worried by this "online connectivity" phenomenon that lasts around the clock, as demonstrated by poorer test scores associated with excessive usage of portable devices like cell phones [4]. Besides, overuse of smartphones in class may potentially affect concentration and learning. When students use their smartphones for social media, messaging, and internet access during class, they run the risk of being distracted and putting learning last [5]. Despite its potential benefits, people are becoming more and more dependent on cell phones for everyday chores, which raises questions about the potential harm they may cause to people's health. Numerous studies have connected excessive smartphone use to negative impacts on body weight, exercise, eating habits, sleep patterns, energy levels, and academic performance [6]. On the light of this study found that cell phone use among Kenyan nursing students may hurt their academic performance [7]. Moreover, in December 2019, three universities in Jeddah, Saudi Arabia, took part in a descriptive cross-sectional study. According to research, 32% of people have a smartphone addiction [8]. The population of the study, which was carried out by Turkish researchers, consisted of 940 nursing students from two universities in all grade levels. The study found that over half of nursing students were addicted to their smartphones [9]. In this regard, the survey showed that 68 nursing students, or 69.39%, had a smartphone addiction [10].

This study aimed to assess the correlation between smartphone addiction and the academic performance of private nursing students in Swat.

METHODS

A cross-sectional study was conducted in Private Nursing Colleges in Swat, like the National College of Nursing, Nightingale College of Nursing, Fatima College of Nursing, Pak-Swiss College of Nursing and Swat College of Nursing. The study was conducted from August 2024 to November 2024. The population comprised nursing students from the 4th, 5th, and 8th semesters. The sample size consisted of 249 nursing students from private nursing colleges in Swat, calculated using OpenEpi software. The respondents were selected through convenience sampling, and the data were collected using a self-administered questionnaire. The inclusion criteria were private nursing students enrolled in a Bachelor of Science in Nursing (BSN) program, currently in their fourth semester or above, aged 18-25 years, who own a smartphone (Android or iOS). The exclusion criteria were students without smartphone ownership that were excluded. Additionally, students unable or unwilling to provide informed consent are also excluded. Furthermore, students who have completed less than four semesters in the nursing program are not eligible to participate. Two adopted questionnaires were employed in this study: the Academic Performance Scale (APS) and the Smartphone Addiction Scale-Short Version (SAS-SV). This is a scale of smartphone addiction that has been verified internationally. The Academic Performance Scale scores ranged from 8 to 40. This scale categorizes academic performance into five distinct levels: 8 or below for failing, 9-16 for poor, 17-24 for moderate, 25-32 for good, and 33-40 for excellent performance. The 10 questions in the SAS-SV (Cronbach's alpha=0.911) are scored on a Likert scale from 1 (strongly disagree) to 6 (strongly agree). A higher overall SAS-SV score denotes more problematic smartphone use; the score ranges from 6-60 below 50% considered smartphone addiction. Data were collected through questionnaires after obtaining written informed consent from participants. Confidentiality was maintained, and the data were protected, and accessible only to the researcher. SPSS version 27.0 used for analysis purposes. Descriptive statistics data were presented in frequencies and percentages in tables.

RESULTS

This study analyzed data from 249 undergraduate nursing students in Swat, Khyber Pakhtunkhwa. The participants were predominantly male (93.2%, n=232), with a minority of females (6.8%, n=17). The age distribution showed that 45.4% (n=113) of participants were between 18-21 years old, while 54.6% (n=136) were between 22-25 years old. In terms of academic year, 33.7% (n=84) were in their second year, 42.6% (n=106) in their third year, and 23.7% (n=59) in their fourth year. The demographic data are shown in Table 1.

Table 1: Demographic Data of the Participants n=249

Variables	Categories	Frequency (%)
Gender	Male	232 (93.2%)
	Female	17 (6.8%)
Age Group	18-21 Years	113 (45.4%)
	22-25 Years	136 (54.6%)
Academic Year	Second Year	84 (33.7%)
	Third Year	106 (42.6%)
	Fourth Year	59 (23.7%)

A result of smartphone addiction 32.1% are not addicted and 67.9% are addicted as shown in Table 2.

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Table 2: Levels of Smartphone Addiction

Category	n (%)
Not Addicted	80 (32.1%)
Addicted	169 (67.9%)

Out of 249 participants, the distribution of academic performance was as follows: 14 participants (5.6%) fell into the failing category, 147 participants (59.0%) had poor performance, 27 participants (10.8%) demonstrated moderate performance, 5 participants (2.0%) showed good performance, and 56 participants (22.5%) achieved excellent performance. This study's findings indicate that the academic performance of private nursing students in Swat is alarmingly low, with nearly 60% exhibiting poor performance. Academic Performance of the participants are shown in Table 3

Table 3: Academic Performance Categories

Academic Performance Category	Categories	n (%)
Failing	8 or below	14 (5.6%)
Poor	9–16	147 (59.0%)
Moderate	17–24	27 (10.8%)
Good	25–32	5 (2.0%)
Excellent	33–40	56 (22.5%)
Total	-	249 (100%)

The study shows a strong negative relationship between smartphone addiction and academic performance, emphasizing that as smartphone addiction increases, academic performance decreases and results are shown in Table 4.

Table 4: Correlation Between Smartphone Addiction and Academic Performance

Variable	Correlation Coefficient (r)	p-value	n (%)
Smartphone Addiction and Academic Performance	-0.934	<0.01	Strong Negative Correlation (Significant)

DISCUSSION

Smartphones have become essential and provide instant access to communication, entertainment, and educational resources [11]. Excessive smartphone use has sparked worries about how it may affect pupils' academic performance, as it frequently results in smartphone addiction [12]. An analysis of the participant's gender distribution revealed a significant predominance of male (93%, n=232) compared to female (7%, n=17). In contrast, a study conducted among undergraduate nursing students in the United States found a predominantly female population, with female constituting 87.7% of the participants, and male making up 12.3% [13]. In our study out of the total 249 participants, 45% (n=113) were aged 18-21, while 55% (n=136) were aged 22-25. A study conducted among undergraduate nursing students in India found a similar age distribution, with 48.2% (n=120) of participants between 18-21 years old, and 51.8% (n=130) between 22-25 years old (20). In this regard another study found that ages 18–24 accounted for 31.6% of participants, followed by 25–31 years at 37.6%, 32–38 years at 25.6%, and 39–45 years at 5.3 [14]. In this study, it was found that 33.7% (84) of the students were in their 2nd year, 42.6% (106) of the students were in their 3rd year, and 23.7% (59) were in their 4th year. In this regard, another study found Generic (Semester 3) accounted for 33.1%, Generic (Semester 5) for 16.5%, Generic (Semester 7) for 10.5%, and Post-RN (year 1) for 13.5% [15]. The current findings show that 67.9% are addicted to smartphones. In the same way, another study found that between 15.6% and 81.1% of nursing and medical students suffered from smartphone addiction [16]. In addition, study found that the percentage of participants with addiction was 48% [16]. Moreover, another study found among Asian medical students, smartphone addiction was present in 41.93% of cases [17]. Correspondingly, the findings indicated that the majority of respondents struggled to focus in class and used their smartphones for longer than they anticipated [12]. In connection with this smartphone addiction, several new problematic behaviours have surfaced, including internet gaming, gambling, and sexual behaviour, all of which can result in compulsive engagement. In severe cases, people may feel helpless to stop their behaviours without outside help; these behaviours may be classified as behavioural or non-substance addictions [18]. The smartphone, however, has a detrimental effect on our capacity for thought, memory, focus, and emotional control. As smartphone use has grown in popularity and frequency, there are now more clinical cases of persons exhibiting indications of misuse [18]. The current findings revealed that 22.5% have excellent performance. In this regard, another study found the average academic score was 7.56 out of 10 [19]. Another study shows 46% of the variation in academic performance overall [20]. In addition, a study revealed factors that affect academic performance, four categories of factors were examined: teacher-related factors (with an overall mean of 3.90), school-related factors (3.88) and student-related factors (3.84) [21]. Current findings show a strong negative relationship between smartphone addiction and academic performance, emphasizing that as smartphone addiction increases, academic performance decreases. Likewise, another study revealed that there was a negative and direct correlation between students' academic performance and smartphone addiction (β= -0.2602, t-value=4.201, $p<0.01$) [22]. A different study revealed a distinct relationship between smartphone addiction and sleep quality, with university students' poor sleep quality being linked to excessive smartphone use [12]. According to these data, students' academic performance declines as their smartphone use becomes more compulsive. This is because of variables including procrastination, poor

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attention, and decreased study time.

CONCLUSIONS

According to this study, academic performance and smartphone addiction are significantly correlated negatively among Swat's private nursing students. Many pupils perform poorly academically, and a sizable portion of the student body is addicted to smartphones. The results imply that excessive smartphone use has a detrimental effect on learning outcomes, study habits, and focus. Improving academic performance requires addressing this problem by encouraging safe smartphone use through awareness campaigns, time management techniques, and institutional policies.

Authors Contribution

Conceptualization: SMAS, IZ
Methodology: SMAS, IZ, AB, H, NA, SA, A[1], A[2], MK
Formal analysis: SMAS, IZ, AB, SWA
Writing review and editing: SMAS, IZ, H, NA, SA, A[2]

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Patient Satisfaction with Nursing Care Quality among Bariatric Surgery Patients at Luqman International Hospital Swat

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ABSTRACT

A key metric for evaluating the quality of healthcare is patient happiness, especially in the context of post-operative care. Research on bariatric surgery patients' satisfaction with nursing care is few, despite the fact that they need specialised nursing support. **Objective:** To evaluate bariatric surgery patients' satisfaction with the quality of nursing treatment at Luqman International Hospital Swat. **Methods:** A standardized PSNCQQ questionnaire was used in a cross-sectional study to assess nursing care characteristics such responsiveness, professionalism, communication, and post-discharge support. 50 patients were selected through convenient sampling, and data were analyzed using SPSS version 26.0. **Results:** The findings indicated high satisfaction in areas such as nurse-patient communication, with mean scores ranging from 4.28 to 4.54, respect with a mean score of 4.40, and post-discharge support with a mean score of 4.44. However, areas requiring improvement included response time, teamwork, and technical aspects such as medication handling, with mean scores ranging from 4.22 to 4.26. **Conclusions:** Overall, patients expressed positive experiences with nursing care, though minor improvements are needed in certain areas. Enhancing teamwork and response time can further improve patient satisfaction.

INTRODUCTION

Over the past 20 years, obesity has gained international recognition as an epidemic and has sparked organizational and international action partnerships in the fight against diseases. According to World Health Organisation (WHO) statistics, approximately 650 million adults are fat, and 1.9 billion persons are overweight. The Turkish Statistical Institute reports that the percentage of obese people aged 15 and above was 19.9% in 2014 and 19.6% in 2016 [1]. By 2030, half of the population is predicted to be obese, with 41.9% of US people already being obese (body mass index [BMI] = weight in kilogrammes divided by height in meters squared] ≥30.0). Even more concerning is the 50% rise in class III obesity (often referred to as severe obesity, with a BMI of ≥40.0) among US adults over the previous 20 years [2]. Because it coexists with and exacerbates systemic health issues, obesity has been associated with an increased risk of death from all causes [1]. Numerous studies have shown that obesity affects people's mental and self-esteem in addition to their physical health, which leads to psychological problems. It was observed that there was a higher prevalence of obesity among those who had lower quality of life and poorer perceptions of their bodies. Since obesity is one of the top 10 deadliest diseases according to the World Health Organisation, it would be argued that obesity should be appropriately treated in light of these studies' conclusions [1]. In this sense, although diet and weight loss programs are often the first line of treatment for obesity and the restoration of normal weight,

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intense surgical procedures such as bariatric surgery are increasingly being considered for patients who present with a Body Mass Index (BMI) over 40 and are unresponsive to conservative medical management [3]. Moreover, it is commonly known that bariatric surgery is a successful obesity treatment [4]. Weight loss and general health have been greatly impacted by bariatric surgery since its inception. Numerous clinical studies have shown that bariatric surgery reduces risk factors for cardiovascular disease and metabolic syndrome, as well as mean body mass index (BMI) [5, 6]. However, the reduction of mortality, quality of life, and comorbidities are only a few of the indicators used to evaluate this surgery's effectiveness [7]. Managing patients undergoing bariatric surgery and assessing their expectations and degree of satisfaction with the procedure's results are critical tasks for nurses. After undergoing bariatric surgery, several patients later said they had unrealistic expectations for the outcome of the procedure. It's possible that some people believe bariatric surgery will entirely change their body and make them seem like someone who has never experienced fat. Some people might not completely understand how bariatric surgery can cause prominent scars, uneven skin, persisting body form abnormalities, and skin hanging, particularly in the chest and belly [8]. Nursing care is essential to the safety, comfort, and recuperation of patients while they are in the hospital. Patient satisfaction, a crucial measure of the efficacy of healthcare services, is directly impacted by the calibre of nursing care [9]. In connection to this person feels satisfied when their wants and desires are fulfilled, which makes them happy. It is the emotion that someone feels when their performance or result lives up to their expectations. Happiness may therefore be defined as a feeling of expectations being fulfilled. One will feel satisfied when expectations are met. Happiness, then, is the result of intentional accomplishment [10]. Moreover, patient satisfaction in hospitals was linked to better surgical quality and more effective care [11]. With a focus on providing surgical patients with skilled, compassionate care, preventing complications from surgical anesthesia to full recovery, and helping to ensure safety, stress reduction, and patient well-being, it should be highlighted that the nursing team is essential to achieving the overall quality of care in this context [12]. Despite advancements in bariatric surgery and nursing care, variations in patient satisfaction levels exist [13]. Due to their particular post-operative requirements, many patients following bariatric surgeries need specialized care, such as pain treatment, mobility aid, and emotional support. However, there aren't many studies that specifically look at how happy bariatric surgery patients are with the level of nursing care they receive throughout their hospital stay. By evaluating inpatient satisfaction and pinpointing important elements impacting their experiences, this study seeks to close this gap. Understanding patient perspectives on nursing care quality during their hospital stay can help identify areas for improvement and enhance healthcare outcomes.

This study has significant ramifications for raising the bariatric surgery nursing care standards for patients. Healthcare professionals can create focused initiatives to improve nursing care, improve patient outcomes, and raise the standard of healthcare services by knowing patient experiences and satisfaction levels. Additionally, hospital policies and training programs for nurses who specialize in bariatric patient care may benefit from the findings.

METHODS

The purpose of this cross-sectional study was to determine how satisfied bariatric surgery patients were with the quality of nursing care they received while they were hospitalised at Luqman International Hospital Swat. The four-month trial period ran from November 2024 to January 2025.Additionally, a practical sampling method was employed to contact the research participants. 50 participants were part of this study. Patients undergoing bariatric surgery who were admitted to Luqman International Hospital Swat during the study period made up the target population. Patients who have had bariatric surgery, were admitted to Luqman International Hospital Swat during the study period, and are willing to give informed permission are eligible to participate. Data was collected using the PSNCQQ, a standardized questionnaire used in the prior study to gauge patients' satisfaction with nursing treatment [14]. The questionnaire covered topics related to nursing care, including professionalism, responsiveness, communication, and overall quality of care. A 5-point Likert scale, ranging from awful to excellent, is used to rate each PSNCQQ item. The Cronbach α reliability estimations of the PSNCQQ are excellent (.97). The reliability estimates for teaching, community, and minor hospitals are comparable. This implies that the items on the PSNCQQ are being interpreted consistently by patients in various healthcare systems. Prior to data collection, the project was ethically approved by the appropriate institutional review board under reference number LIH/Research/113/24. Every participant provided signed informed permission, guaranteeing their voluntary involvement and their freedom to discontinue participation at any time without facing repercussions. Data were securely stored and utilised only for research purposes, with confidentiality and anonymity strictly maintained. All responses were examined collectively, and no personal identification was noted. Getting ethical approval from the highest authority and permission from Luqman International Hospital Swat to carry out the study

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were the first steps in the data collection process. Based on the inclusion criteria, eligible participants were found in hospital records. The goal of the study, their rights, and the confidentiality of their answers were explained to each participant. Written informed permission was obtained in order to ensure voluntary participation. The Patient Satisfaction with Nursing Care Quality Questionnaire (PSNCQQ) was then distributed to the participants, who were then given ample time to complete it. The researcher read the questions aloud to individuals who needed help and noted their answers. Data collection was conducted for three months (November 2024 – January 2025) in a structured manner to maintain consistency. After completion, questionnaires were carefully reviewed for completeness, and responses were securely stored to maintain confidentiality and anonymity. No personal identifiers were recorded, ensuring that the data were used solely for research purposes. SPSS version 26.0 was utilised for the analysis of data obtained from the patient satisfaction questionnaire. Descriptive statistics like frequency and percentage were included in the analysis, to summarize patient demographics and responses

RESULTS

Table 1 showed that out of 50 participants, 27 (54%) are male and 23 (46%) are female. Regarding marital status, 34 participants (68%) are married, 15 (30%) are single, and 1 (2%) is divorced. Moreover, the mean age was 34.22.

Table 1: Demographic Characteristics of the Study Population (n=50)

Variables	Frequency (%)
Gender	
Male	27 (54%)
Female	23 (64%)
Marital Status	
Single	15 (30%)
Married	34 (68%)
Divorced	1 (2%)
Age	
Mean	34.22

Table 2 showed that, on average, 40% of patients thought the hospital treatment and services were "Excellent," and 60% thought they were "Very Good." Patients assessed the nursing care they received as "Very Good" 42% of the time and "Excellent" 56% of the time. Of the patients polled, 50% rated their general health as "Very Good" and 48% as "Excellent." When asked if, "Given the nursing care I received, I would suggest this hospital to my friends and family," patients gave the following answers: 2 percent said "Agree," 36% said "Somewhat Agree," 58% said "Strongly Agree," and 4% said "Somewhat Disagree."

Table 2: Overall Perceptions of Achievement Emotions and Academic Performance

Statements	Excellent Frequency (%)	Very Good Frequency (%)	Good Frequency (%)	Fair Frequency (%)	Poor Frequency (%)
"Overall quality of care and services received during your hospital stay"	20 (40%)	30 (60%)	0 (0%)	0 (0%)	0 (0%)
"The overall quality of nursing care received during your hospital stay"	28 (56%)	21 (42%)	1 (2%)	0 (0%)	0 (0%)
"In general, would you say your health is"	24 (48%)	25 (50%)	1 (2%)	0 (0%)	0 (0%)

The survey results indicated a high level of patient satisfaction with nursing care in the hospital. A majority of respondents (58%) strongly agreed that they would recommend the hospital to their family and friends based on their nursing care experience, while 36% somewhat agreed, reflecting a generally positive perception. A small percentage (2%) agreed, showing a neutral stance, whereas 4% somewhat disagreed, indicating minor dissatisfaction. Notably, no respondents strongly disagreed, suggesting that overall, patients had a favorable experience. These findings highlighted the hospital's strong nursing care quality and its positive impact on patient recommendations (Table 3).

Table 3: Patient Satisfaction and Willingness to Recommend the Hospital Based on Nursing Care

Statements	Strongly Agree Frequency (%)	Somewhat Agree Frequency (%)	Agree Frequency (%)	Somewhat Disagree Frequency (%)	Strongly Disagree Frequency (%)
"Based on the nursing care I received; I would recommend this hospital to my family and friends"	29 (58%)	18 (36%)	1 (2%)	2 (4%)	0 (0%)

The mean and standard deviation of patient satisfaction results were displayed in Table 3. Patient satisfaction with the quality of nursing care is good, as seen by the mean scores, which range from 4.22 to 4.54. The nurses' explanations (M = 4.54, SD = 0.54) and patients' involvement in care decisions (M = 4.52, SD = 0.65) are the most valued aspects, along with the nurses' politeness, openness to enquiries, and adaptability in attending to patients' requirements. Hospital staff and nurses' collaboration (M = 4.22, SD = 0.65), as well as the nurses' quick response to help (M = 4.26, SD = 0.63) (Table 4).

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Table 4: Mean and Standard Deviation of Patient Satisfaction with Nursing Care Quality

Statements	Mean ± SD
"How clear and complete the nurses' explanations were about tests, treatments, and what to expect".	4.540 ± 0.542
"How well nurses explain how to prepare for tests and operations"	4.480 ± 0.543
"Willingness of nurses to answer your questions"	4.320 ± 0.620
"How well nurses communicated with patients, families, and doctors"	4.280 ± 0.496
"How well the nurses kept them informed about your condition and needs".	4.320 ± 0.620
"How much they were allowed to help in your care"	4.280 ± 0.536
"Courtesy and respect you were given; friendliness and kindness".	4.400 ± 0.606
"The attention of nurses to the patient's condition"	4.360 ± 0.662
"How much nurses ask you what you think is important and give you choices"	4.520 ± 0.646
"The willingness of the nurses to be flexible in meeting your needs"	4.300 ± 0.677
"How well they adjusted their schedules to your needs"	4.460 ± 0.578
"The ability of the nurses to make you comfortable and reassure you"	4.360 ± 0.597
"How quick they were to help"	4.260 ± 0.632
"How well things were done, like giving medicine and handling IVs"	4.260 ± 0.694
"The teamwork between nurses and other hospital staff who took care of you"	4.220 ± 0.648
"Amount of peace"	4.430 ± 0.677
"Privacy provisions by nurses"	4.320 ± 0.672
"How clearly and completely the nurses told you what to do and what to expect when you left the hospital"	4.360 ± 0.597
"Nurses' efforts to provide for your needs after you left the hospital".	4.440 ± 0.494

DISCUSSION

Although bariatric surgery is a successful obesity treatment, the healing phase after the treatment is significantly impacted by the caliber of nursing care [15]. A key determinant of healthcare quality is patient satisfaction with nursing care, which affects recovery results, compliance with post-operative instructions, and the total hospital stay [9, 16]. Luqman International Hospital Swat supports a diverse population having bariatric surgeries, making it vital to examine how well nursing care meets patient expectations. Evaluating patient satisfaction can uncover strengths and areas for improvement in nursing practices, leading to greater patient-centered care. Additionally, by supporting staff training, quality control, and healthcare policy, this study can provide the best possible post-operative care for bariatric patients. The current findings revealed that the age mean is 34.22 of the study participants. Likewise, another study from Egypt found that 37.37 [17]. On the other hand, an American study revealed that the average age of the study participants was 47.3 [2]. Several factors may contribute to the disparity in the average age of bariatric surgery patients between studies; in this study, the mean age is 34.22 years, whereas in Egypt, it was slightly higher at 37.37 years, but in the USA, it was significantly higher at 47.3 years. These factors may include differences in the onset of obesity, access to healthcare, and cultural factors; in some areas, younger people may seek surgery sooner because of lifestyle concerns or social expectations, while in others, older patients may have surgery after years of battling obesity-related health problems. Furthermore, the current study shows that 54% are male and 46% are female. In contrast, a study from Egypt found that 88% were female [17]. Correspondingly, this study found that males were 12% [17]. Comparably, a study from Pakistan found that female was 51.7 % and male were 48.3% [9]. The disparity in the proportion of genders in research could be caused by social, cultural, and medical variables. Of the participants in this study, 46% were women and 54% were men. On the other hand, an Egyptian study found that only 12% of participants were men and 88% of participants were women. Research conducted in Pakistan also revealed a more even ratio, with 48.3% of the population being men and 51.7% being women. In certain areas, women may be more likely than men to seek medical interventions, which could be caused by disparities in health-seeking behavior, societal norms, and awareness levels. The current study revealed that explaining nurses' explanations had a mean of 4.54. Likewise, a study found a mean of 4.42 [18]. In addition, the response was to Preparation for tests and operations mean of 4.48. Similarly, a study found it was 4.29 [18]. Furthermore, the current findings show the mean score of willingness to respond to inquiries was 4.32. In this regard, another study found it was 4.27 [18]. Additionally, this finding revealed that the respondent shows mean score toward Communication with patients, families, and doctors is 4.28. Accordingly, another finding shows it was 4.25 [18]. Moreover, the present findings show that participants responded with a mean score of 4.32 toward keeping patients informed. In contrast, another study found a mean score of 3.86 [18]. Also, this study shows the respondent shows response to the Involvement in care with a mean score of 4.28. By the same token, a different study found a mean score of 3.86 [18]. Besides, the participants show their response to courtesy and respect with a mean of 4.40. In like manner another study found it was 4.43 [18]. The current findings show that respondent response toward discharge instructions with a mean of 4.36. In the same way, another study found that 56% were satisfied with the discharge procedure [19]. Moreover, current findings show that study participants show their response to attention to patient condition with a mean score of 4.36. Similarly, another study found a mean score of 4.43 [18]. Additionally, this study demonstrates that participants' mean score for responding to requests for patient feedback and choices was 4.52. Similarly, a study

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discovered that the mean score was 4.10 [18]. Furthermore, according to the most recent data, 40% of respondents approved of the general standard of care and services you received while in the hospital. However, according to another study, it was 36% [19]. Additionally, this study found that patient response toward flexibility in meeting patient needs with a mean score of 4.30. In like manner, another study found a mean score of 4.25 [18]. In addition, this study found that participants show a mean score of 4.46 toward Adjusting schedules to patient needs. In this regard, another study found it was 4.16 [18]. Moreover, these findings revealed that participants show a response toward providing comfort and reassurance with a mean of 4.36. In this regard, another study found a mean score of 4.26 [18]. As well, this study shows that respondent shows their response to quick response to help with a mean of 4.26. While another study shows a mean of 4.09 [18]. In addition, the current findings g show that 56% of the respondents agreed that we received an excellent quality of nursing care. In this way, another study found that 43% was the average for all dimensions of nursing care satisfaction [19]. Additionally, another study of hospital satisfaction typically yields relatively high satisfaction levels [20]. The study acknowledged the limitation of a relatively small sample size, which may affect the generalizability of the findings.

CONCLUSIONS

The results show that Luqman International Hospital Swat's nursing care quality is highly regarded by its patients. Clear communication, respect, patient involvement, comfort, and post-discharge assistance are among the key strengths that have been highlighted. Patients were pleased with their degree of involvement in care decisions, felt knowledgeable about their treatments, and valued the nurses' promptness. Response times, medical staff collaboration, and technical areas like IV management and medicine administration, however, could all use some development. By addressing these issues, we can guarantee the best possible healthcare results and improve the overall patient experience.

Authors Contribution

Conceptualization: YK
Methodology: ZU, MB, TS
Formal analysis: AK
Writing, review and editing: YK, SZ, BJ, TS, AA, WA

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Knowledge and Practice of Health Care Providers Regarding Infection Control at Luqman International Hospital Swat

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ABSTRACT

Infection control is paramount in healthcare settings, preventing healthcare-associated infections and ensuring patient and staff safety. **Objectives:** To assess the knowledge and practice of healthcare providers regarding infection control. **Methods:** This cross-sectional study was conducted in Luqman International Hospital, swat. 100 staff included in the research are nurses, paramedics, medical technicians (MTs), and Lady Health Visitors (LHV). The researchers have used convenient sampling, considering the accessibility and availability of staff members during the study period. **Results:** The findings revealed that 40% have a low level of knowledge, 50% moderate, and 10% have an elevated level of knowledge regarding infection control. Regarding the level of practice on infection control, 35% had low practice, 53 had average, and 12% had an elevated level of practice regarding infection control. **Conclusions:** It was concluded that healthcare providers have considerable gaps in their understanding and use of infection control. 35% showed poor practice and 40% showed little knowledge. To increase the comprehension and use of infection control strategies, immediate interventions are required.

INTRODUCTION

Healthcare-associated infections (HAIs) are acquired in medical facilities but are not present when the patient is admitted. It is a serious problem that has an impact on healthcare delivery throughout the world [1]. Moreover, HAIs are a global problem that mostly impacts countries with lower and intermediate incomes [2]. Additionally, unfavourable healthcare outcomes result from this, such as increased hospital stays, higher expenses, and significant morbidity and mortality. Almost 90% of these illnesses occur in developing countries, where the virus is only occasionally transmitted. The high frequency of illnesses linked to healthcare was a result of the lack of a standardised infection prevention programme, which was caused by low funding, dirty facilities, and lax hygiene standards [3]. In addition, hospital-acquired infections are the primary issue related to healthcare services; globally, over 1.4 million people suffer from these illnesses, with developing nations having a 2-20-fold higher risk [4]. Poor hygiene habits and unhygienic conditions are vital contributors to the rising rate of infectious diseases in these developing nations [5]. In addition, Approximately 40% of all infections linked to healthcare are catheter-associated urinary tract infections (CAUTIs), which pose a severe threat to global healthcare [6]. Moreover, compliance with infection control protocols contributes to needle stick injuries among healthcare providers (HCPs) [7]. In the healthcare industry, infection control procedures have been a crucial concern. While the

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healthcare sector and public health have made significant strides, hospital staff members are also susceptible to illnesses that continue to arise among hospitalized patients. Hospitalization increases the risk of infection due to several factors, including weakened patient immunity, the growing range of invasive medical procedures and techniques that open up new infection pathways, and the spread of drug-resistant bacteria among crowded hospital populations. Microorganisms may spread more easily between patients due to inadequate infection control procedures [8]. One of the most important aspects of providing safe and excellent services at the facility level is infection prevention, erecting a barrier between the germs and the susceptible host. Therefore, infection prevention techniques like good hand hygiene can prevent the morbidity and death linked to HAIs [9-12]. Extended hospital stays, long-term disabilities, elevated microbial resistance, financial load, and fatalities are all part of the associated burden of disease associated with hospital-acquired infections [4]. It is well known that nosocomial infections are a significant cause of unfavourable healthcare outcomes and an issue compromising the standard of treatment. The literature has provided evidence that these infections significantly influence patient safety. The numerous detrimental effects include extended hospital stays, higher healthcare expenses, financial difficulties for patients and their families, and even fatalities [13]. Healthcare personnel are essential in stopping the spread of HAIs and maintaining infection control, essential to patient safety. Nonetheless, research indicates that healthcare practitioners frequently do not have sufficient knowledge, experience, or comprehension of infection control concepts, which can result in less-than-ideal practices in clinical settings. In addition, Pakistan is still a poor nation with a high rate of infectious diseases [14].

This study aims to assess the knowledge and practice of HCPs regarding infection control.

METHODS

This descriptive cross-sectional study was conducted at Luqman International Hospital, Swat KPK, Pakistan. 100 staff included in the research are nurses, paramedics, medical technicians (MTs), and Lady Health Visitors (LHVs). The researchers have used convenient sampling, considering the accessibility and availability of staff members during the study period of Aug 2024 to Nov 2024. With a 5% margin of error and a 95% confidence level, the sample size was determined via Open Epi 3.0 and the proportion of 31.6% of musculoskeletal disorders [5]. Adopted questionnaires were likely used to collect data [15]. These tools were designed to gather information about demographics, knowledge, and practice regarding infection control. The tool's total score was converted into a percentage. Inclusion criteria were staff members of Luqman International Hospital, Swat KPK. Except for staff members of Luqman International Hospital, all were excluded. Less than 50% of respondents were deemed to have a low knowledge of infection control, 50–70% moderate knowledge, and more than 70% high knowledge. Less than 50% of respondents were deemed to have low levels of infection control practice, 50–70% to have moderate levels, and more than 70% to have high levels of practice. Moreover, 10% of the population participated in a pilot study, and the resultant Cronbach's alpha score was 0.723 [14]. Trained researchers distributed questionnaires among the participants to collect the data. Confidentiality and anonymity were ensured to encourage honest responses. Quantitative data collected through structured questionnaires were analyzed by SPSS version 24.0. Descriptive statistics, like frequencies and percentages, were likely utilized to summarize the data. The goal, methods, and rights of the research were informed to the respondents. Informed consent was obtained from every respondent before their participation. Participants' identities and responses were kept confidential. Just the study team was entitled to the safely kept data.

RESULTS

Regarding gender distribution, most participants were male, accounting for 55% of the total sample, while female constituted 45%. In terms of age, the highest percentage of participants fell within the age group of 24-29 years, making up 50% of the total sample, followed by those above 30 years (30%), and the youngest age group of 18-23 years (20%). Regarding professions, nurses comprised the participants (55%), while others were paramedics, medical technicians, and Lady Health Visitors (Table 1).

Table 1: Demographic Information of the Participants (n=100)

Variables	Frequency (%)
Gender	
Male	55 (55%)
Female	45 (45%)
Age	
18-23	20 (20%)
24-29	50 (50%)
Above 30	30 (30%)
Profession	
Nurse	55 (55%)
Paramedics	15 (15%)
Medical Technicians	20 (20%)
Lady Health Visitors	15 (15%)

Results show the level of knowledge among HCPs regarding infection control. The findings revealed that 40% have low knowledge, 50% moderate and 10% have high

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knowledge regarding infection control (Figure 1).

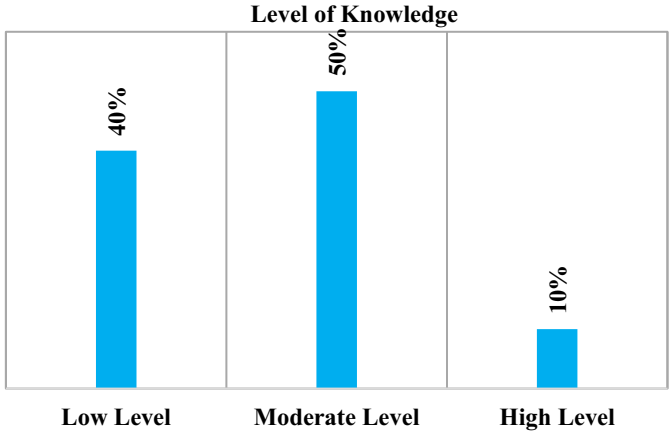

Figure 1: Level of Knowledge Regarding Infection Control

Findings show the level of practice regarding infection control regarding infection control. 35% had low practice, 53 had moderate, and 12% had a high level of practice regarding infection control (Figure 2).

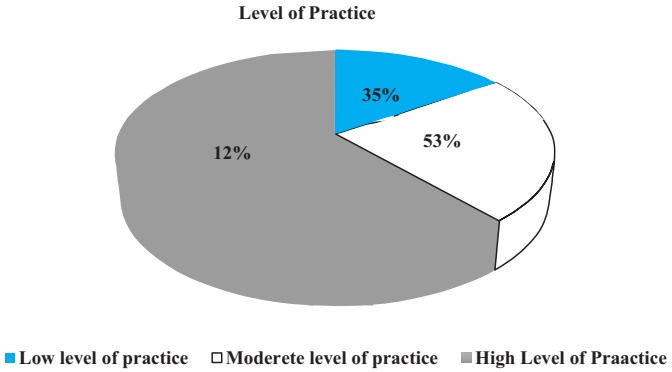

Figure 2: Level of Practice Regarding Infection Control

DISCUSSION

Infection control is paramount for patient safety in healthcare settings [16]. Understanding healthcare providers' knowledge and practice level directly effects the risk of healthcare-associated infections [17]. Evaluating their knowledge and practice interventions can be tailored to ensure a safer patient environment. The current findings show that 40% give a low level of knowledge regarding infection control. At the same time, another study found a slightly different result, that 57% had low awareness [18]. Similarly, another study found that most professionals lacked knowledge of fundamental infection control procedures [19]. In contrast, a study found that 84.7% had good knowledge regarding infection control [3]. Standardized training courses and certification processes are needed to guarantee uniformity in infection control expertise [20]. These must be the same in all healthcare facilities and updated frequently to consider fresh scientific discoveries and emerging infectious diseases. Regardless of their location or place of employment, standardization guarantees that all healthcare providers obtain the same quality of education. The current findings revealed that 50% had moderate knowledge regarding infection control. In contrast, another study found that 95.19% had good knowledge [5]. Another study also found that 75% had moderate knowledge [14]. In hospital settings, knowledgeable healthcare professionals could identify infectious disease outbreaks and put an end to them before they start. This lessens the possibility that patients will contract an infection while getting treatment [14]. The current findings revealed that 35% had low practice. In this regard, another study found frequent unsafe practices among study participants [21]. In contrast, another study found different results and showed that 67.6% had good practice [22]. In addition, another study found that 92% had good practice [23]. Improper infection control can lead to healthcare-associated infections (HAIs) in patients [24]. HAIs, when not effectively controlled, can lead to an increase in mortality rates [25]. Based on these findings, there should be standardized training modules and certification programs to ensure consistency in infection control knowledge. Furthermore, 53% had moderate practice regarding infection control. Similarly, another study found that 71.0% had inadequate practice regarding infection control measures [26]. Regular training programs are required to improve HCP proficiency in nosocomial infection control strategies.

CONCLUSIONS

It was concluded that the study findings highlight disparities in knowledge and practice regarding infection control among healthcare providers (HCPs). Regarding knowledge, 40% exhibited a low level of knowledge, 50% showed moderate understanding, and only 10% had a high level of knowledge. Regarding practice, 35% demonstrated a low level, 53% had a moderate level, and only 12% displayed high-quality practices. These results underscore the urgent need for targeted interventions to enhance knowledge and practical implementation of infection control measures among HCPs. Continuous education and regular assessments can significantly enhance the knowledge and practice of infection control, ensuring a safer healthcare environment for both patients and providers.

Authors Contribution

Conceptualization: YK
Methodology: YK, ZU, MB, TS[1], IUH, AK, TS[2], AA
Formal analysis: YK, AK, TS[2]
Writing review and editing: YK, SZ, WA

All authors have read and agreed to the published version of the manuscript.

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Original Article

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Assessment of Self-Confidence Among Nursing Students During Clinical Decisions Making

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ABSTRACT

As nursing students move from classroom theory to actual patient care, clinical decision-making is an essential ability. Their capacity to make wise clinical decisions is greatly influenced by their level of self-confidence. Knowledge, experience, and worry are some of the factors that greatly affect their ability to make decisions. **Objectives:** To assess the self-confidence levels of nursing students during clinical decision-making, highlighting its impact on their ability to provide competent patient care. **Methods:** Between September and October 2024, third- and fourth-year BS nursing students from Upper Swat College of Nursing and Malakand College of Nursing participated in a cross-sectional descriptive study. Convenience sampling was used to choose 80 individuals in total. The Nursing Self-Confidence with Clinical Decision Making (NASC-CDM) questionnaire, which used a Likert-scale style, was used to gather data. SPSS version 26.0 was used for statistical analysis, and frequency (%) was computed. **Results:** Out of 80 participants, 7.5% were women and 92.5% were men. Most pupils (61.3%) were between the ages of 21 and 23. According to the self-confidence scores, 3.7% had low self-confidence, 56.3% had moderate self-confidence, and 40% had strong self-confidence. **Conclusions:** It was concluded that the majority of nursing students demonstrated moderate to high levels of self-confidence when making clinical decisions. Gaining self-assurance via clinical experience and education can enhance one's decision-making capacity, ultimately leading to better patient outcomes.

INTRODUCTION

Students utilized a clinical placement to put their academic knowledge into practical practice [1, 2]. Extensive clinical practice also improves nursing students' decision-making skills and their capacity for ethical reasoning, compassion, and cultural sensitivity [3]. Furthermore, because clinical decision-making entails critically evaluating patient data and selecting the best course of action, it is crucial to nursing. The procedure is complex and calls for integrating clinical expertise, experience, and sound judgment [4]. Furthermore, clinical decision-making requires the integration of critical and reflective thinking with clinical reasoning abilities [5, 6]. The main factors that affect nursing students' ability to make clinical decisions include knowledge, practice, experience, and interactions with patients and medical experts [7]. Therefore, increasing self-confidence is important through experience with actual patients [8]. Practitioners, scholars, and educators are interested in the pervasive problem of anxiety among nursing students when making clinical decisions. In the clinical setting, students get accustomed to the challenges of delivering medical services in real-life settings, in which they must work with collaborative groups, control time restrictions, deal with difficult circumstances, and uphold ethical norms [9]. Tension and confidence in themselves are closely linked while making therapeutic decisions [10]. High levels of anxiety may make nursing students doubt their judgment, make mistakes in life-threatening situations, and struggle to put their knowledge into

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practice. Increased stress, mistakes, and trouble providing real-world patient care can result from this [9]. While anxiety is a feeling of worry, nervousness, or fear about an uncertain outcome. It is a natural stress response but can become overwhelming when excessive [11]. Their capacity to think critically, make decisions, and successfully use theoretical knowledge in practical situations is significantly impacted by their level of confidence [12]. Self-confidence is the belief that one can complete a task, which translates into the person's capacity to achieve their goals [13]. Being self-assured is having faith in one's ability and judgment [14]. Conversely, nursing students' degree of self-confidence has a big impact on how they approach clinical decision-making. Self-assured students are more adept at applying abstract concepts to real-world scenarios, using their knowledge base, and trusting their judgment. Self-assured students are more likely to take on challenges, actively resolve issues, and advocate for themselves in public all of which are critical components of making informed clinical judgments [6].

This study aims to investigate the self-confidence of nursing students during clinical decision-making.

METHODS

A cross-sectional descriptive study was done to evaluate nursing students' confidence levels when making clinical decisions. From September to October 2024, data from students at Malakand College of Nursing and Upper Swat College of Nursing was gathered and analyzed using a quantitative process. Before starting the study, the researchers asked the study site's administration for permission with reference number 353/USCN/KK. Convenient sampling was used to choose the participants. For statistics, third- and fourth-year BS nursing students were contacted. Those who are willing to engage and are in their clinical years are eligible to take part in the study. With a total population of 150, the sample size was determined using a sample size calculator open Epi version 3 with a 95% confidence interval. Thus, 80 was the obtained sample size. Following a thorough description of the study's goals, the voluntary nature of participation, and the anonymity guaranteed for their answers, each participant gave their informed consent. Every participant's identity was kept confidential by the researchers. Data were safely preserved, and no individual participant was named in published findings or publications. Data were loaded into SPSS version 26.0 for statistical analysis. For both the demographic variable and the self-confidence levels, frequency percentages were computed. To identify nursing students' self-confidence during clinical decision-making, the structured questionnaire was taken from the earlier study [9]. Nursing Self-Confidence with Clinical Decision Making. There were two sections in the questionnaire. Participants' personal information was covered in the first segment, and then they were directed to use a Likert-style measure to indicate how strongly they consented to every remark to gauge their level of confidence. Cronbach's alpha reliability coefficient was applied to investigate the scales' internal consistency dependability. The final version's alpha coefficients were 180 for total anxiety self-confidence and α=0.97 for the self-confidence subscale. Additionally, the self-confidence tool score was separated into 3 groups: moderate (scores 61–120); high (scores 121–180); and low (scores 6–60). Data was entered and analyzed by SPSS 22.0. Descriptive analysis was conducted by presenting qualitative data with frequencies and percentages.

RESULTS

Six female students (7.5%) and 74 male students (92.5%) make up the gender distribution. 26 participants (32.5%) are between the ages of 18 and 20, 49 (61.3%) are between the ages of 21 and 23, 4 (5%) are between the ages of 24 and 26, and just 1 (1.3%) are older than 27. Results summarise two demographic factors age and gender (Table 1).

Table 1: Demographic Information of the Participants (n=80)

Variables	Frequency (%)
Gender	
Male	74 (92.5%)
Female	6 (7.5%)
Age	
18-20	26 (32.5%)
21-23	49 (61.3%)
24-26	4 (5.0%)
Above 27	1 (1.3%)

Results show the majority of participants (40%) have elevated self-confidence, followed by moderate (56.3%), and a minor percentage (3.7%) have low self-confidence (Figure 1).

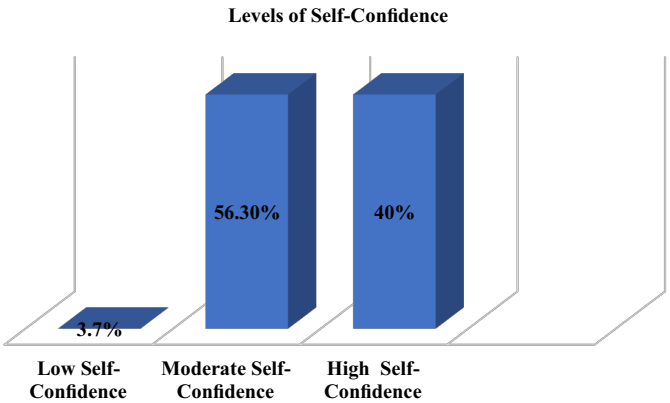

Figure 1: The Levels of Self-Confidence

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DISCUSSION

To foster engagement in each step of the nursing process, clinical decision-making is crucial for all medical services professionals. But in nursing school, planning and putting what has been learned into practice makes students anxious and erodes their confidence. Clinical decision-making is influenced by psychological obstacles, low self-esteem, and elevated anxiety. For nursing students to become skilled healthcare professionals in the future, they must be able to make clinical choices with confidence and effectiveness. This study emphasizes the necessity of focused instructional strategies to improve their capacity for making decisions. The current findings revealed that 40% of the participants had a high level of self-esteem. Another study shows that 69% of recent bachelor's degree graduates in nursing expressed strong levels of self-confidence [6]. In the same way, another study found that most participants (56.3%) have high self-confidence [9]. Concerning this nursing students' good feelings are strengthened when they have self-confidence, which promotes well-being. Professional nursing practice is based on clinical decision-making [15]. In this regard, another study found that 31% have moderate self-confidence [6]. While another study found that 41.3%, have moderate self-confidence [9]. These discrepancies could result from different approaches to education, exposure to clinical settings, and institutional training techniques. More practical experience, mentoring, and simulation-based learning in nursing programs can boost students' confidence when it comes to making clinical judgments. Furthermore, worry and anxiety can have a detrimental effect on one's sense of self-worth, so nursing schools must provide networks of support to assist students in overcoming these obstacles [16, 17]. A nurse must possess critical thinking in addition to knowledge, skills, and attitudes to effectively manage their work in an increasingly demanding clinical setting [17]. Furthermore, current findings revealed that a small portion of the participants 3.7% only have low self-confidence. Similarly, another study found almost the same result 0% have low self-confidence [6]. While another study found that low self-confidence is 2.5% [9]. In contrast, another research suggested that students could not make clinical choices independently [18]. In clinical decision-making, self-confidence is essential because it allows nursing students to use their knowledge efficiently, have faith in their judgment, and react swiftly to patient requirements [10]. Self-assured students are more likely to take charge, work with medical staff, and speak up for their friends and family [19]. Students may hesitate if they lack confidence, which could cause more mistakes and delays in patient treatment. Thus, building future nurses who are capable and decisive requires boosting self-confidence through hands-on training and psychological support [20].

CONCLUSIONS

It was concluded that in clinical decision-making, most nursing students showed moderate to elevated levels of self-confidence. Increasing self-confidence through clinical exposure and training can improve decision-making abilities, which in turn can improve patient outcomes.

Authors Contribution

Conceptualization: FA, AB
Methodology: FA, AB, JA, MK, NA, AH, FB
Formal analysis: FA, AB, JA
Writing review and editing: FA, AB, MK, NA,

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Original Article

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Perception of Conducive Learning Environment among Students in Nursing Colleges, Islamabad

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ABSTRACT

Nursing education is essential for developing skilled healthcare practitioners, and Students' educational experiences and outcomes are significantly impacted by their learning environment. **Objective:** To find out how Islamabad, Pakistan's nursing schools' students feel about the supportive learning environment. **Methods:** In a descriptive cross-sectional study, 220 nursing students enrolled in Post-Registered Nurse Bachelor of Science in Nursing (PRBSN) and Generic Bachelor of Science in Nursing (GBSN) programs participated. Responses were collected anonymously using the Dundee Ready Education Environment Measure (DREEM). SPSS version 25.0 was used to analyze the data in order to obtain a more detailed grasp of the perceptions of the pupils. **Results:** The 220 participants in the study, 90 (40.9%) identified as male and 130 (59.1%) as female. The overall mean score of 153 out of 200 indicates that people have more favourable opinions about the supportive learning environment than they do negative ones. Further investigation revealed that students in the GBSN program had even more favourable opinions of a supportive learning environment ($P<0.0001$) according to the independent t-test than students in the PRBSN program. Additionally, female students displayed significantly more positive perceptions ($P<0.0001$) compared to their male counterparts. **Conclusions:** In examining the nursing students' perceptions, this study identified both commonalities and differences in their perceptions. While positive aspects were acknowledged, negative perceptions also surfaced. The study concludes that creating a conducive learning environment in nursing colleges is essential for fostering positive student experiences and enhancing the overall quality of education.

INTRODUCTION

In the ever-evolving world of education, one element that stands out as crucial in shaping students' educational journey, is a favourable learning environment. Nowhere this is more evident than in specialized fields like nursing. As gatekeepers to the future of healthcare, nursing colleges hold immense responsibility in preparing and developing competent professionals [1]. It is therefore imperative to gain a deep understanding of students' perspectives on the learning environment to continuously improve. Over the past few decades, in Pakistan, the field of nursing education has undergone a significant overhaul. From relying on diploma-based programs to adopting a degree-based curriculum, there has been a noteworthy shift towards a more comprehensive educational approach for nurses [2]. This change has shifted the focus from basic training to more in-depth, university-level instruction. Despite this transformative progression, there is a lack of solid research that evaluates the overall effectiveness of this new model in nursing colleges [3]. Although there is a plethora of information regarding the key principles of creating a suitable learning environment, there exists a lack of understanding when it comes to the specific

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intricacies within nursing colleges in Pakistan [2, 4, 5]. The existing literature also lacks a detailed analysis of the specific challenges and benefits that have emerged following this pivotal transition [6, 7]. In light of this, this study seeks to bridge these gaps by thoroughly examining the impacts of the shift on nursing education. The primary purpose of this research is to examine how nursing students in Pakistan perceive the learning environment within their colleges. The objectives of this investigation are twofold: first, comprehensively evaluating and analyzing the students' opinions on the physical infrastructure and amenities present in their nursing colleges through the use of the self-administered questionnaire, and second, investigate the role of different factors like program and gender among students participating in the Post Registered Nurse Bachelor of Science in Nursing (PRBSN) and Generic Bachelor of Science in Nursing (GBSN) programs in influencing how students see the overall learning environment.

The goal of this study was to uncover important information that can guide educational practices and policies, ultimately raising the bar for nursing education.

METHODS

A descriptive cross-sectional study design was used. Current research was carried out at two nursing colleges located in Islamabad, Pakistan from April to October 2024. The sample was calculated by using the Rao Soft Sample Calculator at CI 95% and 5% margin of error. A convenience sampling method was used to contact 278 students enrolled in the Post-Registered Nurse Bachelor of Science in Nursing (PRBSN) and Generic Bachelor of Science in Nursing (GBSN) programs. Finally, 220 students (79%) ultimately chose to participate after signing informed consent. The study comprised students presently enrolled in Post-Registered Nurse Bachelor of Science in Nursing (PRBSN) and Generic Bachelor of Science in Nursing (GBSN) programs. Whereas, the students returning from a month-long break, re-entering the educational system, currently ill, dealing with a recent family loss or illness, or on probation were excluded from the study. The self-administered questionnaire was especially utilized to gather data in order to fulfil our research goals. The questionnaire covered demographic details such as age, gender, enrolled program, and year of enrollment in Section A. Whereas, section B focused on students' opinions of the conducive learning environment, with the utilization of the internationally validated scale, measure of the Dundee Ready Education Environment (DREEM)" [8]. The DREEM comprises 50 items that are categorized into five subscales and scored on a five-point Likert scale (0–4): impression of learning with 12 objects, teachers-related perception based on 11 items, 8 items academic self-perception, 12 items in atmosphere-related perception and 7 items in social self-perception subscale. Remarkably, the correction process involved reversing scores for nine negative items, where dissatisfaction with the item was now expressed by greater scores. With matching categories of 0-50 very poor, 51-100 many difficulties, 101-150 more positive than negative, and 151-200 good perceptions, the questionnaire's maximum possible score is 200. Moreover, the separate range for all subscales is more specifically used to calculate respondents' responses. The DREEM is a reliable scale with 0.86 Cronbach's alpha coefficients [9]. To analyze the data, we utilized the DREEM author guide, it enabled us to collect frequencies, mean values, and standard deviations for the subscales in the questionnaire. Prior to being loaded into SPSS version 25.0, the data were meticulously coded and verified for accuracy. The frequency and percentage were determined using descriptive statistics. Additionally, based on selected gender and programs, an independent sample t-test was used to identify any changes in scores pertaining to the perception of the learning environment and its subscales.

RESULTS

The study findings showed that total 90 (40.9%) male and 130 (59.1%) female nursing students participated in this study. When it came to enrollment status, 120 (54.5%) were pursuing the GBSN program, whereas 100 students (45.5%) were enrolled in the Bachelor of Science in Nursing (PRBSN) program for post-registered nurses. Furthermore, in Table 1, the result highlights how students perceive various aspects of education, as measured by the DREEM questionnaire. Across different dimensions of perception, we can see a trend towards positivity. Specifically, in terms of Learning-related Perception, the majority of students 169 (76.8%) reported a positive outlook, while a smaller percentage 37 (16.8%) had a negative view of teaching. Similarly, in terms of teacher-related perception, a significant portion 163 (74.1%) saw teaching in a positive light, with a minority 46 (20.9%) suggesting a need for further training. Lastly, concerning Academic Self-Perception, the highest percentage of respondents 143 (65%) expressed positive emotions, with only a small fraction 1 (0.5%) reporting feelings of failure. The findings from the Atmosphere-related Perception showed that a large majority of students 158 (71.8%) perceived a positive environment, while a small minority 1 (0.5%) had a negative perception. Similarly, in the Social Self-Perception results, a significant portion of students 114 (51.8%) described the social environment as "Not a Nice Place," while a smaller percentage 88 (40%) deemed it as "Not too bad." Interestingly, only a handful of participants 4 (1.8%) rated it as "Excellent." These outcomes offer valuable

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insights into students' overall perceptions, highlighting both positive aspects and areas that may require attention and development (Table 1).

Table 1: Demographic Data of the Participants n=220

DREEM Subscales	Scoring Range	Frequency (%)
Learning Related Perception	Very Poor	0 (0%)
	Teaching viewed negatively	37 (16.8%)
	More positive	169 (76.8)
	Highest Positive approach	14 (6.4)
Teachers Related Perception	Very Bad	2 (0.9%)
	Need of Some Re-training	46 (20.9%)
	In Right Direction	163 (74.1%)
	A model teachers	9 (4.1%)
Academic Self Perception	Feeling of Failure	1 (0.5%)
	Feeling of Negative Aspects	26 (11.8%)
	More Positive Feelings	143 (65%)
	More Confident	50 (22.7%)
Atmosphere Related Perception	Terrible Environment	1 (0.5%)
	Many issues that need to be changed	49 (22.3%)
	Positive Environment	158 (71.8%)
	More positive feeling about overall environment	12 (5.5%)
Social Self Perception	Miserable	14 (4.6%)
	Not a Nice Place	114 (51.8%)
	Not too bad	88 (40%)
	Excellent	4 (1.8 %)

Table 2 demonstrates the significant mean difference in the overall score between GBSN (24.70 ± 3.35) and the PRBSN students (22.84 ± 2.79) with a p-value of 0.05. Whereas a non-significant mean difference was reported on teacher-related perception and social self-perception among the two groups. Moreover, a significant mean difference was in learning-related perception, academic self-perception, and atmosphere-related perception found among GBSN and PRBSN students on subscales (Table 2).

Table 2: Comparisons between GBSN students and PRBSN students on DREEM and its subscales

DREEM Subscales	GBSN Mean ± SD	PRBSN Mean ± SD	P-Value
Learning related Perception	31.29 ± 5.48	28.09 ± 4.67	0.05
Teachers related Perception	25.42 ± 4.79	25.90 ± 3.92	0.49
Academic Self Perception	22.50 ± 4.16	20.25 ± 3.92	0.01
Atmosphere related Perception	29.92 ± 5.01	27.30 ± 5.21	0.01
Social Self Perception	13.13 ± 3.64	13. 91±3.62	0.12
Total Perception of Conducive Learning Environment	24.70 ± 3.35	22.84 ± 2.79	0.00

DREEM (Dundee Ready Educational Environment Measure)

The overall perception of a conducive learning environment also showed a significant mean difference between male and female students, as indicated in Table 3, with female students (24.35 ± 2.95) having a more positive perception than male students (22.72 ± 3.29).

Table 3: Gender Comparisons between GBSN students and PRBSN students on DREEM and its subscales

DREEM Subscales	Male Mean ± SD	Female Mean ± SD	t-Value	p-Value
Perception of Conducive Learning Environment	22.72 ± 3.29	24.35 ± 2.95	-3.847	0.001

DREEM (Dundee Ready Educational Environment Measure)

DISCUSSION

Assessing nursing students' perceptions of a supportive learning environment in their nursing schools was the primary goal of the current study. The findings showed that students generally had a favorable opinion of the learning environment. According to the study's findings, nursing students had a more favorable perception of a conducive learning environment since it improved their academic performance, success, and degree of satisfaction. Our study is in line with similar investigations conducted globally, as well as within nursing colleges in Pakistan, Studies repeatedly demonstrated that nursing students had a positive opinion of suitable learning environments [1, 10–14]. Interestingly, in agreement with earlier research, our study confirms that students in the Generic Bachelor of Science in Nursing (GBSN) program typically have a more favorable opinion of the learning environment than those in the Post-Registered Nurse Bachelor of Science in Nursing (PRBSN) program [9, 15, 16]. Nevertheless, a study conducted in Pakistan in 2016 revealed a noteworthy anomaly to this pattern, wherein PRBSN students displayed a more favorable attitude. This could perhaps be attributed to variances in course content, pedagogical methods, or individual traits [1]. These discrepancies in their opinions may result from the varied traits of students pursuing two distinct professional degrees. While PRBSN students already possess a basic diploma in nursing, GBSN students are entry-level nursing students. So, curriculum changes, teaching methodologies, and modules could influence their perceptions easily. Moreover, it observed a more positive perception of the learning environment among female nursing students, which aligns with the results of another study [1]. Inconsistent findings have been reported by a recent study conducted in Pakistan [17] as the male nursing students exhibited more positive perceptions about the learning environment as compared to female students. The fact that female students in the current study had more positive opinions than their male counterparts may suggest that students' perceptions and interactions with the learning environment varied depending on their gender [18, 19]. This can be because there are more female nursing students in Pakistan nursing colleges, therefore this gender bias can affect their perception of the conducive learning environment [7, 20]. Further exploration is warranted to delve into the specific factors contributing to these observed differences, particularly the reasons behind the heightened positive

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perception among GBSN students and female participants. It is crucial to recognize the limits of this study even if it provides insightful information about how nursing students in Pakistan see the educational environment. One drawback is that response bias could result from using self-reported data from a questionnaire. To get in-depth insight, future researchers should conduct qualitative studies. Additionally, this cross-sectional study included colleges located in twin cities Rawalpindi and Islamabad so it cannot be fully generalizable to other regions in Pakistan. Further research in diverse contexts is needed for a comprehensive understanding of this topic to enhance the generalizability and applicability of the results to a broader spectrum of health education contexts.

CONCLUSIONS

This study involved surveying nursing students in Islamabad and Rawalpindi regarding their opinions of the classroom. Overall, the results were positive, adding valuable insights to the ongoing conversation about nursing education. By acknowledging the crucial role of a supportive learning environment, teachers and institutions can utilize these findings to personalize their teaching methods, improve facilities, and provide better support to their students. Notably, the variations between program types and genders emphasize the importance of tailored approaches in both education and practice. Moving forward, continued cooperation, research, and an effort to address identified areas for improvement can lead to significant advancements in the field.

Authors Contribution

Conceptualization: SB
Methodology: UD, ZP
Formal analysis: SK
Writing, review and editing: ZA, SP

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Assessment of The Emotional Intelligence Level Among Public and Private Undergraduate Nursing Students and its Association with Demographic Variables

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ABSTRACT

Emotional Intelligence (EI) is mainly associated with individual thinking. The nurses' emotions and the nursing interventions are sometimes affected by such emotional abilities of nurses. **Objectives:** To explore the relationship of EI between public and private undergraduate nursing students and compare demographic variables with EI. **Methods:** A cross-sectional study was conducted in public and private nursing colleges in Karachi, Pakistan. The total sample size was (n=196) undergraduate nursing. The data collection was done through a written questionnaire. Data were analyzed through the SPSS version 29.0. Frequency and percentage were calculated for the different levels of EI among the private and public undergraduate nursing students. Moreover, the EI comparison was also done with the demographic data. **Result:** 104 (53.3%) were male and 92 (46.9%) were female. According to demographic information, 39 (19.8%) participants were ages 15-20, and 157(80.5%)were aged 21-30. 29(14.79%)participants had less than 3 CGPA in the last semester, and 167(85.5%)undergraduate students had more than 3 CGPA in the previous semester. Moreover, the mean and standard deviation of male was (126.1 ± 16.7) and female was (125.2 ± 13.4) with a t-value is 0.372 and a p-value is 0.045. **Conclusions:** It was concluded that there was a significant difference in EI among undergraduate public and private Nursing Students. This study also reveals critical insights into how demographic factors, such as age, gender, and CGPA influence the participant's emotional intelligence.

INTRODUCTION

Emotional Intelligence (EI) is mainly associated with individual thinking, The EI involves the potential to engage in the self, and others' emotions, those who have high EI can pay more attention to the tasks, and these people can understand and manage emotions so smoothly. Furthermore, the EI term was proposed by the researchers John Mayer and Peter Solevey, but later on, the EI was popularized by well-renowned psychologist Danial Goleman, who was a scientific journalist, author, and psychologist [1, 2]. In 1990 the initial work on EI stated that those who have high EI had certain abilities and skills to manage the self and others' emotions, and also stated that those who have high EI could perceive other emotions including anger and sadness in themselves and others, additionally, that people are also able to regulate other emotions including motivation and creative thinking [3]. The Emotional Intelligence (EI) theory was proposed by Danial Goleman [2]. This theory states that the five components of EI are self-awareness, self-regulation, motivation, empathy, and social skills. Moreover, there are two models of EI, the ability-based model and the trait model of EI, according to the ability-based model there are 4 branches of EI that are ability to perceive emotions, facilitate thoughts by integrating self-emotions, understand emotions, and promote personal growth by regulating the self-emotions. Whereas, according to the trait model, which was proposed by Petrides, self-perception and emotional traits play a significant role in

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self-EI. Hence the trait model breaks the idea that EI is ability but the trait model states that it is a personality-based trait in humans [4]. In a clinical and therapeutic environment, nursing students face unique issues that lead to a lot of stress during their first clinical rotation, these problems affect the students' problem-solving skills and also affect the critical thinking skills of nursing students to achieve the complex needs of healthcare setup. Whereas, the EI is a critical aspect of being a successful and professional nursing student, and nursing students face multiple issues including difficulty in building rapport with patients, poor communication skills, inability to handle stressful situations, lack of empathy with patients, and conflict with colleagues. So, to address all these issues, it's important to identify the level of EI among public and private undergraduate nursing students. According to existing studies [5], the EI is a remarkable tool in the nursing profession including the relationship between a nurse and a patient, giving effective nursing care, and the counselling role in crucial situations. Further, in nursing practice, the EI is a significant marker [6], and there is a strong relationship between the EI and nursing attributes, including leadership in the nursing discipline [7], stress management [8], and mental well-being of nursing students [9] and also important in the caring behaviour of nursing students [10]. In addition, the nurses' emotions are very necessary for decision-making in clinical areas, and in contrast, sometimes having a lack of emotional abilities in nurses can lead to negative consequences in terms of patient care [11].

This study aims to assess the emotional intelligence level among public and private undergraduate nursing students. To assess the association of demographic variables with emotional intelligence.

METHODS

A cross-sectional study was conducted in the public and private colleges of Nursing in Karachi, Pakistan. The participants were undergraduate nursing students, including both from even and odd generic semesters. Female participants were recruited from the public college of Nursing and the male participants were recruited from the private college of Nursing. The data were collected through the online questionnaire. The questionnaire was in both languages (English and Urdu). Before the data collection, the consent form was distributed among the participants in English and Urdu versions. Initially, the data were collected from the Public College of Nursing, Before the data collection all the terms and conditions were briefly described to the students. After the Public College of Nursing, the data were collected from the Private College of Nursing, from the 22nd of June 2023- to the 15th of July 2023.It almost took 10-15 minutes to fill up the questionnaire, and all the participants had the equal right to leave the study at any time. The data collection was started after the approval of the Ethics Review Committees (ERC) and after the approval of institution letters. The convenient sampling technique was used for data collection. The sample size of 196 in the study was calculated through the WHO sample size software, by taking emotional intelligence in nursing students as 74.4%, the confidence interval was 95%, and 5% margin of error [12]. All participants were involved who were enrolled in a generic BS nursing program, the minimum age of the participant was 18 years. Moreover, all those participants who were not willing to participate in the study were in the exclusion criteria. In this study, the EI was measured through the Schutte-Self report emotional intelligence test (SSEIT) having internal consistency with Cronbach's alpha of SSEIT ranges from 0.87 to 0.90. Moreover, the tool was also validated in terms of homogeneity and internal consistency in the Pakistan context [13]. In addition, there are 03 items of demographic items and 33 items in the EI questionnaire. Gender, age, and CGPA in the last semester are the demographic variables, the EI questionnaire consists of a Likert scale (1-5), 01 denoting the strongly disagree, 02 denoting the disagree, 03 denoting neither disagree nor agree, 04 denoting agree and 05 denoting strongly agree. Each sub-test score of the participants was graded and then added together to give the total score to the participants.The cut value of SSEIT was 90, those who got (90-99) were categorized as low-average EI students, those participants who got (100-109) will be categorized as high-average EI students, and those who got (110-119) scores be marked as competent students, and (120-129) were marked as a strength, (130+) were marked as a significant strength of EI among undergraduate nursing students.Moreover, those who got (70-89) scores were marked as an improvement and less than (69) scores were marked as a development in the EI (Salovey and Sluyter.Data were analyzed through the latest version of SPSS 29.0, employing descriptive statistics such as frequencies and percentages for demographic and categorical variables.The EI was compared with demographic variables by using an Independent sample t-test, before this the Kolmogorov-Smirnov was applied to check the normality of the data.The Chi-square test was applied to check the EI association between Public and Private Undergraduate nursing.

RESULTS

In this study, the total number of participants was 196. 104 (53.3%) were male and 92 (46.9%) were female. Moreover, according to demographic information out of 195 participants, 39 (19.8%) participants were ages 15-20, and 157 (80.5%) participants had age 21-30. Furthermore, 29

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(14.79%) participants had less than 3 CGPA in the last semester, and 167 (85.5%) undergraduate students had more than 3 CGPA in the last semester. There was a significant variance found in the EI of male and female (Table 1).

Table 1: Demographic Information of the Participants (n=196)

Variables	Frequency (%)
Gender	
Male	104 (53.3%)
Female	92 (46.6%)
Age	
15-20	39 (19.4%)
21-30	157 (80.5%)
CGPA in the Last Semester	
Less Than 3	29 (14.35%)
More Than 3	167 (85.6%)
Total	196 (100.0%)

The study showed the association of demographic variables with EI total score by using an Independent sample t-test. There was no statistical variance in age with EI (Table 2).

Table 2: Association of Demographic Variables with EI Total Score by Using Independent Sample t-Test

Demographic Variables	n	Mean ± SD	t-value	p-value
Gender				
Male	104	126.1171 ± 16.72491	0.372	0.045
Female	92	125.2111 ± 13.49615		
Age				
15-20	39	123.6136 ± 19.27550	0.79	0.43
21-30	157	126.2994 ± 14.05049		
CGPA				
Less Than 3	29	120.3429 ± 20.64396	1.64	0.004
More Than 3	167	126.8434 ± 13.77524		

*Significant at α=0.05. There was a significant variance between CGPA with EI.

The above-mentioned shows that there was a significant variance found in EI with CGPA, the EI of participants who had a CGPA more than 03 had a higher score of 126.8 ± 13.7 than participants whose CGPA less than 03 had a score of 120.3 ± 20.64 (Table 3).

Table 3: Association Between Public and Private Undergraduate Nursing Students

Chi-Square Tests	Value	df	Asymptotic Significance (2-Sided)
Pearson Chi-Square	185.267[a]	49	0.002
Likelihood Ratio	253.884	49	0.006
Linear-by-Linear Association	120.566	1	0.000
N of Valid Cases	196	–	–

*Significant at α=0.05. The above-mentioned p-value showed that there was a significant difference in the level of EI between public and private undergraduate students.

The Public college participants had a more Significant strength of EI 45 (48.9%) than the participants of private college 19 (18.26). furthermore, 05 (4.8%) participants from the Private College of Nursing were included in the improvement category of EI, Whereas, 03 (3.26%) participants from the Public College of Nursing were included in the improvement category of EI. In addition to the result, no participants fall in the development category of EI (Table 4).

Table 4: Different Levels of EI among Private and Public Nursing Students

Levels of EI	Frequency (%) Public College of Nursing (Female Participants)	Frequency (%) Private College of Nursing (Male Participants)
Low Average EI students	13 (14.1%)	35 (33.65%)
High Average EI students	2 (2.17%)	06 (5.76%)
Competent students	16 (17.3%)	15 (14.4%)
Strength EI	13 (14.1%)	24 (23%)
Significant Strength of EI.	45 (48.9%)	19 (18.26%)
Improvement Category of EI.	03 (3.26%)	05 (4.8%)
Development Category of EI.	0 (0%)	0 (0%)
Total	92 (99.8%)	104 (99.8%)

DISCUSSION

According to Patel, in some studies, girls have more EI than male students [15]. Similarly, the result of this study was similar to that of Merino-Soto *et al.*, who also found that there was a statistical variance between female and male EI scores [16], and concluded that females have strong EI levels. Moreover, the result of this study contradicts Rao, and Ang, in which the study claimed that male show more EI than female [17, 18]. Some researchers stated in their studies that age is positively correlated with the level of EI [19-22], but this study shows that there is no statistical variance between age number and EI. Moreover, the CGPA result of this study was similar to Suleman *et al.*, in which the author stated that the EI is required for high academic performance [23]. The EI has had eye-catching attention in recent decades, and the EI is partly an understanding topic due to the gap that EI can be learned and developed through proper education to students [24, 25]. This study has proved that EI is directly associated with human emotional ability and students' academic performance. Moreover, it was suggested that the colleges of Nursing should design and implement the EI courses into the nursing curriculum, to strengthen the EI of nursing students and ultimately strengthen their academic performance at colleges of nursing. Furthermore, during arranging the sessions of EI, special attention must be important to identify the level of EI branches of students including 'managing emotion' and facilitating thoughts.

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CONCLUSIONS

It was concluded that the students of nursing interact with different backgrounds and cultures people. Hence, to guarantee outstanding medical care, they need to acquire new abilities and information. Moreover, In the nursing discipline, the EI plays an important role. Concerning the results, it was recommended that Emotional Intelligence (EI) instruction be incorporated into the curriculum for nursing as an entire discipline and that treatments concentrate on the functions of promoting EI's thinking and controlling its feelings. Furthermore, through this study, it has been confirmed that Public undergraduate female nursing students have a higher EI than male undergraduate nursing students. In addition to this, international studies such as randomized control trials (RCTs) have recently been conducted to evaluate the impact of Emotional Intelligence (EI) training initiatives.

Authors Contribution

Conceptualization: ASA
Methodology: ASA, MK
Formal analysis: SB
Writing review and editing: ASA

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

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Insights into Effective Communication in Higher Education: A Survey Study on its Effects on Nursing Faculty Self-Esteem and Student Learning

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ABSTRACT

Student learning outcomes together with faculty self-esteem development benefit significantly from effective communication methods within higher educational environments, especially nursing education. The ability to communicate clearly and effectively contributes to positive relationships, enhanced teaching, and improved student performance. **Objectives:** evaluate how communication effectiveness shapes nursing faculty self-esteem together with student academic results.The main objectives aim to determine which communication methods help retain faculty self-esteem while maximizing student learning opportunities in nursing education. **Methods:** A questionnaire-based assessment of nursing faculty members with students was used as the research method. The research instrument evaluated both communication processes and their relationship with faculty perception of self-esteem and student educational achievements. The researchers tested patterns and links between the study factors and communication effectiveness through data analysis. **Results:** The research data indicates that nursing faculty members who communicate well achieve better self-esteem along with students who experience improved learning outcomes. Nursing faculty who communicated with clarity and empathy along with openness achieved better self-esteem ratings but students learned better when faculty delivered effective communication messages. **Conclusions:** It was concluded that effective communication stands vital in nursing educational settings. Through specific educator recommendations about communication enhancement strategies, the professional self-esteem of faculty can improve alongside building better learning environments for students. The study demonstrates a need for ongoing educational development programs about communication competencies that can boost nursing education effectiveness.

INTRODUCTION

Effective communication in higher education is crucial for enhancing learning experiences and fostering positive relationships between faculty and students. The rising demand for communication in modern academic competition emerges from the widespread expansion of educational and industrial sectors. Effective communication serves to link different educational levels and to build student-teacher understanding as well as enable schools to reach their objectives smoothly [1]. The foundation of powerful academic organization relationships depends heavily on efficient communication approaches. The management tool performs many vital roles in decision-making while distributing information and building relationships resolving doubts serves emotional needs and safeguarding against conflicts while handling personal needs. A communications process demands both message sending along a response from receivers through feedback [2]. Training effective healthcare professionals

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stands as a crucial priority in nursing education therefore faculty-to-student communication plays an essential role [3]. Knowledge transfer and learning facilitation together with educator and learner professional development happen because of this fundamental base [4]. Effective communication practice in nursing faculty directly influences their teaching systems and directly affects both their self-esteem and professional job satisfaction. [5] Students achieve better results in school and develop new skills based directly on the quality of communication that occurs in their learning environment [6]. A pressing need exists to expand research about communication practices in nursing education even though its significance is widely acknowledged. The essential role of communication in educational contexts has received research attention although more in-depth knowledge about nursing education-specific communication challenges is needed. Medical education standards emphasize that the nurse-patient bond depends on empathy together with trust and effective communication therefore superior communication skills remain essential [7]. Research must remain continuous because the healthcare industry's transformation toward interdisciplinary patient-care models requires evaluation of nursing education programs to produce effective professionals. Research on communication within nursing education exists but there are still unknown elements about teacher-student relationship patterns that affect student learning results. The communication challenges in this context become more complicated because of power dynamics combined with different cultures and advancing educational technology [8]. Research within nursing education about communication effects on self-esteem and education. masks the lack of empirical studies measuring these relationships specifically in nursing educational practices [9]. Improved research about effective communication techniques in nursing education remains vital for the advancement of teaching methods and student success as well as quality patient care delivery. Multiple research reports identify communication as an essential nursing education component which supports both good faculty-student relationships and develops nurses' crucial communication capabilities required for clinical work [10]. Educational programs that teach communication methods have proven effective in building healthcare student capabilities coupled with increased confidence and competence in patient-care interactions [11]. Students' communication abilities benefit from interactive training methods based on role-playing simulations and reflective practice because these approaches are used in these programs [8]. Human interactions make up a fundamental part that shapes interactions between nursing education faculty members and their students. These interactions receive influence from power differences and ethnic backgrounds alongside distinct communication patterns [12]. Students develop their learning perceptions and satisfaction levels about nursing education directly through the communication strategies faculty employ for giving feedback while offering support with respect. All faculty members must strive to improve their teaching methods which enhance patient safety education while conducting assessments on their communication methods [13]. Research has demonstrated that clear, empathetic communication from faculty fosters student motivation, engagement, and academic success [14]. Supportive faculty-student communication helps students develop self-esteem together with stronger confidence and develops their professional identity thus making them ready for clinical practice demands [10]. Conversely, ineffective communication characterized by a lack of clarity, feedback, or respect can lead to disengagement, hinder learning, and negatively affect students' academic performance [11]. The analysis evidences how excellent communication methods in nursing education affect teacher morale and student educational achievement. The article emphasizes both faculty-student relationship development along with communication skill mastery and interpersonal relationship comprehension within educational settings. The text emphasizes the necessity to conduct additional research on particular communication obstacles that nursing education faces. The research goals for this study match the evaluation of communication effectiveness on faculty self-esteem alongside student learning outcomes. The study aims to inform the development of evidence-based strategies to enhance communication effectiveness and improve educational outcomes for both faculty and students.

METHODS

A quantitative cross-sectional study was conducted for four months among 70 nursing faculty members in Khyber-Pakhtunkhwa-specific regions, including Swat, Mardan, Dir, Charsadda, and Peshawar, Semi government College/University, Private College/University, Government College/University. Data were collected online (google form) through convenient sampling, and modified questionnaires were used.The link was shared Via e-mail and WhatsApp group with colleges/ universities faculty members of different colleges.The data were collected through the online questionnaire.The questionnaire was in both languages (English and Urdu).The convenient sampling technique was used for data collection [15].A total of 70 participants successfully responded. Inclusion and exclusion criteria were set on the base of teaching experience. Faculty whose experience was less than one year or non-nursing faculty and visiting faculty were

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excluded.Those who were full-time faculty and teaching experience of more than one year holding at least a Bachelor of Science in Nursing (BSN) degree were included.The questionnaire contains two sections of demographic data such as age, gender, educational background, teaching experience and institute type, and Likert scale questions contain two further segments. The 1st segment contains 10 questions regarding the "Perceptions of University Administrators' Support and Engagement in Academic Development: Likert scale survey None=0 Little=1, Frequently=2, Sometime=3, Always=4, and the 2nd segment contain 12 questions regarding "Self-Esteem and Confidence Among Nursing Faculty: A Likert Scale Assessment"Very Low=0, Low=1, Moderate=2, High=3, Very High=4. The study was analyzed using SPSS version 26.0. Initially, the responses were coded and entered into the SPSS software for processing. Descriptive statistics were employed to summarize the data, focusing on the frequency and percentage of each response to the Likert scale items. Cronbach's Alpha was computed with the minimum acceptable reliability alpha of 0.70 being sought [16]. The minimum sample size was determined using G*Power software version 3.1.9.6 [17]. This method helped to determine the distribution of participants' views on various aspects of self-esteem, communication, and faculty-student interactions. By calculating the frequency and percentage, we were able to gain insights into the overall trends and patterns in the data, providing a clear understanding of the participants' perceptions.These analyses contributed to a comprehensive evaluation of the study variables, helping to identify key areas of focus for further research and potential interventions.

RESULTS

The survey measured responses on a scale from "Little" to "Always." Findings indicate that 49.3% of faculty members believe the administration effectively communicates a clear vision for academic goals and values. About 62% feel the administration prioritizes academic program enhancement, suggesting a significant focus on improving curriculum and educational standards. Furthermore, 42% of respondents reported that the administration "Always" addresses academic performance, though 2.9% felt such discussions were minimal. Collaboration with the administration was acknowledged, but variability exists in information sharing regarding academic research and trends, with only 20.3% stating that updates are "Always" provided. Additionally, 37.7% of faculty members believe the administration. "Sometimes" supports faculty participation in academic conferences, indicating inconsistency in professional development support. Transparency in faculty evaluation remains a concern, as only 33.3% believe evaluation criteria are well-defined. Additionally, constructive feedback from the administration appears to lack regularity, emphasizing an area for improvement. Accessibility to administration is inconsistent, with a significant proportion of faculty feeling unsupported in addressing concerns. These findings highlight the need for improved communication, transparency, and administrative support to foster a more cohesive academic environment in Table 1.

Table 1: Demographic Characteristics of Participants

Demographic Variables		p-value
Age	20-30	49 (71%)
	31-40	20 (29%)
Gender	Male	53 (76.8%)
	Female	16 (23.2%)
Educational Background	Bachelor's Degree	43 (62.3%)
	Master's Degree	24 (34.8%)
	Doctoral Degree	2 (2.9%)
Institution Type	Semi Government College/University	17 (24.6%)
	Private College/University	48 (69.6%)
	Government College/University	4 (5.8%)
Years of Teaching Experience	Less Than 1 Year	17 (24.6%)
	1-5 Years	38 (55.1%)
	6-10 Years	14 (20.3%)
Academic Rank	Assistant Professor	11 (15.9%)
	Associate Professor	4 (5.8%)
	Lecturer	44 (63.8%)
	Visiting Faculty	10 (14.5%)
Employment Status	Full-Time Faculty	60 (87%)
	Part-Time Faculty	4 (5.8%)
	Visiting Faculty	5 (7.2%)

The survey assesses faculty perceptions of communication effectiveness within their institutions, using a scale from "Little" to "Always." Findings reveal that 49.3% believe the administration effectively communicates academic goals, while 62% acknowledge a strong focus on program enhancement. Although 42% report consistent discussions on academic performance, only 2.9% find such discussions minimal. Collaboration exists, but only 20.3% receive regular updates on research trends. Faculty support for academic conferences is inconsistent (37.7% "Sometimes"), and transparency in evaluations remains a concern, with only 33.3% finding criteria well-defined. Inconsistent feedback and limited administrative accessibility highlight areas for improvement in communication and institutional support as shown in Table 2.

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Table 2: Faculty Perception of Communication Effectiveness

Sr.no	Variables n (%)	Little	None	Frequently	Sometime	Always
1	The university administration provides a clear vision of the institution's academic goals and values.	2 (2.9%)	12 (17.4%)	8 (11.6%)	13 (18.8%)	34 49.3%)
2	Formal discussions led by the university administration focus on enhancing academic programs and curriculum.	6 (8.7%)	10 (4.5%)	10 (14.5%)	21 (30.4%)	22 (31.9%)
3	Formal discussions led by the university administration address academic performance metrics and student outcomes.	2 (2.9%)	8 (11.6%)	12 (17.4%)	18 (26.%1)	29 (42%)
4	Collaborative discussions with university administrators contribute to the improvement of teaching methodologies.	10 (14.5%)	6 (8.7%)	4 (5.8%)	25 (36.2%)	24 (34.8%)
5	University administrators regularly disseminate information on current academic research, trends, and initiatives.	6 (8.7%)	8 (11.6%)	17 (24.6%)	24 (34.8%)	14 (20.3%)
6	University administrators actively support and facilitate faculty participation in academic conferences, workshops, and research endeavours.	14 (20.3%)	4 (5.8%)	11 (15.9%)	26 (37.7%)	14 (20.3%)
7	The university administration encourages continuous review and enhancement of academic resources, materials, and curriculum.	8 (11.6%)	6 (8.7%)	12 (17.4%)	20 (29%)	23 (33.3%)
8	University administrators utilize transparent and well-defined criteria for evaluating faculty performance in teaching and academic contributions.	10 (14.5%)	6 (8.7%)	16 (23.2%)	23 (33.3%)	14 (20.3%)
9	Faculty receive consistent and constructive feedback from university administrators regarding their teaching methods and academic contributions.	12 (17.4%)	7 (10.1%)	12 (17.4%)	30(43.5%)	8 (11.6%)
10	University administrators maintain an open-door policy and are accessible to address faculty inquiries, concerns, and professional development needs.	16 (23.2%)	4 (5.8%)	12 (17.4%)	21 (30.4%)	16 (23.2)

Faculty members' self-perceptions on various aspects, were measured on a scale from "Very Low" to "Very High." The majority of respondents rated their self-esteem as "Moderate" (46.4%) or "High" (30.4%), with a smaller percentage (5.8%) experiencing very low self-esteem, suggesting room for improvement in fostering faculty confidence. Confidence levels were generally strong, as 43.5% rated themselves "High," and 33.3% rated "Very High," though 14.5% reported lower confidence. Regarding job satisfaction, 72.5% of faculty expressed "High" or "Very High" satisfaction. However, a notable proportion still experiences self-doubt, which could impact performance. While 72.5% of faculty believe they possess qualities that make them effective educators, a concerning 43% feel they do not take pride in their roles. Most faculty members (71%) feel valued, though efforts to recognize contributions could further enhance faculty morale. A positive attitude is maintained by 72.5%, but a small group experiences negativity in their roles, suggesting the need for institutional support in fostering a more positive work environment as shown in Table 3.

Table 3: Faculty Self-Perceptions

Sr.no	Variables n (%)	Very Low	Low	Moderate	High	Very High
1	On a scale of 1 to 5, how would you rate your overall self-esteem?	4 (5.8%)	2 (2.9%)	32 (46.4%)	21 (30.4%)	10 (14.5%)
2	Do you feel confident in your abilities as a nursing faculty member?	2 (2.9%)	8 (11.6%)	6 (8.7%)	30 (43.5%)	23 (33.3%)
3	On the whole, I am satisfied with myself.	8 (11.6%)	5 (7.2%)	6 (8.7%)	26 (37.7%)	24 (34.8%)
4	At times, I feel I am not as effective as I would like to be.	6 (8.7%)	21 (30.4%)	26 (37.7%)	12 (17.4%)	4 (5.8%)
5	I feel that I have several qualities that make me effective in my role.	2 (2.9%)	11 (15.9%)	6 (8.70%)	26 (37.7%)	24 (34.8%)
6	I can communicate effectively with students and colleagues.	2 (2.9%)	8 (11.6%)	8 (11.6%)	24 (34.8%)	27 (39.1%)
7	I feel I do not have much to be proud of in my role as a nursing faculty member.	10 (14.5%)	20 (29%)	17 (24.6%)	10 (14.5%)	12 (17.4%)
8	I sometimes feel ineffective in my role.	12 (17.4%)	19 (27.5%)	22 (31.9%)	16 (23.2%)	0 (0%)
9	I feel that I'm a valuable member of the nursing faculty team.	2 (2.9%)	4 (5.8%)	14 (20.3%)	23 (33.3%)	26 (37.7%)
10	I wish I could have more confidence in my abilities as a nursing faculty member.	5 (7.2%)	9 (13%)	12 (17.4%)	21 (30.4%)	22 (31.9%)
11	All in all, I am inclined to think that I am successful in my role as a nursing faculty member.	2 (2.9%)	9 (13%)	6 (8.7%)	30 (43.5%)	22 (31.9%)

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12	I take a positive attitude toward myself in my role as a nursing faculty member.	4 (5.8%)	9 (13%)	6 (8.7%)	20 (29%)	30 (43.5%)

The listed test has been applied, which shows the result that these findings suggest that self-esteem and confidence are positively related, but gender, job satisfaction, and experience levels do not show statistically significant differences in the surveyed faculty as shown in Table 4.

Table 4: Listed Test Applied for Gender, Job Satisfaction, Self-Esteem, and Confidence

Sr.no	Test	Variables Tested	Statistics	p-value	Interpretation
1	Chi-Square Test	Gender vs. Job Satisfaction	2.743	0.601	No Significant Association
2	Independent t-Test	Gender vs. Confidence Level	1.126	0.264	No Significant Difference
3	One-Way ANOVA	Job Satisfaction across Experience Levels	0.405	0.668	No Significant Difference
4	Correlation Analysis	Self-Esteem and Confidence	0.532	<0.001	Moderate Positive Correlation

DISCUSSION

Effective communication in nursing education significantly influences faculty self-esteem and student learning outcomes Health professionals, including nursing educators, must continuously adapt to innovations in healthcare and evolving patient expectations to enhance service quality and efficiency. In this context, psychological empowerment becomes essential, particularly for nursing faculty, as they navigate the complexities of higher education and healthcare systems [18]. Psychological empowerment, defined as intrinsic motivation and self-control in work, is essential for fostering self-esteem and resilience. Empowered employees feel more capable, supported, and involved in their work, which leads to higher productivity and job satisfaction. This concept is particularly relevant in nursing education, where empowering faculty can enhance teaching effectiveness, improve self-esteem, and foster better student outcomes [19]. Communication is essential in nursing, improving student performance and enabling effective interactions with diverse individuals. A descriptive cross-sectional study was conducted in the Nursing Department of the Faculty of Health Sciences at Foundation University in Istanbul in nursing education, strong communication skills enhance self-confidence and prepare students to handle clinical situations and collaborate effectively with healthcare teams [20]. Nurses interact with patients, colleagues and other healthcare professionals daily, and this interaction is improved when nurses have good communication skills. Several studies have suggested that nurses lack assertiveness skills and that this deficiency in assertiveness results in diminished communication efficacy, thus compromising patient care [21]. Effective classroom management relies heavily on teachers' communication skills. By employing appropriate communication strategies, teachers can promote learner autonomy, engagement, self-concept, and well-being, all of which contribute to managing student behaviour effectively [22]. By utilizing appropriate communication strategies, nurses can better manage patient behaviour, especially in challenging psychiatric settings, improving patient satisfaction and outcomes [23].

CONCLUSIONS

It was concluded that Gender-related differences in achievement may arise due to societal expectations, self-efficacy, and confidence levels in certain disciplines. It can diversify faculty perceptions, indicating areas where university administrations can enhance communication, accessibility, and transparency. Research-intensive universities may provide more opportunities for innovation, while teaching-focused institutions may prioritize different learning methodologies.

Authors Contribution

Conceptualization: S[1]
Methodology: IAA, SA, MN, NZ, S[2]
Formal analysis: S[1], AR
Writing review and editing: S[1]

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Knowledge and Practices of Intensive Care Unit Nurses Regarding Endotracheal Tube Suctioning at Tertiary Care Hospital

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ABSTRACT

One of the ten most important nursing interventions is Endotracheal Aspirating (ETS) that critical care nurses provide to intubated patients. The ICU nurse is responsible for performing endotracheal suction, which helps mechanically ventilated patients who are unable to clear their airways of secretions and improves oxygenation and ventilation. **Objective:** To evaluate the expertise and behaviors of critical care nurses in tertiary care hospitals with regard to endotracheal tube suctioning. **Methods:** This study employed a cross-sectional design with purposive sampling. A total of 150 staff nurses were included as the research population. **Results:** As the study followed a descriptive cross-sectional approach, descriptive statistics were utilized. Frequency distribution was calculated, and data normality was assessed. The study reported that the participants with good knowledge were 55 (39.3%) and the participants with moderate knowledge were 50 (35.7%) and those with poor knowledge were 25 (25.0%). The participants with Good Practice were 78 (52.0%) and participants with Poor Practice were 72 (48.0%). **Conclusion:** The majority of nurses had excellent understanding and appropriate procedures about suctioning endotracheal tubes, according to the study's findings.

INTRODUCTION

Maraş GB *et al.*, in 2017 emphasized that suctioning is an important nursing technique when a patient in the rigorous overhaul unit has an endotracheal pipe (ETT) [1]. Aboalizm SE and Elhy AH in 2019 suggested that a patient has a ventilator placed in place, vacuuming is the surgical aspiration of lung fluids [2]. Raoof AA and Baeez YK in 2024 emphasized that in a healthy person, the cough reflex, the local immune system, and the action of ciliated cells in the airways are all necessary for the destruction and removal of microorganisms as well as the removal of waste from the lungs [3]. Aboalizm SE and Elhy AH in 2019 suggested that critical care nurses provide to intubated patients. The ICU nurse is responsible for performing endotracheal suction, which helps mechanically ventilated patients who are unable to clear their airways of secretions and improves oxygenation and ventilation [2]. Endoscopic sucking involves applying low pressure to the lungs while a catheter with suction is placed into the throat via an endotracheal tube to remove bronchial secretions, is one component of respiratory sanitization healing for mechanically ventilated patient. Aboalizm *et al.*, in (2019) found that endotracheal suctioning prevents the buildup of excessive secretions in the lungs, preserves airway integrity by reducing bacterial accumulation, ensures optimal oxygenation, and ultimately helps save patients' lives [2]. Aboalizm *et al.*, in (2019) found that high technical proficiency in suctioning is necessary

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for nursing care of these individuals since it has been shown to be a potentially dangerous treatment linked to a number of consequences, including trauma, a narrowing of hypoxemia, and heart failure, lesion of the tracheal mucosa, bleeding, elevate intracranial pressure and death [2]. The future prospects of patients, including the decrease of morbidity, mortality, duration of hospitalizations, and expenses, is directly impacted by the proper method and conformity to ETS standards. However, nurses often do ETS with insistence to standard practices [4, 5]. According to current study guidelines, it is expected that between 30 and 40 percent of these individuals do not get treatment, and at least 20 percent receive possibly hazardous care [6]. There are different approaches of endotracheal suction, including closed suctioning, uncluttered suctioning, and in-line suctioning [7]. Closed suctioning is a method in which the drain remains bounded in a wrapper during the suction process to reduce the risk of contamination and oxygen desaturation [8]. Open suctioning involves removing the endotracheal tube from the patient's mouth or nose to perform the suctioning procedure, and in-line suctioning is a method in which the intubation tube has a unique adaptor that is used to insert the evacuation pump [9, 10].

METHODS

The study employed a cross-sectional design. A purposive sampling technique was utilized, and the study population comprised staff nurses from the medical wards, surgical wards, and intensive care unit of Jinnah Hospital, Lahore. The study was conducted at Jinnah Hospital, Lahore, over a duration of nine months. The sample size was 142, calculated using Slovin's formula. Data were collected using an adapted questionnaire assessing the knowledge and practice of intensive care unit nurses regarding endotracheal tube suctioning. Student nurses, internship nurses, and newly employed nurses were excluded from the study. Following data collection, the information was analyzed using SPSS version 22.0.

RESULTS

This demographic table showed that majority of age group with 25-30 years. Majority of population were female, with single marital status. Majority of the nurses with 1-5 years' experience, with Diploma in Nursing. Majority of nurses working were in ICUs, with good acquaintance concerning "How repeatedly should endotracheal suction to being ended". Mainstream of the Participants have good knowledge regarding "which is the best method of suctioning". Majority of the Contributors have good familiarity concerned. While giving nasotracheal suctioning to an adult patient, suction catheter should be inserted up to'. "Maximum time limit for an endotracheal suctioning"(Table 1).

Table 1: Demographic Characteristics of ICU Nurses

Variables	Category	Frequency (%)
Age	21-25 Years	19 (12.7%)
	26-30 Years	80 (53.3%)
	31-35 Years	49 (32.7%)
	36-40 Years	2(1.3%)
Gender	Male	29 (19.3%)
	Female	121 (80.7%)
Marital Status	Single	39 (26.0%)
	Married	111 (74.0%)
Experience	1-5 Years	25 (16.7%)
	6-10 Years	99 (66.0%)
	11-15 Years	26 (17.3%)
Qualification	Diploma in Nursing	47 (31.3%)
	Post RN	87 (58.0%)
	BSN (Generic)	16 (10.7%)
Department	ICU	100 (66.7%)
	Emergency	26 (24%)
	Medical Wards	34 (%)
	Surgical Wards	3 (3%)

The data highlighted varying practices in endotracheal suctioning among healthcare professionals. While most follow recommended guidelines, inconsistencies in suction frequency, technique, and duration indicate a need for further training. Standardized protocols can help improve patient safety and care quality (Table 2).

Table 2: Knowledge Questionnaire on Endotracheal Suctioning Among ICU Nurses

Questions	Response	Frequency (%)
How often should laryngeal or throat suctioning be performed?	Every 2 Hours	24 (16.0%)
	Every 1 Hour	50 (33.3%)
	When Required	68 (45.3%)
	I Do Not Know	8 (5.3%)
Which is the finest technique for suctioning?	Disclosed Method	61 (40.7%)
	Openly Method	43 (28.7%)
	Both A and B	43 (28.7%)
	Don't Know	10 (6.7%)
Would a suction device be placed up to while administering nasotracheal vacuuming to a grown-up receptive?	10-15 cm	32 (21.3%)
	16-20 cm	68 (45.3%)
	21-25 cm	40 (26.7%)
	26-30 cm	10 (6.7%)
What is the permitted duration of an exhaustion procedure?	15 Seconds	34 (22.7%)
	20 Seconds	73 (48.7%)
	25 Seconds	30 (20.0%)
	30 Seconds	17 (11.3%)

When it came to "Auscultate respiratory sounds," the majority of those tested were proficient. A good deal of participants followed best practices when it came to "explaining the entire process to the individual." identifies vacuuming indicators. Majority of the participants were negative practice regarding "Places the patient in supine position with head slightly extended (Table 3).

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Table 3: Practice Questionnaire on Endotracheal Suctioning Among ICU Nurses

Questions	Response	Frequency (%)
Auscultate breath sounds	Done	109 (72.7%)
	Not Done	41 (27.3%)
Explain the procedure to the patient	Done	103 (68.7%)
	Not Done	47 (31.3%)
Identifies indications for suctioning	Done	114 (76.0%)
Places the patient in supine posture with the head somewhat outstretched	Not Done	36 (24.0%)
	Done	115 (76.7%)
	Not Done	35 (23.3%)

DISCUSSION

The present study assessed the knowledge and practices of Intensive Care Unit (ICU) nurses regarding endotracheal tube suctioning. The findings indicated variability in adherence to best practices, reflecting both gaps in knowledge and inconsistencies in technique. The results showed that 45.3% of participants performed suctioning only when required, while 40.7% preferred the closed suction method. The majority (79.6%) correctly identified that a nasotracheal aspiration catheter should be placed up to 16–20 cm in adult patients. Similarly, 76.0% of participants appropriately responded regarding the insertion depth for nasotracheal suctioning, and 71.3% adhered to the recommended suction duration of 20 seconds. However, discrepancies in following protocols were observed, such as only 49.7% explaining the procedure to the patient before suctioning, indicating areas for improvement in patient communication and education. These findings align with prior literature on the subject. The basis for assessing endotracheal suctioning techniques by critically examining the effectiveness of normal saline instillation [11]. Tembhare V and Singh S in (2021) emphasized the patient's perspective, highlighting the distress and discomfort experienced by ICU patients undergoing mechanical ventilation, reinforcing the need for evidence-based, patient-centered approaches [12]. Several studies have examined adherence to suctioning guidelines and knowledge gaps among critical care nurses. Jansson et al., in (2019) found inconsistencies in suctioning practices, while Majeed in (2017), Varghese and Moly in (2016), identified variations in skill levels among ICU nurses [13-16]. By further reinforcing these findings through a critical review of the available evidence on suctioning protocols [17, 18]. Pinto *et al.*, in (2020) provided a systematic review of suctioning knowledge and practice, complementing Salih's in (2017) dissertation, which assessed the suctioning performance of nurses in a military hospital setting [19, 20]. Infection control remains a crucial aspect of suctioning. Sharif *et al.*, in (2019) evaluated nurses' adherence to personal protective equipment (PPE) [21, 22]. Stacy in (2020) provided a comprehensive review of suctioning procedures, reinforcing the need for strict adherence to infection prevention measures [23]. Zeb *et al.*, in (2017) contributed a regional perspective by analyzing ICU nurses' practices in tertiary care hospitals in Peshawar [24]. Beyond suctioning practices, Tarar QR *et al.*, in (2024) extended the discussion to post-ICU transitions, underscoring the role of nursing care in ensuring a smooth recovery for patients [25]. Based on the findings of this study, several recommendations emerge. Future research should explore the impact of ongoing educational programs on improving ICU nurses' knowledge and skills related to suctioning. Additionally, simulation-based training should be investigated as a method to enhance nurses' confidence and proficiency. The effectiveness of standardized protocols and quality assurance programs in improving adherence to best practices and reducing complications should also be examined. Implementing these measures could lead to improved patient outcomes and a more standardized approach to endotracheal suctioning in ICU settings.

CONCLUSIONS

The current study concluded that the intensive care nurses have good knowledge and good practice regarding endotracheal tube suctioning it is clear that the intensive care unit nurses have a strong foundation of knowledge and practice regarding endotracheal tube suctioning. However, to further enhance their skills and stay updated with the latest advancements, it would be beneficial to implement ongoing educational programs. These programs can provide opportunities for continuous learning, allowing nurses to expand their knowledge, refine their techniques, and stay abreast of any new developments in the field. By investing in further educational programs, we can ensure that the nurses continue to provide the highest level of care to their patients.

Authors Contribution

Conceptualization: OA
Methodology: HS
Formal analysis: HS
Writing, review and editing: HS, SST

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Prevalence and Severity of Malnutrition among Intensive Care Patients in a Government Tertiary Care Hospital in Swat

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ABSTRACT

Malnutrition is a prevalent issue among critically ill patients in Intensive Care Units (ICUs), significantly impacting morbidity, mortality, and healthcare costs. **Objective:** To assess the prevalence and severity of malnutrition among critically ill patients admitted to the Intensive Care Unit (ICU) of a government tertiary care hospital in Swat. **Methods:** This cross-sectional study was conducted at a government tertiary care hospital in Swat to assess the prevalence and severity of malnutrition among ICU patients. A sample of 80 ICU patients was selected using a non-probability convenience sampling technique, and data were collected using the Modified Nutrition Risk in Critically Ill (mNUTRIC) Score, Sequential Organ Failure Assessment (SOFA) Score, and Acute Physiology and Chronic Health Evaluation II (APACHE-II) Score. **Results:** The findings revealed that 71.3% of patients had multiple comorbidities, and 51.25% experienced severe organ dysfunction (SOFA score ≥8). Additionally, 37.5% of patients were at high nutritional risk (mNUTRIC score ≥5). **Conclusions:** The study demonstrated a significant association between malnutrition and adverse clinical outcomes, including prolonged ICU stays, increased severity of illness, and higher mortality risk. Comparisons with previous studies suggested that malnutrition prevalence among ICU patients in Swat is comparable to global trends. Addressing malnutrition through early identification and targeted nutritional interventions can improve patient recovery and reduce healthcare burdens. The study highlights the need for integrating standardized nutritional assessment protocols in ICU settings to enhance patient outcomes.

INTRODUCTION

Malnutrition is extremely prevalent in severely ill people and common among hospitalized patients. Increased morbidity, mortality, nosocomial infection rates, longer hospital stays, worse functional status upon discharge from Intensive Care Units (ICUs), and higher hospital expenses are all linked to malnutrition [1]. While there is no commonly accepted definition, malnutrition is generally understood to be a decrease in lean body mass that may result in functional impairment.1. Inadequate intake, with or without increased needs, poor absorption, changed transport or nutrient utilization, or a combination of these problems are usually the variables that cause it [2]. Although malnutrition is rather uncommon in older adults living independently (5–10%), the risk of malnutrition rises significantly among those in hospitals. After conducting a Subjective Global Assessment (SGA) on 311 elderly patients (those over 70) [2]. Additionally, another study found the prevalence of patients identified with high nutritional risk was 53.9% and 13%, respectively [3]. Furthermore, Malnutrition in children, while infrequent in industrialized nations, continues to be a significant issue in numerous developing countries. According to estimates, over 3% of children worldwide were severely wasted in 2012, and 26% of children were stunted. The mere fact that a child was

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underweight was the cause of 45% of all deaths in children younger than five. Sub-Saharan Africa and Southern Asia are the regions where malnutrition is most prevalent. In healthcare settings with limited resources, managing Severe Acute Malnutrition (SAM) effectively is extremely difficult. There is a pressing need for more efficient malnutrition prevention and treatment [4]. Critical illness, stress, sepsis, trauma, surgery, and burns can all cause a systemic inflammatory response. The body needs more nutrients as a result. Significant muscle protein loss, changed hormone secretion, reduced physical activity, increased inflammatory mediators, and tissue perfusion blockages have all been noted in critically ill patients, all of which lengthen the time that mechanical ventilation is necessary [5]. An intensive care unit patient is considered malnourished if their intake of calories, both internal and external, is not enough to meet their metabolic requirements. It has been stated that 50% of critically ill patients suffer from malnutrition, depending on the criterion and the population under study [6]. Malnutrition is a widespread and subtle issue among intensive care patients in tertiary care hospitals, affecting approximately 45% of this population. This condition leads to heightened morbidity, mortality, and healthcare expenditures. Despite its significance, the prevalence and severity of malnutrition in this population remain unclear, hindering the development of effective prevention and treatment strategies. 20% to 50% of patients in acute care settings have been documented to be malnourished, with predicted higher [7]. About 2 billion people worldwide suffer from malnutrition, one of the worst health issues. Early childhood development is significantly impacted by several factors, such as poverty, food insecurity, maternal health, and nutritional status, the mother's age at marriage and educational attainment, low birthweight or Small for Gestational Age (SGA), premature births, inadequate breastfeeding, unhealthy dietary and lifestyle patterns, the health and immunization status of children, the socioeconomic status of the family, environmental and household conditions, as well as cultural practices and myths [8]. There are global treatment standards for maintaining appropriate nutrition in patients with chronic liver disease, but both patients and doctors in Pakistan lack adequate knowledge and experience with nutritional counseling. Vital sign recording and nutritional status assessment must be prioritized during the first visit. To properly educate patients based on appropriate scientific data, treating physicians must also be made aware of the misunderstandings regarding nutritional hinders [9]. Among intensive care unit patients, malnutrition is a major problem that raises the risk of complications, lengthens hospital stays, and increases death.

This study will assist medical professionals in creating evidence-based nutritional programs by determining the prevalence and severity of the condition. This will guarantee prompt interventions that can enhance recovery rates and lower consequences like infections and delayed wound healing. Furthermore, by knowing the prevalence of malnutrition, hospital managers and legislators would be better able to allocate funds for nutrition support programs, which will improve regional healthcare delivery.

METHODS

The Cross-sectional study was conducted at a tertiary care hospital in swat in the intensive care unit. This study was conducted at a tertiary care hospital in Swat, specifically focusing on patients admitted to the Medical Intensive Care Unit (MICU). This study targeted critical patients receiving care in the Medical Intensive Care Unit at a tertiary care hospital in Swat. The study was approved by the Institutional Review Board (IRB) under reference number NINHS/Admin/355-10/2024, and the research was conducted over 3 months. Patient/participants' consent was obtained before data collection as per ethical guidelines. A non-probability convenience sampling technique was employed to select 80 patients for this research study, with sample size calculation performed using an Open Epi calculator to ensure a 95% confidence level. Patients admitted to the Intensive Care Unit (ICU) at Government tertiary care hospital in Swat. (SGTH). The Inclusion Criteria were Patients admitted to the Intensive Care Unit (ICU) of tertiary care hospitals in Swat. 2. Age ≥ 18 years. 23 3. Patients who require mechanical ventilation or have a high risk of malnutrition (e.g., those with severe trauma, burns, or sepsis). Patients who have been in the ICU for at least 48 hours. Patients or their legal representatives provide informed consent. The exclusion criteria were patients with a known history of malabsorption or malnutrition before ICU admission, patients who were pregnant, patients who had been transferred from another ICU or hospital, patients with a history of eating disorders or psychiatric conditions that may impact nutrition, and patients who were not expected to survive for more than 72 hours. The Modified Nutrition Risk in Critically Ill (mNUTRIC) Score was used in this study as a tool to assess the nutritional risk of ICU patients based on key clinical parameters, including age, severity of illness (APACHE-II and SOFA scores), number of comorbidities, and time from hospital admission to ICU admission. Patients were categorized into two groups based on their total score. Those with an mNUTRIC score of 0-4 were classified as low nutritional risk, typically characterized by younger age (<50 years), fewer comorbidities (0-1), lower severity of illness (APACHE-II <15 and SOFA <6), and immediate ICU admission (<1 day from hospital admission). On the other hand, patients with an mNUTRIC score of 5-9

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were considered high nutritional risk, often older (≥50 years), with multiple comorbidities (≥2), higher severity of illness (APACHE-II ≥15 and SOFA ≥6), and a delayed ICU admission (≥1 day from hospital admission). The study was approved by the research committee. Subsequently, permission was obtained from the ICU ward in charge to collected data from patient charts. Data were collected from ICU patients, some of whom were bedridden. The Sequential Organ Failure Assessment (SOFA) score and Acute Physiology and Chronic Health Evaluation II (APACHE II) score were utilized to assess the severity of malnutrition. Descriptive statistics was used to calculate the prevalence and severity of malnutrition, summarizing categorical variables using frequencies and percentages, and continuous variables using means and standard deviations. Results were presented in tables to support the findings. Informed consent was obtained from patients or their legal representatives before participating in the study. Patient confidentiality and anonymity were maintained throughout the study. The study prioritized patient well-being and safety, minimizing harm and risk. Fair selection of participants is crucial, avoiding bias and ensuring equal access.

RESULTS

Table 1 shows that among 80 ICU patients, 63.7% were below 50 years, 26.3% were between 50-75 years, and 10% were above 75 years. Most patients (98.8%) stayed in the ICU for more than a day. Additionally, 71.3% had two or more comorbidities, while 28.7% had only one comorbidity, highlighting the high prevalence of multiple health conditions among ICU patients.

Table 1: Age Distribution, ICU Admission Duration, and Comorbidities

Category	Frequency (%)
Age Group	
Less than 50 Years	51 (63.7%)
50 - 75 Years	21 (26.3%)
More than 75 Years	08 (10.0%)
ICU Stay Duration	
Less than 1 Day	1 (1.3%)
More than 1 Day	79 (98.8%)
Number of Comorbidities	
One	23 (28.7%)
Two or More	57 (71.3%)

Table 2 summarizes the clinical parameters of 80 ICU patients. About 25% had a PaO_2/FiO_2 ratio below 400, while 33.8% had mean arterial pressure below 70 mmHg, with some requiring vasopressor support. Most patients (76.3%) had normal bilirubin levels, while a small percentage had elevated liver enzymes. Renal function assessment showed that 66.3% had creatinine levels below 1.2 mg/dl, while 12.6% had significantly high levels (>3.5 mg/dl). Platelet count varied, with 41.3% having normal levels, while 37.6% had dangerously low counts (<50k). Lastly, 43.8% had a normal GCS score, but 45% had moderate to severe impairment.

Table 2: Clinical Parameters of ICU Patients (SOFA)

Category	Frequency (%)
PaO_2/FiO_2 Ratio	
Less than 400	20 (25.0%)
More than 400	60 (75.0%)
Less than 70	27 (33.8%)
Mean Arterial Pressure (mmHg)	
More than 70	46 (57.5%)
Dopamine < 5	06 (7.5%)
Dopamine > 15 and Norepinephrine	01 (1.3%)
Liver Enzymes (Bilirubin mg/dl)	
Less than 1.2	61 (76.3%)
1.2 - 1.9	12 (15.0%)
2.0 - 5.9	04 (5.0%)
6.0 - 11.9	02 (2.5%)
More than 12	01 (1.3%)
Renal Clearance (Creatinine mg/dl)	
Less than 1.2	53 (66.3%)
1.2 - 1.9	15 (18.8%)
2.0 - 3.4	02 (2.5%)
3.5 - 3.9	05 (6.3%)
More than 5	05 (6.3%)
Platelet Count	
Normal	33 (41.3%)
Less than 150k	13 (16.3%)
Less than 100k	04 (5.0%)
Less than 50k	15 (18.8%)
Less than 20k	15 (18.8%)
GCS Score	
Normal	35 (43.8%)
13-14	06 (7.5%)
10-12	03 (3.8%)
6-9	20 (25.0%)
Less than 6	16 (20.0%)

Table 3 presents the distribution of APACHE-II (Acute Physiology and Chronic Health Evaluation II) score parameters among ICU patients, highlighted key physiological variables critical for assessing the severity of illness and predicting clinical outcomes.

Table 3: APACHE-II Score Variables of ICU Patients

Variables	Category	Frequency (%)
Temperature (°C)	36 - 38.4	24 (30.0%)
	38.5 - 39	42 (52.5%)
	39 - 40.9	12 (15.0%)
	>41	2 (2.5%)
Heart Rate (Beats/min)	70 - 109	53 (66.3%)
	110 - 139	22 (27.5%)
	140 - 179	4 (5.0%)

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	>180	1 (2.5%)
Respiratory Rate (Breaths/min)	12 - 24	41 (51.2%)
	25 - 34	27 (33.8%)
	35 - 49	9 (11.3%)
	>50	3 (3.8%)
Arterial Blood Gas (pH)	7.33 - 7.49	46 (57.5%)
	7.5 - 7.59	6 (7.5%)
	7.25 - 7.32	17 (21.3%)
	7.15 - 7.24	5 (6.3%)
	<7.14 or >7.7	6 (7.5%)
Serum Sodium (mEq/L)	130 - 149	67 (83.8%)
	150 - 154	8 (10.0%)
	155 - 159	4 (5.0%)
	>180	1 (2.5%)
Serum Potassium (mEq/L)	3.5 - 5.4	50 (62.5%)
	5.5 - 5.9	20 (25.0%)
	6.0 - 6.9	3 (3.8%)
	2.5 - 2.9	5 (6.3%)
	<2.5 or >7	2 (2.5%)
Hematocrit (%)	30 - 45.9	69 (86.3%)
	46 - 49.9	5 (6.3%)
	<29.9 or >50	6 (7.5%)

Table 4 presents the APACHE-II score parameters recorded for 80 ICU patients. Most patients (52.5%) had a temperature between 38.5 - 39°C, while only 2.5% had a fever above 41°C. The majority (66.3%) had a normal heart rate (70 - 109 bpm), but 2.5% had dangerously high rates (>180 bpm). Respiratory rates varied, with 51.2% having normal values (12 - 24 breaths/min) and 3.8% showing severe tachypnea (>50 breaths/min). Arterial blood gas analysis revealed 57.5% of patients had a normal pH (7.33 - 7.49), while 7.5% had dangerously low or high pH levels (<7.14 or >7.7). Serum sodium levels were normal (130 - 149 mEq/L) in 83.8% of cases, but a few patients (2.5%) had dangerously low or high values (>180 mEq/L). Similarly, potassium levels were normal (3.5 - 5.4 mEq/L) in 62.5% of cases, but some (2.5%) had extreme abnormalities (<2.5 or >7 mEq/L). Lastly, hematocrit levels were within the normal range (30 - 45.9%) for 86.3% of patients, with 7.5% showing dangerously low or high values (<29.9 or >50%).

Table 4 presented an integrated view of the organ dysfunction severity (SOFA Score), disease severity (APACHE Score), and nutritional risk (NUTRIC Score) in ICU patients.

Table 4: Severity and Nutritional Risk Scores

Score Category	Range	Frequency (%)
Sofa Score	2 to 4 (Mild organ dysfunction)	22 (27.5%)
	5 to 7 (Moderate organ dysfunction)	17 (21.25%)
	8 or above (Severe organ dysfunction)	41 (51.25%)
APACHE Score	Low Severity (0 to 10)	41 (51.25%)
	Moderate Severity (11 to 20)	31 (38.75%)
	High Severity (Score above 21)	10 (10.00%)
NUTRIC Score	Low Nutrition Score (0-4)	50 (62.5%)
	High Nutrition Score (5-9)	30 (37.5%)

DISCUSSION

With its substantial effects on morbidity, mortality, and overall clinical outcomes, malnutrition is a serious problem for patients in Intensive Care Units (ICUs) [10]. Hypermetabolism, catabolism, and inflammatory reactions are common in critically ill individuals, which causes their nutritional stores to be rapidly depleted. Impaired immune function, delayed wound healing, prolonged mechanical breathing, and longer hospital stays are all linked to malnutrition in intensive care unit patients, which ultimately lowers survival rates. This study aims to assess the prevalence and severity of malnutrition in ICU patients using standardized scoring systems like the NUTRIC Score, SOFA Score, and APACHE-II Score. Current findings reveal that 71.3% had two or more comorbidities, while 28.7% had only one comorbidity. While another study found that (75.5%) had multiple comorbidities [11]. The current findings show that 51% have severe organ dysfunction. In contrast, another study found that 91.3 percent of patients do not have organ dysfunction [12]. The findings indicate that 62.5% (50 patients) had a low nutrition risk (score 0-4), whereas 37.5% (30 patients) had a high nutrition risk (score 5-9. In this regard, another study employed a quantitative, prospective, observational design. 129 mechanically ventilated patients were selected as a convenience sample from intensive care units in seven hospitals located among the various healthcare sectors in Jordan. At the time of ICU admission, about 88.4% of patients on mechanical ventilators were at high risk of malnutrition [13]. Similarly, another research found out Among ICU patients, the combined prevalence of nutritional risk was considerably higher (92.2%) [14]. Another retrospective, cross-sectional investigation was carried out in a mixed intensive care unit of a public hospital. There were 380 patients in the sample who were at least 18 years old, and 57.6% of them had malnutrition. 64.4% of those were classified as moderate and severe in 35.6% [11]. Furthermore, a study shows Malnutrition after 1 year of ICU admission was found in 8.1% of ICU survivors. Interestingly, malnutrition after ICU admission was linked to a higher risk of death among ICU survivors during 1 to 5 years of ICU admission [15]. Moreover, another study found Malnutrition was present in 13% of the population [16]. In addition, another study found merely 35% of individuals who are malnourished [17]. A previous study involved 200 medical adult intensive care unit patients and was prospective and observational. Daily paperwork served as the basis for the investigation. When medical patients were admitted to the adult intensive care unit, their nutritional state was the main result. Of the 200 patients in this study, mild, moderate, and severe malnutrition affected 45%, 48.5%, and 9% of the patients, respectively [18].

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Correspondingly, the study, which had 390 elderly sepsis patients, revealed notable differences between the groups that were malnourished and those that were well-nourished in terms of comorbidities, disease severity, and demography. The rate of ICU hospitalization was greater for malnourished patients (52.82%). Elderly sepsis patients who suffer from malnutrition have far worse outcomes, with higher ICU hospitalizations, ventilator requirements, fatality rates, and readmissions; this highlights the importance of early nutritional therapy [19]. Because malnutrition impairs immunity, patients are more vulnerable to infections like bloodstream infections, urinary tract infections, and ventilator-associated pneumonia. Immunity is already weakened in intensive care unit patients, and malnutrition raises the risk of morbidity and death much more [20, 21].

CONCLUSIONS

The substantial burden of severe disease and malnutrition among intensive care unit patients is highlighted by this study. About half (48.75%) had moderate to high disease severity based on APACHE-II scores, and a significant percentage (51.25%) had severe organ dysfunction (SOFA ≥8). Furthermore, 37.5% of patients were considered to be at high nutritional risk, highlighting the possible influence of malnutrition on clinical results. Early detection and focused nutritional therapies are essential for enhancing patient recovery and lowering ICU morbidity and mortality since malnutrition is strongly linked to the severity of the disease and a poor prognosis.

Authors Contribution

Conceptualization: SS, SB
Methodology: LU, BAK, SU, MH
Formal analysis: AK
Writing, review and editing: SS, KU, AB, LU, BAK, SU, HK, MH
All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Health-Related Quality of Life among Nurses Working in Public Sector Hospitals of Khyber Pakhtunkhwa

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ABSTRACT

Health-related quality of life (HRQL) is a multidimensional concept that encompasses physical, psychological, social, and environmental factors. Numerous pressures are affecting nurses' physical and emotional well-being and everyday functioning, which in turn is harming their HRQL. **Objectives:** To assess HRQL among nurses and identify factors that may influence their quality of life. **Methods:** A descriptive cross-sectional study involving 375 nurses from four public sector hospitals in Khyber Pakhtunkhwa, Pakistan, selected through a convenient sampling technique. Data were collected through a structured questionnaire. Data have been analyzed descriptively to calculate the frequencies, percentages, mean, and standard deviation. Data were analyzed by SPSS version 22.0. **Results:** Most of the nurses (51.2%) were in the group age group of 26-30 years with nearly equal gender distribution. The environmental domain exhibited the highest mean Health-related quality of life score (27.23). Notably, a weak positive correlation was observed between age and the social domain ($r=0.181^{**}$, $p<0.001$). Conversely, a weak negative correlation was noted between education and the social domain ($r=-0.123$, $p=0.017$). Significant differences were found in mean scores for the Age, Physical, and Environmental domains (p-values of 0.010 and 0.011). **Conclusions:** It was concluded that this study emphasized the importance of addressing physical and psychological challenges faced by nurses to enhance their overall well-being. Furthermore, the study highlighted the influence of demographic factors on nurses' HRQL, offering valuable insights for tailored healthcare interventions and support programs.

INTRODUCTION

Health-related quality of life (HRQL) reflects an individual's satisfaction with life aspects influenced by health. Quality of Life (QoL) is a broader concept that measures overall well-being, while HRQL focuses on the impact of physical, mental, social, and environmental factors on health [1]. In healthcare, HRQL is crucial for evaluating hospital staff effectiveness. Healthcare professionals, particularly nurses work to improve healthcare access and quality, promote health, and prevent illness [2]. Yet there hasn't been much focus on improving the standard of living for Pakistani hospital staff. Since hospital personnel'(HRQL) is directly tied to their quality effectiveness, governments should give this careful consideration [3]. Nurses often face stressors like death, illness, and demanding work environments, which can negatively affect their HRQL by weakening their physical and mental health. Poor nurse health is linked to compromised patient care, safety, and increased medication errors. Studies show that nurses with poor health report lower HRQL [4, 5]. Different studies have reported poor psychological domain in the health-related quality of life [2]. Various factors can impact nurses' quality of life. Burnout (BO) among nurses may affect their productivity, quality of life, and ability to provide nursing care. Burnout among nurses has been linked to low quality

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of life [6]. Another study has found that the most significant factors contributing to the nurses' low QWL were their insufficient and unfair compensation, a lack or poor system of issues resolution in the organization, lack of appraisal, job insecurity, highly stressful working environment, unethical advancement practices, and insufficient participation in decision-making [7, 8]. The physical and social aspects of a hospital setting have an impact on nurses' health-related quality of life, a workplace that is not suitable makes it difficult for nurses to maintain their physical and psychological well-being at work [9]. A study conducted showed that Iranian nurses had moderate HRQL, which was needed to improve the standard of care offered to patients [10]. Additionally, nurses had a higher-than-average work-life quality, which meant that nurses' quality of life scores were higher on rotating shifts [11]. HRQL has been progressively acknowledged in a variety of patient-reported outcomes in Pakistan, where living conditions, public health improvements, and medical care are all improving daily. The place of residence, House Occupant, ageing, Sexuality, City, Studies, and Profession were among the demographic factors that indicated that they have a substantial impact on HRQOL. Furthermore, Health-related population norms can influence Pakistan's general people's health and age-related declines in standards and values are evident in this study of Pakistanis; women had worse health across the board than men [12]. According to a study which shows that nurses with LBP (low back pain) due to their jobs have a much lower quality of life. The duties of the nurses and the standard of medical care would both be significantly impacted by this consequence [13]. According to the investigation, working as a manager, secretary, or welder predicts a lower HRQL mental constitutes, whereas limited resources and little physical exercise are linked to a lower HRQL physical aspect [14]. In Pakistan, little attention has been given to improving the QoL for hospital employees. HRQL is a crucial factor in enhancing hospital employees' well-being, which in turn leads to better performance, more efficient healthcare delivery, and improved service outcomes. Policymakers must prioritize HRQL for hospital employees, as it directly impacts their performance. This study aims to address this gap by providing valuable insights to guide efforts to improve nurses' quality of life in Khyber Pakhtunkhwa.

This study aims to investigate HRQL among nurses and identify factors that may influence their quality of life.

METHODS

The descriptive cross-sectional correlational design was conducted for 4 months, from Sep 2023 to Jan 2023. Data were gathered from public tertiary care hospitals of Khyber Pakhtunkhwa after getting proper permission. The inclusion criteria for the study were individuals aged 21 or older who were registered nurses working in public sector hospitals of Khyber Pakhtunkhwa and were willing to volunteer for the study were eligible. Nursing students and those nurses who were performing double shift duty were excluded. A total of 375 nurses were selected out of a total of 15328 nurses in the province using a convenient sampling technique calculated through Rao soft. Using the single-proportion formula, a sample size of 375 nurses was calculated using a 95% confidence level, 5% margin of error and taking an expected percentage of HRQL as 11.3% in nursing. The data were collected through the WHOQOL-BREF tool which is a well-known and commonly used tool for measuring HRQL in different settings. It has 26 components broken down into four categories: (a) physical health; (b) psychological health; (c) social relationships; and (d) environment. Higher scores in each domain, which are rated independently, suggest a better HRQL. Ethical approval was obtained from the relevant institutional review board of the college and targeted hospital administration. All those involved gave their informed consent, guaranteeing confidentiality and safety. Participants were free to leave the research at any time; participation was entirely voluntary. A statistical analysis tool like SPSS version 22.0 was used to enter and analyze the data. A descriptive statistic (means, standard deviations, frequencies, and percentages) was calculated to summarize demographic data and HRQL results. To investigate possible correlations between HRQL domains and demographic factors, inferential statistics like T-test, ANOVA, and correlative test analysis were employed.

RESULTS

Most of the participants were in the age group of 26-30 (51.2%), followed by those aged 21-25 (17.9%), with a nearly even split between males (51.2%) and females (48.8%). Regarding marital status, most participants were married (57.1%), while 42.9% were single. In terms of education, the most common educational level was "Post RN" (35.5%) and Bachelor of Science in Nursing (BSN) degree (31.2%). Largest group having 1-3 years of experience (35.5%), followed by 4-6 years of experience (34.1%). A significant portion of participants were in critical areas (49.9%) and general wards (42.9%), while smaller percentages were working in OPDs (1.6%) and other areas (5.6%) (Table 1).

Table 1: Demographic Characteristics of Study Participants (n=375)

Demographic Characteristics		Frequency (%)
Age	21-25	67 (17.9%)
	26-30	192 (51.2%)
	31-35	57 (15.2%)
	36-40 & Above	59 (15.7%)
Gender	Male	192 (51.2%)
	Female	183 (48.8%)
Marital Status	Single	161 (42.9%)
	Married	214 (57.1%)

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Education	General Nursing	114 (30.4%)
	Post RN	133 (35.5%)
	BSN	117 (31.2%)
	MSN	11 (2.9%)
Experience	1-3 Years	133 (35.5%)
	4-6 Years	128 (34.1%)
	7-9 Years	55 (14.7%)
	10 Years and Above	59 (15.7%)
Area of Experience	Critical Areas	187 (49.9%)
	General Wards	161 (42.9%)
	OPDs	6 (1.6%)
	Others	21 (5.6%)

Results display the distribution of responses to various items in the WHOQOL-BREF questionnaire, reflecting the perspectives of 375 respondents on their quality of life and well-being. The results indicated that, in the Overall Health 'QoL Rating' and 'Health Satisfaction Status' items, a significant proportion of respondents (53.3% and 43.7%, respectively) at a mean score of 3.85 rated their health and health satisfaction as "Good," indicating that significant proportion of the participants views their overall health and quality of life positively. In contrast, the 'Physical Domain' items showed that respondents tend to face challenges with physical pain and medical treatment, with 10.9% and 20.3% rating these aspects as "Poor" or "Very Poor." Furthermore, in the physical domain 'Satisfaction of Daily Living Activities' a mean score of 3.71 falls above the midpoint of the scale 2.5, indicating that, on average, participants generally reported a moderate to high level of satisfaction with their daily living activities. Moving to the 'Psychological Domain', 'Negative Feelings' stand out as an area of concern, with 10.1% of respondents reporting 'Poor' or 'Very Poor' feelings. On the positive side, 'Self-Satisfaction' and 'Concentration Ability' are rated highly, with 41.6% and 34.9% of participants marking them as 'Good'. Within the Environmental Domain, issues arise regarding 'Healthy Environment' and 'Leisure Activities', where a significant proportion of participants reported dissatisfaction. Conversely, 'Life Safety' and 'Availability of Information for Daily Life' received favourable responses, with 39.7% and 37.1% ranking them as 'Good' or 'Excellent'. In the Social Domain, 'relationship' and 'sexual satisfaction' are predominantly positive, with 48.0% and 41.3% rating them as 'Good'. However, 'Friend Support Satisfaction' shows potential for improvement, as 32.4% of participants marked it as 'Average.' Finally, most of the participants rate their psychological, social, and environmental health as 'Average' and 'Good' This means that a considerable number of individuals in the study had positive perceptions of their overall QoL in four domains (Table 2).

Table 2: Distribution of World Health Organization Quality of Life Brief Version (WHOQOL-BREF) items' responses (n=375; %)

WHOQOL-BREF Items	Mean	Very Poor-1 (%)	Poor-2 n (%)	Average-3 n (%)	Good-4 n (%)	Excellent-5 n (%)
Overall, Health						
QoL Rating	3.85	7 (1.9%)	23 (6.1%)	66 (17.6%)	200 (53.3%)	79 (21.1%)
Health Satisfaction Status	3.92	6 (1.6%)	23 (6.1%)	74 (19.7%)	164 (43.7%)	108 (28.8%)
Physical Domain						
Extent of Physical Pain	2.77	41 (10.9%)	105 (28.0%)	143 (38.1%)	71 (18.9%)	15 (4.0%)
Medical TX for Daily Function	2.57	76 (20.3%)	116 (30.9%)	92 (24.5%)	72 (19.2%)	19 (5.1%)
Energy for Everyday Life	3.39	28 (7.5%)	47 (12.5%)	111 (29.5%)	128 (34.1%)	61 (16.3%)
Get Around ability	3.78	12 (3.2%)	32 (8.5%)	81 (21.6%)	151 (40.3%)	99 (26.4%)
Sleep Satisfaction	3.46	20 (5.3%)	62 (16.5%)	80 (21.3)	151 (40.3%)	62 (16.5%)
Satisfaction of Daily Living Activities	3.71	16 (4.3%)	39 (10.4%)	72 (19.2%)	157 (41.9%)	91 (24.3%)
Capacity for Work	3.93	8 (2.1%)	27 (7.2%)	65 (17.3%)	156 (41.6%)	119 (31.7%)
Psychological Domain						
Enjoy Life	3.32	20 (5.3%)	55 (14.7%)	132 (35.2%)	120 (32.0%)	48 (12.8%)
The extent of Meaningful Life	3.33	32 (8.5%)	50 (13.3%)	119 (31.7%)	109 (29.1%)	65 (17.3%)
Concentration Ability	3.34	25 (6.7%)	55 (14.7%)	112 (29.9%)	131 (34.9%)	52 (13.9%)
Body Appearance	3.81	14 (3.7%)	39 (10.4%)	88 (23.5%)	95 (25.3%)	139 (37.1%)
Self-Satisfaction	3.95	8 (2.1%)	21 (5.6%)	70 (18.7%)	156 (41.6%)	120 (32.0%)
Negative Feelings (Anxiety, Depression, Despair, etc)	2.86	38 (10.1%)	93 (24.8)	152 (40.5)	65 (17.3)	27 (7.2%)
Environmental Domain						
Life Safety	3.46	18 (4.8%)	39 (10.4%)	118 (31.5%)	149 (39.7%)	51 (13.6%)
Healthy Environment	3.23	19 (5.1%)	64 (17.4%)	147 (39.2%)	99 (26.4%)	46 (12.3%)
Financial Satisfaction	3.42	18 (4.8%)	53 (14.1%)	123 (32.8%)	112 (29.9%)	69 (18.4%)
Availability of Information for Daily Life	3.39	8 (2.1%)	50 (13.3%)	140 (37.3%)	139 (37.1%)	38 (10.1%)

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Leisure Activities	3.14	22 (5.9%)	81 (21.6%)	149 (39.7%)	97 (25.9%)	25 (6.7%)
Living Place Satisfaction	3.57	15 (4.0%)	39 (10.4%)	91 (24.3%)	174 (46.4%)	56 (14.9%)
Healthcare Satisfaction	3.50	11 (2.9%)	41 (10.9%)	113 (30.1%)	167 (44.5%)	43 (11.5%)
Transport Satisfaction	3.47	17 (4.5%)	46 (12.3%)	103 (27.5%)	159 (42.4%)	50 (13.3%)
Social Domain						
Relationship Satisfaction	3.30	11 (2.9%)	34 (9.1%)	61 (16.3%)	180 (48.0%)	89 (23.7%)
Sexual Satisfaction	3.78	8 (2.1%)	38 (10.1%)	78 (20.8%)	155 (41.3%)	96 (25.6%)
Friend Support Satisfaction	3.58	13 (3.5%)	45 (12.0%)	101 (26.9%)	142 (37.9%)	74 (19.7%)

The correlation coefficients are all positive and significant between the different domains, meaning that nurses' overall health shows positive correlations with all other domains (Physical, Psychological, Environmental, and Social). This shows that nurses who have higher overall health scores also tend to have higher scores on the physical, psychological, environmental, and social domains. There is a moderate to strong positive correlation (0.648**) between the Physical Domain and the Psychological Domain indicating that individuals with elevated physical health are more likely to experience better psychological well-being and vice versa. Furthermore, the correlation between the overall health domain and the physical domain is the strongest (0.524). This means that nurses with higher overall health scores are more likely to report better physical health. Also, nurses' Environmental and Social Domains have a positive correlation with other domains (Table 3).

Table 3: Correlation Coefficient in Overall Health and Domains

Correlations		GH	PD	PsD	ED	SD
Overall General Health (GH) Domain	Correlation (r)	1.000	-	-	-	-
	p-value	0.000	-	-	-	-
Physical Domain (PD)	Correlation (r)	0.524**	1.000	-	-	-
	p-value	0.000	0.000	-	-	-
Psychological Domain (PsD)	Correlation (r)	0.499**	0.648**	1.000	-	-
	p-value	0.000	0.000	0.000	-	-
Environmental Domain (ED)	Correlation (r)	0.469**	0.478**	0.527**	1.000	-
	p-value	0	0.000	0.000	0.000	-
Social Domain (SD)	Correlation (r)	0.442**	0.402**	0.477**	0.460**	1.000
	p-value	0.000	0.000	0.000	0.000	0.000

**Correlation was significant at the 0.01 level (2-tailed).

Findings provide insights into the strength and significance of correlations (r) between demographic variables and five HRQoL domains: Overall Health, Physical, Psychological, Environmental, and Social. The data reveals a weak positive correlation (r=0.181**, p<0.001) between age and social domain, indicating that as individuals grow older, they tend to develop stronger social connections, likely due to more available time and a broader network of friends and family. Another moderate correlation (r=0.132*, p=0.010) was found between age and physical health, indicating that advancing age is associated with a higher likelihood of encountering health issues. Additionally, there's a positive correlation (r=0.131*, p=0.011) between age and the environmental domain, indicating that older adults tend to have a stronger connection to their surroundings, potentially due to their increased familiarity and experience with their environment. The correlation between marital status and the physical domain is weak but statistically significant (r=0.103, p=0.047). This suggests that married people tend to have slightly better physical health than unmarried people. Marital status is weakly but significantly associated with both physical (r=0.103, p=0.047) and social (r=0.169, p=0.001) domains. It suggests that married individuals tend to have slightly better physical health and stronger social ties than unmarried individuals. Furthermore, there is a weak negative correlation (r=-0.123, p=0.017) between the Education and Social domains. This means that people with higher levels of education are less likely to have strong social ties than people with lower levels of education. Similarly, the table shows a negative non-significant correlation between the education and Physical Domain and Psychological Domain (r= -0.056, p=0.281 and r= -0.062, p=0.210) which suggests that a person's level of education is not strongly related to their physical and psychological well-being. This indicated that individuals with more life experience tend to have better physical health and stronger social ties. In other words, as people accumulate life experiences, they enjoy better physical well-being and become more adept at forming and maintaining social connections (Table 4).

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Table 4: Correlation between Demographic Variables and different Domains

Variables		Overall, Health Domain	Physical Domain	Psychological Domain	Environmental Domain	Social Domain
Age	Correlation	0.049	0.132*	0.063	0.131*	0.181**
	p-value	0.346	0.010	0.224	0.011	<.001
Gender	Correlation	-0.068	-0.034	0.014	0.083	0.080
	p-value	0.189	0.514	0.787	0.108	0.124
Marital Status	Correlation	0.046	0.103*	0.078	0.034	0.169**
	p-value	0.373	0.047	0.131	0.509	0.001
Education	Correlation	-0.011	-0.056	-0.065	-0.078	-0.123*
	p-value	0.831	0.281	0.207	0.130	0.017
Experience	Correlation	0.022	0.152**	0.034	0.070	0.193**
	p-value	0.669	0.003	0.507	0.178	<.001
Experience Area	Correlation	-0.022	0.039	0.017	0.075	-0.047
	p-value	0.675	0.455	0.741	0.146	0.361

The correlation was significant at the 0.01 level (2-tailed)**, Correlation was significant at the 0.05 level (2-tailed)*

DISCUSSION

In the current study, the mean HRQL scores for all five domains are above the midpoint of the scoring scale, indicating that nurses in Khyber Pakhtunkhwa, Pakistan generally report good quality of life. The findings of this study differ from a prior study, which reported a high mean score for the social domain and the lowest for the environmental domain. However, current results align with Luciane Nascimento's research, particularly in the physical and social domains [15]. Additionally, our study's mean scores are substantially lower across all domains compared to a similar study, which found that Pakistani healthcare workers had higher scores in the social and psychological domains [16]. Most participants rated their overall health and quality of life as "Good," reflecting a generally positive outlook. In the physical domain, participants expressed moderate to high satisfaction with daily activities. In the psychological, social, and environmental domains, most rated their quality of life as "Average" or "Good," indicating positive well-being in these areas. Older nurses may have the energy and vitality to engage in social events, sports, and other activities, and are likely to receive more social support from friends and family, positively impacting their social well-being. This finding aligns with Far and Muhammad study, which suggests poor physical health can reduce mental health but contrasts with the negative correlation between physical and general health [17]. Gender was not directly linked to overall health or specific health domains, aligning with previous research [18]. Additionally, marital status showed a weak positive correlation with physical and social well-being, indicating that being married may improve physical and social health, likely due to emotional and social support from a partner. These findings are consistent with prior studies [19]. Experience has a significant positive correlation with the physical, psychological, and social domains ($p<0.05$), strongest with the social domain. The positive correlations suggest that individuals with more experience tend to have better physical, psychological, and social well-being. Experience could bring greater confidence, expertise, and social connections, which contribute positively to these domains. Additionally, a study finding shows that there were no correlations discovered between HRQL and any of the following: gender, marital status, and educational attainment [20].

CONCLUSIONS

It was concluded that most participants in Khyber Pakhtunkhwa, Pakistan, rated their overall health and quality of life as "Good" and reported moderate to high satisfaction with their daily activities. However, significant differences in HRQL scores were observed across various demographic groups. For instance, older individuals, married people, and those with higher education levels reported better overall HRQL. Additionally, nurses in better health showed better physical, psychological, environmental, and social well-being. These findings suggest that factors like age, marital status, qualification, and health condition can influence a person's HRQL.

Authors Contribution

Conceptualization: IR, HR, AK
Methodology: HR, AUR, AJ, MI, FZ, AK
Formal analysis: IR, NU
Writing review and editing: IR, NU, FZ, AJ

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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Communication Skills and Emotional Intelligence Among Nursing Students on Patient's Outcome

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ABSTRACT

Effective communication in nursing involves verbal, nonverbal, and written exchanges, fostering trust, reducing anxiety, and improving outcomes. Emotional intelligence (EI) enhances nurses' ability to interpret cues, manage stress, and build therapeutic relationships. **Objective:** To see the effect of communication skills and EI among nursing students on patient outcomes. **Methods:** This correlational quantitative study was conducted at Saida Waheed FMH College of Nursing. A total of 102 participants were included by using a convenient sampling technique. The study included 3rd and 4th-year Generic Nursing students and 4th-year General Nursing students, while 1st and 2nd-year Generic and General Nursing students and 3rd-year General Nursing students were excluded. Data were collected using the EI and Communication Skills Questionnaire to assess the relationship between EI and communication skills. Data were analyzed using SPSS version 26.0. The correlation of EI with communication skills was determined by the Pearson correlation coefficient. comparison, considering a p-value of ≤0.05 as statistically significant. **Results:** Among 102 participants, most (96.1%) were aged 20-25, with 62.7% female and 66.9% unmarried. Most respondents agreed or strongly agreed that patients initiate conversations (67.6%, 24.5%) and that they understand and discuss disease severity effectively (58.8%, 20.6%). Additionally, 59.8% noted patient reluctance in answering queries. Higher EI is linked to improved communication skills. A strong positive correlation (r^2=0.961, p<0.01) was found between EI and communication skills. **Conclusions:** Effective communication and EI enhance patient outcomes by fostering trust and understanding. A strong positive correlation was found between EI and communication skills, emphasizing the need for nursing students to develop these competencies.

INTRODUCTION

Communication is the exchange of information through verbal, nonverbal, or written means, enabling individuals to share ideas and emotions effectively [1]. Strong communication skills are crucial in nursing, as they involve speaking, listening, analyzing, and demonstrating empathy [2]. Effective communication fosters trust among patients, families, and healthcare staff while reducing anxiety and improving health outcomes [3]. Conversely, communication breakdowns can lead to misdiagnoses, reduced patient participation, and poorer outcomes, including fatal consequences [4]. Nurses with high EI can interpret patients' body language, respond appropriately to emotional cues, and build stronger therapeutic relationships. It enhances nurses' ability to handle stress in clinical settings, improving their decision-making and problem-solving skills. Moreover, EI contributes to job satisfaction among nurses and improves patient satisfaction by fostering effective communication [5]. Nurses frequently encounter emotionally charged situations where effective communication and EI are essential for maintaining professionalism and patient trust. By developing these skills, nurses can minimize medical errors and improve patient outcomes. Respect, empathy, and clear information exchange enable patients to feel safe, share concerns, and actively participate in their care. In addition, nurses' ability to remain composed in

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challenging situations strengthens their capacity to manage patient interactions effectively [6]. Nursing students must develop strong communication and interpersonal skills to excel in their profession. As nurses transition from academia to clinical practice, EI enhances their ability to navigate complex patient interactions [7]. Effective nurse-patient communication improves health outcomes, reduces medical errors, and fosters better therapeutic relationships. Ultimately, communication and EI are fundamental in delivering high-quality, patient-centred care, reinforcing their critical role in nursing practice [8]. Effective communication and emotional intelligence (EI) are essential for nursing students as they directly impact patient outcomes. Engaging with patients enhances learning, while collaboration with colleagues improves care quality and reduces medical errors. Strong communication skills enable nurses to recognize and respond to patients' emotions, fostering trust and reducing stress in clinical settings. Conversely, communication failures can lead to adverse outcomes, including misdiagnoses and fatal errors. Therefore, developing communication and EI skills is crucial for delivering safe, patient-centred care and improving overall healthcare effectiveness. This study was conducted to see the effects of communication skills and emotional intelligence of nursing students on patient outcomes.

This study aims to highlight how students' focus on EI, alongside physical, mental, and social aspects, can enhance the quality of future nursing care and improve communication within the community.

METHODS

This correlational quantitative study was conducted at Saida Waheed Fatima Memorial Hospital (FMH) College of Nursing over four months from Oct 2023 to Feb 2024. The sample size was calculated by the Sullivan formula. There are only 137 students in 3rd year- and 4th year BS Nursing at the study setting by taking the margin of error (e) 0.05, an estimated proportion of the population (p) 0.5, population of 137, and Z(a/2) score from the Z table at 95% confidence interval which was 1.96. The final sample size, based on limited population was calculated to be 102 participants. n=no/1+(no-1)/N. The sampling technique employed was convenient. The study included 3rd and 4th-year Generic Nursing students and 4th-year General Nursing students, while 1st and 2nd-year Generic and General Nursing students and 3rd-year General Nursing students were excluded. Data were collected using the Emotional Intelligence and Communication Skills Questionnaire to assess the relationship between emotional intelligence (EI) and communication skills [9, 10]. Questionnaires were administered by online software. Data were entered and analyzed by using SPSS version 26.0. Quantitative variables were presented as mean ± standard deviation (SD), while qualitative variables, including gender, marital status, religion, and education level, were expressed as frequencies and percentages. The correlation of EI with communication skills was determined by the Pearson correlation coefficient. comparison, considering a p-value of ≤0.05 as statistically significant.

RESULTS

Among the 102 participants, the majority (n=98, 96.1%) were between 20-25 years of age, while a smaller proportion (n=4, 3.9%) were aged 26-30 years. In terms of gender distribution, 37.2% (n=38) were male, and 62.7% (n=64) were female. Regarding marital status, 33.1% (n=34) were married, whereas 66.9% (n=68) were unmarried. In terms of religious affiliation, 64.7% (n=66) identified as Muslim, while 35.2% (n=36) were non-Muslim (Table 1).

Table 1: Demographic Analysis of Participants (n=102)

Variables	Frequency (%)
Age	
20-25 Years	98 (96.1%)
26-30 Years	4 (3.9%)
Gender	
Male	38 (37.2%)
Female	64 (62.7%)
Marital Status	
Married	34 (33.1%)
Unmarried	68 (66.9%)
Religion	
Muslim	66 (64.7%)
Non-Muslim	36 (35.2%)

Results present an evaluation of communication skills based on participants' responses. A significant proportion of respondents (n=69, 67.6%) agreed (A), and (n=25, 24.5%) strongly agreed (SA) that patients initiate conversations about their illness. Similarly, most participants (n=60, 58.8%) agreed, and (n=21, 20.6%) strongly agreed. Regarding patient responsiveness, (n=35, 34.3%) agreed that patients avoid or are unable to answer queries about their illness, while (n=26, 25.5%) strongly agreed. Additionally, (n=32, 31.4%) agreed, and (n=17, 16.7%) strongly agreed that patients struggle to cooperate during discussions about their health. In terms of communication clarity, the majority (n=56, 54.9%) agreed, and (n=43, 42.2%) strongly agreed that they could understand the severity of a patient's illness through gestures. Similarly, (n=53, 52%) agreed, and (n=26, 25.5%) strongly agreed that they can assess their communication effectiveness while monitoring pharmacotherapy. Communication regarding patient care aspects was also rated positively. Most respondents (n=48, 47.1%) agreed, and (n=38, 37.3%) strongly agreed that their communication about nutritional status was good. For hygiene practices, (n=58, 56.9%)

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agreed, and (n=33, 32.4%) strongly agreed that their communication was excellent. Additionally, (n=52, 51%) agreed, and (n=31, 30.4%) strongly agreed that they effectively communicate with patients about their medications. Lastly, regarding discussions on improvements or declines in a patient's health, (n=49, 48%) agreed, and (n=36, 35.3%) strongly agreed that their communication was effective. Overall, the findings suggest that respondents perceive their communication with patients as effective, particularly in understanding patient conditions, monitoring treatments, and addressing health-related aspects. However, some challenges remain in patient responsiveness and cooperation during discussions (Table 2).

Table 2: Evaluation of Communication Skill

Questions	SD	D	N	A	SA
The patient agreed to initiate a conversation with me about her/his illness	0	5	3	69	25
I completely understand the severity of the patient's disease and can discuss it with him/her	1	17	3	60	21
The patient ignores or cannot respond to me questions on their condition.	6	17	18	35	26
The patient avoids or is unable to effectively cooperate with me when I am speaking regarding his/her health	14	28	11	32	17
By studying the patient's motions, I can properly comprehend the seriousness of their condition.	0	1	2	56	43
I can gauge how well I am communicating with the patient when I provide or oversee their medication.	0	8	15	53	26
I communicate with the patient about their nutritional state at a decent level.	2	9	5	48	38
I communicate with the patient on hygienic measures at a high level.	0	2	9	58	33
The extent to which I discussed the patient's medicine with them	0	13	6	52	31
The extent to which I informed the patient of any advancements or deteriorations in their health	2	12	3	49	36

*SD: Strongly disagree, D: Disagree, N: Neutral, A: agree, SA: Strongly agree

Findings evaluate communication skills based on participant responses. A majority (n=69, 67.6%) agreed, and (n=25, 24.5%) strongly agreed that patients willingly initiate conversations about their illness. Similarly, most respondents (n=60, 58.8%) agreed, and (n=21, 20.6%) strongly agreed that they fully understand the severity of the patient's disease and can effectively discuss it with them. Regarding patient responsiveness, (n=35, 34.3%) agreed, and (n=26, 25.5%) strongly agreed that patients avoid or struggle to answer queries about their illness, indicating potential communication barriers. Additionally, (n=32, 31.4%) agreed, and (n=17, 16.7%) strongly agreed that patients do not effectively cooperate during discussions about their health, further emphasizing challenges in patient engagement. In terms of communication clarity, the majority (n=56, 54.9%) agreed, and (n=43, 42.2%) strongly agreed that they can assess a patient's illness severity through gestures. Likewise, (n=53, 52%) agreed, and (n=26, 25.5%) strongly agreed that they can effectively evaluate their communication while monitoring pharmacotherapy. Communication regarding patient care was rated positively. Most respondents (n=48, 47.1%) agreed, and (n=38, 37.3%) strongly agreed that their communication about nutritional status was good. For hygiene practices, (n=58, 56.9%) agreed, and (n=33, 32.4%) strongly agreed that their communication was excellent. Furthermore, (n=52, 51%) agreed, and (n=31, 30.4%) strongly agreed that they effectively communicate with patients about their medications. Finally, in discussions about health improvements or declines, (n=49, 48%) agreed, and (n=36, 35.3%) strongly agreed that their communication is effective. Overall, the findings indicate that while healthcare providers perceive their communication as effective in most areas, patient responsiveness and cooperation remain challenges that may require further attention (Table 3).

Table 3: Evaluation of Emotional Intelligence

Questions	Strongly Disagree	DA	N	A	SA
Inquiring about the patient's priorities is something I enjoy doing.	0	5	6	6	31
I never interrupt other patient's conversation	0	1	10	10	52
I can rapidly let my anger "go" so that it doesn't impact me anymore.	5	8	15	15	20
For me, the reasons for differences are usually obvious.	1	11	15	15	15
Whenever necessary, I can control my emotions.	1	3	7	7	43
Even in my worst moments, I can always find motivation for myself.	0	7	5	5	41
My achievement has been largely attributed to my motivation.	0	1	2	2	64
I observe why my behaviour occasionally irritates people.	0	6	4	4	28
I can intentionally change how I feel or how I think.	2	5	5	5	32
I always place a high value on being awake of my feelings.	0	3	2	2	41

The correlation between emotional intelligence (EI) and communication skills was presented. The results indicate a strong positive correlation, with a Pearson correlation coefficient of r^2=0.961 ($p<0.01$). This significant correlation suggests that higher emotional intelligence is strongly

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associated with better communication skills (Table 4).

Table 4: Correlation of EI with Communication Skill

Communication Skill	Emotional Intelligence
Pearson correlation r^2	0.961**
p-value	0.000
N	102

**The correlation was significant at the 0.01 level (2-tailed)

DISCUSSION

The study showed a positive relationship between higher levels of emotional intelligence and communication, and the results discussed based on research questions. In current study variables such as age, gender, religion, marital status, and educational status were included. The majority of participants (96.1%) were between the ages of 20 and 25. This aligns with findings from studies by Khademi and colleagues which also report similar age distributions. The high proportion of participants in this age group may be attributed to the increasing trend of pursuing education at this stage of life [11]. Moreover, the majority of participants (62.7%) were female, which was consistent with findings from study by Meng and Qi, reporting a similar gender distribution. The high proportion of female participants may be attributed to the fact that nursing is a profession predominantly pursued by women [12]. The marital status (66.9%) majority of the participants are unmarried whereas the previous study shows the Effect of communication skills and emotional intelligence among nurses on patient outcomes. The Relationship between Emotional Intelligence and Communication Skills of Healthcare Workers) means references do not match with the following study. The percentage of unmarried nurses is high because most of the student nurses are unmarried. The majority of participants (51.4%) were BSN students, which aligns with findings from literature reporting a similar educational distribution. The higher proportion of BSN students may be because BSN is a degree program, whereas general nursing is a diploma, making it a more common choice for those pursuing advanced education in nursing [13, 14]. The findings of this study suggest that contrary to literature indicating that nurses struggle with patient communication; nurses can effectively communicate when adopting a patient-centred approach. However, healthcare organizations often fail to recognize the importance of this approach in ensuring quality patient care. In this study, 47.9% of student nurses agreed that patients initiate conversations about their illness, whereas a previous study reported that the nurses needed to improve communication skills, had destructive communication habits, and demonstrated effective communication skills [15, 16]. Similarly, the study showed that (33.1%) of nurses agree with the level of communication with patients when they assess improvement/decline in health while the previous study stated that 83% of undergraduate nursing students generally show a significantly higher mean score of empathy than the students attending other undergraduate courses [17]. Furthermore, the study showed that (23.2%) of nurses agree that patients were unable to effectively cooperate with them whereas the previous study Iran, Tehran 28 September 2015 described that an appropriate verbal communication, the nurse could thoroughly understand the patient's problems [18]. Additionally, the study shows that (38.0%) of nurses agree with the level of communication with patients when they monitor pharmacotherapy. The practice of highlighting deterioration is a collaborative communication strategy that could be used by other healthcare professionals to meet these recommendations [4]. The study reveals that 38.7% of nurses agree they develop empathy to understand patients' emotions, while 33.1% acknowledge that communication improves when assessing a patient's health status. Overall, the findings suggest that although healthcare providers consider their communication effective, patient responsiveness and cooperation remain challenges that require further attention. The literature indicates that the nurse-patient relationship plays a crucial role in determining the quality of care. Nurses acknowledge that fostering strong relationships improves patient outcomes by integrating technical expertise and clinical knowledge with delegated physician tasks. However, a discrepancy exists between records and patient perceptions while patients view nurses as authoritative decision-makers, the nurse's role should primarily involve guiding and supporting patients through their health journey rather than influencing their values or customs [19]. The current study results reported the correlation between emotional intelligence (EI) and communication skills. This significant correlation suggests that higher emotional intelligence is strongly associated with better communication skills. These findings were in line with the study conducted by Ghasemi SS, which reported that emotional intelligence is closely related to communication skills. The findings indicated a positive and significant relationship between emotional intelligence and communication skills, suggesting that higher levels of emotional intelligence are associated with better communication abilities in nursing students [20]. Another study by Oyur, explored the connection between patient satisfaction and the emotional intelligence (EI) skills of nurses in surgical clinics. The study found a significant positive correlation between patient satisfaction and nurses' empathy, emotional awareness, and ability to utilize emotions effectively. These findings suggest that higher EI levels in nurses contribute to greater patient satisfaction, highlighting the importance of enhancing EI skills to improve healthcare quality [21].

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CONCLUSIONS

It was concluded that effective communication skills and emotional intelligence improve the patient's health. According to this study, most of the nursing students agreed that effective communication and emotional intelligence enhance the positive patient's health. For effective communication nurses' students must be attentive, ask open questions to clear their doubts about the patient's condition and Involve friends and family. Use the right tone, be aware of your patient's situation, and get help from colleagues. For building emotional intelligence use self-management, self-awareness, social awareness, and relationship management. Nursing students must know the importance of having strong interpersonal relationships as well as communication skills. Students in nursing learn more by communicating with their patients and family. It is assessed that the effect of communication and emotional intelligence of nursing students has a great impact on patient outcomes. Emotional Intelligence is important for nurses because it enables them to provide better, more individualized care to patients by fostering effective communication.

Authors Contribution

Conceptualization: MR
Methodology: KJ, UK
Formal analysis: RR, SB
Writing review and editing: MR, RR, RC

All authors have read and agreed to the published version of the manuscript.

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Knowledge, Attitudes and Practices of Nurses Regarding Hypervigilance Medications; Across-Sectional Study in a Public Sector Tertiary Care Hospital Swat

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ABSTRACT

The usage of hypervigilance medications presents a considerable risk regarding patient safety and is fraught with medication blunders that is a problem around the world. In regard to preventing errors, nurses' knowledge, attitude, and practice regarding hyper vigilance drugs need to be precise. They also have significant responsibility in the dispensing of the prescriptions. **Objective:** To assess nurses' practices, attitudes, and knowledge of hyper vigilance drugs in Swat, Khyber Pakhtunkhwa, Pakistan. **Methods:** This was a cross- sectional quantitative study. We employed a practical sampling method and selected a total of 158 nurses and data was collected using self-modified questionnaires. Nurses' knowledge, attitudes and practices were analyzed by descriptive statistics. **Results:** With regard to hypervigilant drugs, 43.7 percent of respondents held positive views towards them. While the majority, 56.3 percent, held negative views which indicates general anxiety towards their use. **Conclusions:** The study highlighted the need for system level approach and targeted educational interventions to address the safety gap and to improve the overall attitude. The study recommended enforcing compulsory training programs, improving communication policies, and fostering the safety culture to ensure proper management of hypervigilant drugs and minimize errors.

INTRODUCTION

Medication Administration Errors (MAEs) especially with Hypervigilance Medications (HMs), which contain a greater risk for patient harm or death if administered incorrectly, stand as a significant global health issue [1, 2]. Some examples of HMs include anticoagulants, chemotherapeutic agents, opioids, and any form of neuromuscular blocking drugs that must be treated with caution due to their narrow therapeutic range and increased possibility of adverse effects [3]. These drug errors can cause morbidity, prolongation of hospitalization, economic loss, and even death [3]. According to the World Health Organization (WHO), medication errors account for one of the top ten causes of death and disability across the globe, with nearly 50 percent deemed avoidable and five percent resulting in deaths [2]. As a consequence of these errors, health systems incur an annual loss of over 42 billion dollars [4]. In the health system, where HMs are frequently used in intensive care units (ICUs) and emergency departments, the intricacy of drug administration increases [4]. Administering the wrong amount; administering the wrong route; identifying the patient incorrectly; and others. Lack

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of understanding among the heath care workers along with system related causes, poor communication, and heavy workloads are the most cited explanations for these [4]. Detailed measures are often overlooked in the integration of human machines in the field of medicine, especially in medicine administration in healthcare facilities such as Intensive Care Units (ICUs) and Emergency Departments (ER) [4]. Incorrect dosages, inaccurate administration techniques, or wrong patient matching are all too common. Such errors are often attributed to systems problem, poor coordination, excessive workload, and lack of knowledge among health workers [4]. Because their work is very complex and involves both motor and mental components, nurses, who directly give out medications, are particularly at risk to these challenges [5]. Drug errors are often attributed to insufficient training, inadequate feedback mechanisms, and absent or unsatisfactory benchmarks in many countries. For instance, time pressure, miscalculations, and the ignorance of the drug's properties qualify as the reasons for the errors during drunk-driving execution of the highly active agent (HAM) [6]. Even with the advancement of education and technology, barriers such as extreme workloads and fear of disciplinary actions tend to prevail [7]. This makes attempts to identify the underlying reasons and effective applicable interventions impossible. To this situation the programa applied and suggested by WHO and other international healthcare bodies offer was the need to focus on assuring the safety of the medicine [8]. To mitigate mistakes and their negative impact, this project advocates for strengthening professional education, creating a safety culture, and enhancing institutional planning. It is particularly concerning the amount of published literature regarding nurses' knowledge, attitude, and practices of health management (HMs) in Pakistan. The absence of automated reporting systems and lack of training programs increases the chance of error and further endangers patient safety. The unfortunate event where a baby died at a private hospital because of a mistakenly administered dose of potassium chloride is one of the many examples that call for hasty evidence-based solutions. This research sought to assess nurses' understanding of HMs in a tertiary care hospital with the goal of addressing this gap. It seeks to identify the root causes and potential remedies with the appropriate safety margins, the relative magnitude of the problems, and the nature of the problems. To facilitate the development of targeted educational and policy recommendations, attitudes and knowledge of nurses are assessed. The outcomes will aid Pakistan and other resource limited settings by improving nursing services, reducing medication errors, and increasing safety of patients.

The study's findings ultimately highlighted the need of giving nurses the skills and resources they need to safely administer HMs, encouraging a safety culture, and giving priority to measures that reduce medication-related harm.

METHODS

This study employed a quantitative descriptive cross-sectional design to assess nurses' Knowledge, Attitudes, and Practices (KAP) regarding Hypervigilance Medications (HMs). Data collection was conducted across various wards, including medical, surgical, ICU, emergency, cardiology, pediatrics, and gynecology. The Ethical Review Board with Ref No. 135/RCNS/2024 approved this study, ensuring compliance with ethical guidelines and patient confidentiality. Over four months (July 10 to November 10, 2024), a sample of 158 Registered Nurses (RNs) was selected using a convenient non-probability sampling method. Inclusion criteria comprised RNs aged 25 and above, holding valid Pakistan Nursing council licenses, and with at least one year of clinical experience, while those on leave, in administrative roles, or with mental health concerns were excluded. The inclusion criteria encompassed all nurses working the morning and evening shift. Nurses who refused to participate, were absent during data collection, or submitted incomplete forms were excluded. A structured questionnaire was used to evaluate KAP [9]. The study questionnaire consisted of four sections: demographic information, knowledge, practices and attitude. The first section included six questions about demographic information. The second section assessed nurses' knowledge of Hypervigilance medications through 10 questions, each with three response options: "True," "False," and "I don't know." The inclusion of the third option aimed to minimize guessing and reduce unanswered questions. Each correct response was awarded one point, while incorrect or "I don't know" answers received zero. Scores ranged from 0 to 10, with percentages computed based on total scores. Knowledge levels were categorized as poor (<50%), moderate (50–75%), and high (>75%). The third section include the practices about high alert medication, collected the responses on the basis of Likert scale from strongly disagree, disagree, neutral, agree and strongly agree. The four section evaluated nurses' attitudes toward Hypervigilance medications through five questions, also offering the options "True," "False," and "I don't know." Scoring followed the same method, with a maximum score of 5 and a minimum of 0. Attitudes were classified as positive (scores >50%) or negative (scores ≤50%) based on the percentage. Data entry and analysis were performed using the Statistical Package for Social Sciences (SPSS), version 27. Frequency and percentage calculations were used to evaluate nurses' knowledge and attitudes toward Hypervigilance medications.

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RESULTS

A total of 158 registered nurse were participated in the study. The demographic profile reveals that the majority of participants were aged 31–40 years (53.2%), with smaller proportions under 30 years (36.1%), 41–50 years (8.9%), and over 51 years (1.9%). Gender distribution was nearly balanced, with 53.8% female and 46.2% male participants. Regarding qualifications, most held either a BSN (34.2%) or a Diploma in Nursing (29.7%), Post RN (29.7%) and fewer having MSN (6.3%) degrees. Marital status showed a majority were married (75.3%), while 23.4% were single, and only 1.3% were divorced. In terms of work experience, most participants had less than 10 years of experience (54.4%), followed by 11–20 years (38.6%) and 21–30 years (7%)(Table 1).

Table 1: Socio Demographic Variables

Variables	Category	Frequency (%)
Age	<30 Years	57 (36.1%)
	31-40 Years	84 (53.2%)
	41-50 Years	14 (8.9%)
	>51 Years	3 (1.9%)
Gender	Male	73 (46.2%)
	Female	85 (53.8%)
Qualification	Diploma Nursing	47 (29.7%)
	BSN	54 (34.2%)
	Post RN	47 (29.7%)
	MSN	10 (6.3%)
Marital Status	Single	37 (23.4%)
	Married	119 (75.3%)
	Divorced	2 (1.3%)
Working Experience	<10 Years	86 (54.4%)
	11-20 Years	61 (38.6%)
	21-30 Years	11 (7%)
Special Training	BLS	13 (8.2%)
	ACLS	4 (2.5%)
	No Training	121 (76.6%)
	Both BLS and ACLS	20 (12.7%)

The participants' knowledge of Hypervigilance medication practices reveals varying levels of awareness and misconceptions. For several critical safety questions, a significant proportion provided incorrect or uncertain responses. 68.4% incorrectly believed that 10% calcium gluconate and 10% calcium chloride are interchangeable, and 80.4% correctly recognized that pushing 15% potassium chloride (KCl) rapidly into an IV during emergencies is unsafe. However, only 44.9% correctly identified the inappropriate fast IV push of 10% calcium chloride in 1–2 minutes, with 38.6% incorrectly agreeing. Similarly, there was uncertainty regarding the fast infusion of 3% sodium chloride, with 44.9% correctly rejecting it and 44.3% believing it was appropriate (Table 2).

Table 2: Responses in Knowledge and Attitude

Q. No.	Question	Category	Correct Option (T/F)	True Frequency (%)	False Frequency (%)	Don't Know Frequency (%)
1	10% Ca gluconate and 10% CaCl2 are the same drug and "can be used interchangeably."	Knowledge	F	16 (10.1%)	108 (68.4%)	34 (21.5%)
2	When an emergency such as ventricular fibrillation happens, push fast 15% KCl 10 mL into IV.	Knowledge	F	8 (5.1%)	127 (80.4%)	23 (14.6%)
3	When an emergency happens, fast IV push 10% CaCl2 10 mL in 1-2 minutes.	Attitude	F	61 (38.6%)	71 (44.9%)	26 (16.5%)
4	Fast IV infusion of 3% NaCl 500 mL for a patient who has low sodium level.	Attitude	F	70 (44.3%)	71 (44.9%)	17 (10.8%)
5	15% KCl better added to Ringer's solution for rapid infusion.	Knowledge	F	43 (27.2%)	90 (57%)	25 (15.8%)
6	Use "Amp" or "Vial" for dose expression instead of "mg" or "gm".	Knowledge	F	44 (27.8%)	96 (60.8%)	18 (11.4%)
7	If patient can tolerate, potassium can be administered orally instead of IV route.	Attitude	T	77 (48.7%)	55 (34.8%)	26 (16.5%)
8	For convenience, heparin and insulin should be stored together in the refrigerator.	Knowledge	F	81 (51.3%)	59 (37.3%)	18 (11.4%)
9	15% KCl is frequently used, so it should be stored without special precautions.	Knowledge	F	53 (33.5%)	81 (51.3%)	24 (15.2%)
10	Use distinctive labeling on look-alike drugs.	Attitude	T	79 (50%)	53 (33.5%)	26 (16.5%)

The results of the practice of Hypervigilance medications reveal that participants largely support implementing safety protocols. Establishing standard operating procedures for Hypervigilance medications received agreement or strong agreement from 75.9% of participants. Similarly, verifying written orders only, with no verbal orders, was supported by 78.5%. The highest level of adherence was observed for storing Hypervigilance medications separately, with 84.1% of participants agreeing or strongly agreeing. Furthermore, 79.1% of respondents agreed or strongly agreed that strict rules and control should be put in place for these drugs. 82.2% of interviewees favored limiting authorized personnel's access to

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hypervigilance drugs. These results show that participants had a proactive and positive approach to managing hypervigilance drugs, with a strong emphasis on safety measures and little disagreement or neutrality.

Table 3: Perceptions of High Alert Drugs

Q. No.	Question	Strongly Disagree Frequency (%)	Disagree Frequency (%)	Neutral Frequency (%)	Agree Frequency (%)	Strongly Agree Frequency (%)
1	Establishing standard operatingprocedures for high alert medications.	9 (5.7%)	17 (10.8%)	12 (7.6%)	46 (29.1%)	74 (46.8%)
2	Verifying written orders for high alert medications (no verbal orders).	9 (5.7%)	9 (5.7%)	16 (10.1%)	49 (31%)	75 (47.5%)
3	Storing high alert medications separately from other medications.	4 (2.5%)	11 (7%)	10 (6.3%)	53 (33.5%)	80 (50.6%)
4	Implementing rigorous regulations and oversight fo r high alert medications.	3 (1.9%)	11 (7%)	19 (12%)	51 (32.3%)	74 (46.8%)
5	Restricting access to high alert medications to authorized personnel only.	7 (4.4%)	10 (6.3%)	11 (7%)	50 (31.6%)	80 (50.6%)

Table 4 categorized the knowledge and attitude scores of the 158 study participants into different levels, such as poor, moderate, and good.

Table 4: Category of Knowledge and Attitude Scores (n= 158)

Attitude of High Alert Medication	
Total Score After Median	**Frequency (%)**
Negative Attitude	89 (56.3%)
Positive Attitude	69 (43.7%)

DISCUSSION

The results of this study provide important information on the profiles, behaviors, and perceptions of Registered Nurses (RNs) with respect to Hypervigilance medicines. The age group of 31-40 dominantly represented clinical nurses-the findings are in agreement with other work indicating that this age group is significant representation in healthcare occupations [10]. With respect to sex in the nursing field, the study had a male-to-female ratio of 46.2% and 53.8%, respectively. However, the troubling aspect is that only 6.3% of the nurses had a Master of Science in Nursing (MSN); other studies have indicated that higher education levels result in better knowledge and practice in medication safety [1]. Also, notably high is the fact that 54.4% of participants had less than 10 years of experience. While this gives insights that are refreshing, it may also imply a gap in knowledge on hypervigilant medication management. The study revealed significant knowledge gaps in Hypervigilance medications. It was found that 68.4% of nurses wrongly believe that 10% calcium gluconate is equivalent to 10% calcium chloride. This confusion is quite worrisome since drug errors of this nature can lead to damages in real-life practice. Another study had already revealed that confusion exists about Hypervigilance medications among healthcare professionals, thus emphasizing the need for more extensive and continuous education on these agents [11]. However, it is certainly a positive sign that 80.4% of participants correctly recognized the threats of rapid administration of 15% potassium chloride, consistent with the recommendations of best practices regarding drug administration by the Institute for Safe Drug Practices [12]. When it comes to practice-based safety measures, 75.9% of survey respondents agree that SOPs should be there, and they advocate safety standards for Hypervigilance drugs due to the findings. This finding is consistent with [13], who observed that nursing staff often advocate for structured policies as a means of reducing medication errors. The strong support for policies such as the need to verify written orders solely (78.5%) and limit access to Hypervigilance medications to authorized personnel (82.2%) demonstrates the participants' commitment to safety and best practices. The developing awareness among the responders to this study of the importance of regulatory oversight in medications is indeed a strong step in the right direction toward minimizing errors that might harm patient safety [11]. In addition, it is interesting that 84.1% of the respondents agreed that Hypervigilance drugs ought to be kept isolated. There is evidence that physically separating Hypervigilance drugs significantly reduces the risk of inadvertent administration errors [1]. Though their understanding of hypervigilance drugs could still be improved, these findings show that nurses are highly motivated to follow safety protocols in order to promote patient well-being. To summarize, despite the great enthusiasm shown by participants in the investigation for the safe administration of Hypervigilance drugs, several aspects still drew questions. With these findings, education and training programs follow, so that it ameliorates the gaps and improves clinical practice. Further exploration into how focused educational interventions change nurses' knowledge and use of hypervigilance drugs is proposed. Da Cunha *et al.*, in 2023 provided a global perspective on the burden of lip, oral, and pharyngeal cancer, which may have implications for patients undergoing bariatric surgery [14]. Akkayaoğlu and Celik in 2020 examined the impact of bariatric surgery on eating attitudes, body image, and quality of life,

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highlighting the psychological adjustments patients experience [15]. Similarly, Teng M *et al.*, in 2022 investigated the relationship between patient satisfaction and perspectives on artificial intelligence [16]. El-Attar and El-Emary in 2022 evaluated a nursing intervention program's effectiveness in improving body image, marital satisfaction, and quality of life among post-bariatric surgery patients [17]. Rochin in 2012 discussed healthcare reform's role in bariatric nursing, comparing patient experiences between bariatric and non-bariatric individuals [18]. Additionally, Derenzo *et al.*, in 2023 conducted an integrative review on nursing care for bariatric patients, emphasizing best practices in postoperative management [19]. Finally, Camden in 2006 provided a foundational overview of bariatric patient care, addressing the unique challenges faced by nurses in this specialty [20]. These studies collectively underscore the importance of nursing interventions, patient satisfaction, and comprehensive care in improving bariatric surgery outcomes.

CONCLUSIONS

This study underscored the critical role of nurses in ensuring the safe administration of hypervigilance drugs and highlights the prevalent concerns regarding their use. The findings reveal a significant gap in knowledge, attitudes, and practices, with over half of the respondents expressing apprehension towards these medications. Addressing these concerns requires a system-level approach, including mandatory training programs, enhanced communication policies, and a stronger safety culture. Implementing these measures can improve nurses' confidence, minimize medication errors, and ultimately enhance patient safety.

Authors Contribution

Conceptualization: IR, HB, KA, MK, FH, AK, SA, HK, R, MA
Methodology: HB, KA, MK, FH, AK, SA, HK, R, MA
Formal analysis: IR, SU
Writing, review and editing: IR, HB, KA, SU

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

All the authors declare no conflict of interest.

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