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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.

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## Authors

List here all author names Author[1], Author[2] and Author[3]
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[3]Author department, University, Country

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

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Discuss your findings by comparing your results with other literature.

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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.

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**Editorial**

# From Classroom to Clinic: Modernizing Nursing Education for a Digital Age

OPEN ACCESS

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## ARTICLE INFO

Nursing education is an integral part of the healthcare system and is evolving to meet the demands of the healthcare environment. Nurses often serve as initial contacts for patients and play a crucial role in coordinating care among various healthcare professionals. Nursing facilities are evolving day by day due to the rapid medical and technological advancements all over the world, and the role of nurses has expanded significantly.

One of the impacts of modern medical technology on nursing education is the integration of electronic health records (EHRs) and other digital systems [1]. However, the traditional nursing education system fails to bridge the gap between what nurses do and how they conceptualize their work required in the modern healthcare system. A significant challenge is the increasing demand for nurses equipped with specialized knowledge and skills. To address this, nursing education must move beyond traditional methods and incorporate modern technological approaches.

As healthcare technology advances, nursing education must adapt accordingly. Nurses need to develop digital competencies to effectively utilize these technologies. Encouragingly, progress is being made in this area. Many educational institutions are now incorporating virtual reality training, simulation-based learning, and various online platforms to enhance critical thinking and clinical skills [2]. These innovative approaches set new standards for nursing education, helping to strengthen professional identity and stay current with the latest research and best practices.

Interdisciplinary Collaboration is also becoming a fundamental part of nursing education. By learning alongside medical, pharmacy, and allied health students, nursing students are better prepared for teamwork and holistic patient care. Additionally, cultural competency and diversity training are essential for preparing nurses to provide care to increasingly diverse populations. Similarly, the importance of mental health education for nurses cannot be overstated, both for providing patient care and maintaining their own well-being in a high-stress profession. Incorporating leadership and management skills into nursing curricula prepares nurses for roles in administration and policy-making.

By raising educational standards, nursing programs can enhance clinical skills and equip nurses with the knowledge needed to thrive in an ever-changing healthcare environment. In the upcoming years, there is an increase in the demand for healthcare services to be expected. Advanced healthcare technology prepares nurses through digital training, including EHRs, simulation labs, and mobile health applications, all of which are essential for enhancing patient care. All in all, enhancing nursing education is essential for meeting the needs of the modern healthcare system. We can empower nurses to thrive as frontline healthcare providers. And they ultimately lead to better healthcare outcomes and a stronger healthcare system.

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**Editorial**

[2]     Dicheva NK, Rehman IU, Anwar A, Nasralla MM, Husamaldin L, Aleshaiker S. Digital Transformation in Nursing Education: A Systematic Review on Computer-Aided Nursing Education Pedagogies, Recent Advancements and Outlook on the Post-COVID-19 Era. IEEE Access. 2023 Nov 28. doi: 10.1109/ACCESS.2023.3337669.

## Original Article

OPEN ACCESS

# Nursing Student's Attitude and Motivation towards Learning English Communication Skills at Nursing College, Lahore

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## ARTICLE INFO

## ABSTRACT

English has become an international language and has been used in the whole world as a primary mode of communication. Unfortunately, English speaking has become a challenge for students and a hurdle in communicating with other nations. **Objective:** To assess the motivation and attitude toward English learning among Bachelor of Science in Nursing (BSN) students at the Akhtar Saeed Medical College of Nursing. **Methods:** This current study employed a quantitative design. A questionnaire-based cross-sectional survey was conducted at Akhtar Saeed Medical College of Nursing, Lahore, Pakistan. Data were collected from a sample of sixty-six BS Nursing students out of a population of two hundred, selected using the convenience sampling technique. The research tool used for this study was adopted from Gardner's Attitude/Motivation Test Battery (AMTB). An analysis of the gathered data was conducted using SPSS statistics IBM 26. **Results:** The findings showed nursing students as highly motivated. More than 80% of students know its importance in career advancement, Job opportunities, getting a Grade 'A', higher education, knowledge advancement, and going abroad. Half of the students showed a positive attitude. Few students showed negative attitudes due to the anxiety of making mistakes while speaking in front of others. **Conclusions:** It was concluded that after analyzing the results It is clear that although students are driven to study English, they are afraid to speak in front of others. Because of the small sample size, more studies on a larger sample and in other Pakistani educational institutions should be done in the future.

## INTRODUCTION

Language is an organized, customary means of communication that involves the use of words. It can be spoken or written [1]. English has emerged as a global language and is widely used for worldwide communication among people in many nations [2]. It is studied as a first or second language by millions of individuals [3]. Motivation is the main concept in the learning process of education. The term "motivation" describes the mechanisms that initiate and maintain goal-directed behaviour. Motivational elements can originate from within and result in things like effort, perseverance, choice, environmental regulation, and achievement [4]. The majority of academics and educators concur that motivation is the primary element sustaining successful learning when it comes to learning English. Since different students have various motivations for studying, understanding students' motivations might help us understand why certain students persevere in learning English [5]. As in any field of education, motivation is a key factor. It has importance in the nursing field because nursing students have to face different situations

in clinical settings [6]. Nursing students receive training to work as medical professionals. Nursing students want long-term motivation to help others in their professional lives [7]. Nurses are needed in many countries in Asia. One obstacle faced by many Pakistani nursing students is the English communication skill that is used in hospitals. This demonstrates the value of teaching nursing students to speak English so they can function in dynamic environments [8]. Delivering quality nursing services requires motivated nursing students to acquire a treasure of information, skills, and to learn and relearn throughout their professional lives constantly. As the population ages, the need for nursing practitioners has increased, and nursing educators must advance the academic motivation and performance of nursing students to escalate the number of nursing practitioners [6]. According to the view of Gardner and Lambert (1972), although language aptitude explains much of the individual variation in language performance, motivational factors may outweigh the influence of aptitude. Two types of motivation can affect students, namely integrative motivation and instrumental motivation [9]. Integrative motivation is defined as the condition when the learner wants to learn English by mixing into the culture of people [10]. Instrumental motivation describes the learner as an integrative learner who gets involved in the social exchange of that group [11]. The most common thing that prevents people from learning is probably anxiety [12]. Speaking nervousness can affect how they (speakers) engage with others [13]. Numerous research on attitudes and motivation for learning English has been conducted in foreign countries. In Pakistani research, a gap is found in assessing the motivations and attitudes of undergraduate nursing students in Lahore, which have to communicate with patients of different cultures. English has become a global language and students need to learn it as a second language to communicate in society. Evaluating nursing students' motivation and attitudes towards learning English is crucial to enhancing academic performance and preparing them for the workforce. Better academic achievement and improved language competence are associated with positive attitudes and high motivation. These skills are essential for nurses to have to communicate effectively and access medical material. By being aware of these variables, teachers can adjust interventions and curricula to meet any obstacles and provide a safe learning environment. The study aimed to assess the motivation and attitude toward English learning among Bachelor of Science in Nursing (BSN) students. In the end, this exam helps get nursing students ready for globalized healthcare contexts by encouraging lifelong learning and making sure they can provide excellent patient care in multicultural and multilingual settings.

## METHODS

A cross-sectional, quantitative descriptive study method was employed. Data were collected from January 2024 to March 2024. The sample size was calculated using Solvin's formula with a 10% margin of error and 200 population size and there were 66 students in the sample. Data were collected by using a convenience sampling strategy from the students of BSN studying at Akhtar Saeed Medical College of Nursing, Lahore, Pakistan. Akhtar Saeed Medical College of Nursing students willing to participate were included, and students from other departments were excluded from the data. The Attitude Motivation Test Battery (AMTB) scale was adapted to assess the attitude and motivation of undergraduate nursing students toward learning English communication skills. In the current study, the Cronbach alpha coefficient was 0.828. There were 20 questions in the questionnaire. Proper consent was obtained before giving the questionnaires. The Urdu language was used to explain the Questionnaire to students. Scoring against each question was interpreted using the Likert scale to grade each question. The first eighteen questions assessed the motivation level of nursing students and the last two questions assessed the attitude. Students who scored between 15-18 (highest score 18) were categorized as highly motivated, 11-14 score indicated moderate motivation and a >11 score denoted low motivation. Similarly, students with a score of 2 had a positive attitude, a score of 1 denoted a neutral attitude and a score of 0 showed a negative attitude. Data collection permission was obtained from the principal of Akhtar Saeed Medical College of Nursing before data collection on 1st January (AMDC/CON/PER/2024/257). SPSS version 26.0 was utilized to analyse the data. Descriptive statistics (frequencies and percentages) were applied. Calculation of sample size: $n = N/(1 + Ne^2)$. Where N=population size (200, four batches of BSN, 50 in each batch), e = acceptable margin of error (10%, 0.1), $n = 200/(1 + 200 \ast 0.1^2)$, $n = 200/3$, $n = 66.6$.

## RESULTS

Demographic and other variables are written in the form of frequencies and percentages. Sixty-six questionnaires were returned, for an overall response rate of hundred percent. Another factor is that I took data from the BSN students that almost in the same range of age group and all were single. More than three-fourths of students lie in the age group of twenty to twenty-five. The relationship between demographic factors and motivation to learn English among students was not much interesting were shown, because demographic factors and motivation do not have many relationships (Table 1).

**Table 1:** Demographics Characteristics of Study Participants

| Demographic information | Categories | Frequency (%) |
|---|---|---|
| Age | 20-25 | 65 (98.5) |
| | 26-30 | 1 (1.5) |
| | 31-35 | 0 (0) |
| | Other | 0 (0) |
| Qualification | Diploma | 0 (0) |
| | BSN | 66 (100) |
| | MSN | 0 (0) |
| | Other | 0 (0) |
| Marital Status | Single | 66 (100) |
| | Married | 0 (0) |
| | Divorced | 0 (0) |
| | Widow | 0 (0) |
| Gender | Male | 20 (30.3) |
| | Female | 46 (69.7) |

More than half of the students were motivated that English would help them understand the appropriate ways of life like native speakers. Many students strongly agree that English would help them advance in their careers and that's why they were motivated to learn it. Ninety-eight percent of students (63% agree and 35% strongly agree) were motivated because English is the mode to convey knowledge and information to other people that is necessary for the nursing profession when interacting with patients of different cultures. To receive an A grade in class, two-thirds of the pupils were motivated to learn English. More than eighty percent of students were motivated to learn it because they wanted to look like a knowledgeable person which is possible by learning English and also wanted to participate freely in activities among other cultures. After analyzing the Attitude motivation test battery questions it can be concluded that The majority of pupils were driven to acquire English to find a decent career and to travel abroad for job opportunities More than half of students agreed that they felt confident and comfortable after learning English communication skills. 97% of the pupils concur that learning English will benefit them to integrate into English-speaking communities which would be helpful in their professional life. The reason that drove two-thirds of the students to acquire English was that it helped them become more open-minded to learn new things and make them sociable persons. Another most frequently identified motivation factor was the opportunity for the students to study abroad after learning the frequently used language in foreign countries. Most of the students agree that They made an effort to communicate in English so that they can speak English fluently. When asked if they would be interested in reading English textbooks for university studies, 50% of students said that they would but 50% responded negatively that they read textbooks just for university

grades. Seventy-seven percent of students were motivated to learn English just for their higher education and half students showed interest in learning English for the sake of a Degree. Two third were motivated to be successful in life which would be possible after learning English. Questionnaires were analyzed for results to know the relationship between motivation and communication skills in English (Table 2).

**Table 2:** AMTB Questions for Assessing Motivation

| Sr. No. | Statement | Scales Scoring | Frequency (%) |
|---|---|---|---|
| 1 | Learning English makes me better understand and appreciate the ways of life of native English speakers. | 1 | 1 (1.5) |
| | | 2 | 0 (0) |
| | | 3 | 36 (54.5) |
| | | 4 | 29 (43.9) |
| 2 | Studying English is important because I will need it for my career. | 1 | 2 (3.0) |
| | | 2 | 0 (0.0) |
| | | 3 | 23 (34.8) |
| | | 4 | 41 (62.1) |
| 3 | Learning English helps me To convey my knowledge & information to other people. | 1 | 0 (0.0) |
| | | 2 | 1 (1.5) |
| | | 3 | 42 (63.6) |
| | | 4 | 23 (34.8) |
| 4 | I want to get grade "a" in my English class all the time. | 1 | 4 (6.1) |
| | | 2 | 5 (7.6) |
| | | 3 | 27 (40.9) |
| | | 4 | 30 (45.5) |
| 5 | Knowing English would help me to become a more knowledgeable person. | 1 | 1 (1.5) |
| | | 2 | 8 (12.1) |
| | | 3 | 36 (54.5) |
| | | 4 | 21 (31.8) |
| 6 | Learning English helps me to participate freely in academic, social, and professional activities among other cultural groups. | 1 | 3 (4.5) |
| | | 2 | 4 (6.1) |
| | | 3 | 34 (51.5) |
| | | 4 | 25 (37.9) |
| 7 | Learning English is important because it will help me get a good job in a multinational corporation. | 1 | 2 (3.0) |
| | | 2 | 2 (3.0) |
| | | 3 | 26 (39.4) |
| | | 4 | 35 (53.0) |
| 8 | Learning English helps me to be more confident and comfortable | 1 | 1 (1.5) |
| | | 2 | 3 (4.5) |
| | | 3 | 26 (39.4) |
| | | 4 | 36 (54.5) |
| 9 | Learning English helps me enjoy traveling to foreign countries. | 1 | 2 (3.0) |
| | | 2 | 2 (3.0) |
| | | 3 | 16 (24.2) |
| | | 4 | 46 (69.7) |
| 10 | Learning English helps me integrate more easily into English-speaking communities. | 1 | 1 (1.5) |
| | | 2 | 1 (1.5) |
| | | 3 | 36 (54.5) |
| | | 4 | 28 (42.4) |

05

| | | | |
|---|---|---|---|
| 11 | Learning English helps me become an Open-Minded and Sociable Person. | 1 | 1 (1.5) |
| | | 2 | 14 (12.2) |
| | | 3 | 36 (54.5) |
| | | 4 | 15 (22.7) |
| 12 | Learning English is important because it will help me to learn new things. | 1 | 1 (1.5) |
| | | 2 | 4 (6.1) |
| | | 3 | 44 (66.7) |
| | | 4 | 17 (25.8) |
| 13 | Learning English is important because it will help me have a chance to study abroad. | 1 | 2 (3.0) |
| | | 2 | 1 (1.5) |
| | | 3 | 18 (27.3) |
| | | 4 | 45 (68.2) |
| 14 | I try my best to learn English so I can gain maximum proficiency. | 1 | 1 (1.5) |
| | | 2 | 8 (12.1) |
| | | 3 | 32 (48.5) |
| | | 4 | 25 (37.9) |
| 15 | I am interested in reading only English textbooks in my university study. | 1 | 9 (13.6) |
| | | 2 | 24 (36.4) |
| | | 3 | 25 (37.9) |
| | | 4 | 8 (12.1) |
| 16 | I focus more on furthering my higher education than on learning the English language. | 1 | 1 (1.5) |
| | | 2 | 14 (21.2) |
| | | 3 | 39 (59.1) |
| | | 4 | 12 (18.2) |
| 17 | I focus more on earning a university degree than on learning the English language. | 1 | 7 (10.6) |
| | | 2 | 23 (34.8) |
| | | 3 | 28 (42.4) |
| | | 4 | 8 (12.1) |
| 18 | Being proficient in English can lead to being more successful and achievable in my life. | 1 | 3 (4.5) |
| | | 2 | 3 (4.5) |
| | | 3 | 35 (53.0) |
| | | 4 | 25 (37.9) |

Note: Responses were scored on a 4-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly Agree, indicating the level of agreement with each statement.

66% of students said they were afraid people would make fun of them if they spoke incorrect English. Based on the analysis of the data, it can be said that although the students are motivated to study English, they are afraid to speak in front of people. 60% of students were worried about speaking English because they considered that others could speak well than them (Table 3).

**Table 3:** AMTB Questions for Assessing Attitude

| Sr. No. | Statement | Scales | Frequency (%) |
|---|---|---|---|
| 1 | It worries me that other students in my class seem to speak English better than I do. | 1 | 6 (9.1) |
| | | 2 | 21 (31.8) |
| | | 3 | 30 (45.5) |
| | | 4 | 9 (13.6) |
| 2 | I am sometimes anxious that the other students in my class will laugh at me when I speak English. | 1 | 8 (12.1) |
| | | 2 | 14 (21.2) |
| | | 3 | 23 (34.8) |
| | | 4 | 21 (31.8) |

Note: Responses were scored on a 4-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, and 4 = Strongly Agree, indicating the level of agreement with each statement.
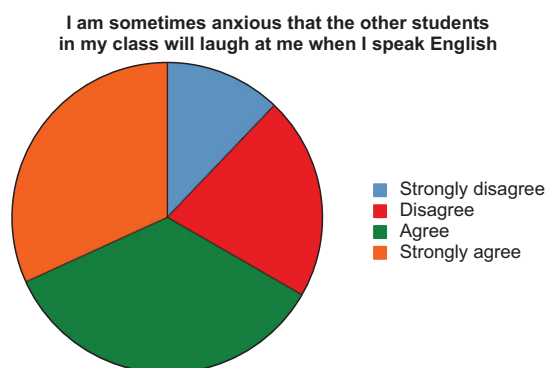


**Figure 1:** Anxiousness of Students While Speaking in Front of Others

The first eighteen questions assessed students' motivation for learning English, and the findings revealed that 75% of students, who scored between 15 and 18, were very driven to learn the language but facing difficulties. 23% were moderately motivated and only 1% were low motivated. The last two questions denoted the attitude of students to learn. About half of the students (48.5%) showed a positive attitude toward learning English communication skills, 29% were neutral and 23% illustrated a negative attitude because they were reluctant to speak in front of others due to fear of incorrect speaking. Cut scores were applied to calculate the level of motivation and nature of attitude (Table 4).

**Table 4:** Levels of Motivation and Nature of Attitude

| - | Category | Scores (%) | n % |
|---|---|---|---|
| Motivation | High Motivation | 15-18 (80-100%) | 50 (75.8) |
| | Moderate Motivation | 11-14 (60-79%) | 15 (23) |
| | Low Motivation | <11 (<60%) | 1 (1.2) |
| Attitude | Positive Attitude | 2 (80-100%) | 32 (48.5) |
| | Neutral Attitude | 1 (60-79%) | 19 (28.8) |
| | Negative Attitude | 0 (<60%) | 15 (22.7) |
| Total | - | - | 66 (100) |

# DISCUSSION

Learning English has become a challenge for students to move forward in education. This chapter's goal is to present a significant discussion of the study's findings within the framework of the most recent empirical research. Up-to-date knowledge about trends and needs of English learning will motivate students to take an interest in it. According to the current study, The students had a strong desire to learn English as collaborated with the findings of [2], who conducted their research study on 60 students of Cambodia University and concluded that students were strongly motivated to acquire the skill of English speaking. In this study, results indicate that students were motivated to acquire the skill of English because they wanted to go

abroad for higher education or for job opportunities similar to the results of [14], who found in his focus group discussion sample of nine, grade 10 students of Romania that they were motivated to learn English for higher education. After all, the main reason for their failure was their inability to pass through the medium of English. They considered English as an overseas language and faced failure. The students were motivated internally because they had realized its importance in their educational advancement, to study abroad, to learn new knowledge, to communicate with people of different cultures, and look like a knowledgeable person and these findings are comparable with the findings of [15], who conducted his study on 371 students of Vietnam National University, Hanoi – University of Engineering and Technology (VNU-UET). He concluded that students in his study were highly motivated to absorb English. In the present study, it has been noticed that students had a positive attitude to learn English opposite to the results of Virginia [16], who conducted a study on 118 students of Grade 10 students in Indonesia. They concluded that students did not have a positive attitude on the way to English learning which might be due to the reason of immature students at this level of education. Grade 10 students become mature when they face the environment of college and university and the importance of English in communicating with the world. Lastly, they found no significant correlation between The attitude of pupils and their ambition to learn English. Another factor that influences students' attitudes and motivation is career choice. This current study shows that the majority of pupils thought that studying English would help them get decent jobs and career opportunities. These findings are similar to those obtained by Imsa-Ard [17], where students affirmed that English is essential for their future career opportunities and for a better successful future. When asked if they felt nervous speaking English in class or with strangers, the majority of pupils said they did. Another study question linked with an anxious and afraid feeling that the other students would make fun of them if they improperly spoke English. This finding is similar to the finding of Syahfutra and Wibowo [18], who discovered that students' fear of making mistakes, uneasiness, and originality were the primary causes of their anxiety when speaking. Additionally, Santosa [19] also discovered that language anxiety also affects Indonesian students and they felt anxiety due to fear of making grammatical mistakes and running out of vocabulary. Throughout my study, it has been noticed that students had the motivation to learn English communication skills following the findings of Sayed Tanweer Ahmed and Dr. Rana Naeem Akhtar [20], who conducted a study in Pakistan. They found that communication is considered a backbone but it had not been developed as it should be. They also found motivation an important factor in learning oral proficiency in English.

The researcher concludes that English language learners are motivated and have a favorable attitude towards the language based on the data. According to the data, most students have a strong desire to study English since they know it will help them both academically and professionally. They are aware of its importance for landing decent employment, moving overseas, and leading successful lives. Some students, however, claimed that speaking in English made them uneasy and anxious, particularly when they were speaking in front of other students. The researcher initially believed that the reason the students were afraid to speak was because English was not their first language. There are some limitations of the current study: (1) a large sample size will be needed to validate the findings. In the current study, the sample size is not large enough to generalize findings to the population, (2) this study was restricted to Akhtar Saeed Medical College of Nursing only. Hence our results cannot equally generalize to other settings in different parts of the country, and (3) in the current study, the researcher used a non-probability convenient sampling technique which is not a good enough sampling technique. Major strength of this study is that this study gives the current baseline data about the Attitude and motivation of nursing students that will be helpful for improvement in their English. Here are the recommendations for future research: (1) The teachers must have knowledge and understanding of the student's attitudes and motivation and how to tackle these. Teachers need to instil the significance of learning English in their students. Teachers should help them in realizing the value of English in developed countries. (2) Students need to be aware of their attitude and motivation, certain attitudes can have a negative, so learn to recognize what motivates you, how to deal with it, and how to stay positive and motivated. (3) To verify the findings of this study and get more in-depth information, it is advised that future researchers employ various data collection techniques, such as interviews and observations. (4) A larger sample size with more participants from different departments rather than just nursing can be considered. (5) Multiple settings should be included to gather data and for better generalizability.

## CONCLUSIONS

Based on the results, the researcher concludes that English learners have a positive attitude and motivation toward the English language. The data shows that the majority of students are highly motivated to learn English because they are aware that it will benefit them in both their professional and academic lives. They know its significance in securing good jobs, living abroad, and excelling in life. However, some students said that the use of English made them feel nervous and uncomfortable, especially when speaking in front of other students. For a

time, the researcher concluded that the fear of speaking was because English was not the student's first language.

## Authors Contribution

Conceptualization: AJ
Methodology: AJ, NJ,
Formal analysis: ZA
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**Original Article**

OPEN ACCESS

# Assessment of the Level of Knowledge and Attitude Regarding Advanced Life Support Skills among Nurses Working in the Critical Areas (CCU, ICU and ER) of Punjab Institute of Cardiology, Lahore

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## ABSTRACT

Advance life support is the basic intervention to deal with cardiac arrest. Cardiac arrest has no time, place, or personal boundaries. According to WHO, it is estimated that about 23 million of people will die every year due to cardiovascular diseases and the chances of cardiac arrest are greater in people who have history of cardiovascular diseases. Advanced life support training consists of a set of life-saving protocols, interventions, and skills. **Objectives:** To determine the level of knowledge and attitude of critical care nurses regarding Advanced Life Support (ALS) skills and to assess association between level of knowledge and attitude and demographic characteristics of nurses. **Methods:** A descriptive cross-sectional study was conducted among critical care nurses of Punjab Institute of Cardiology. About 115 nurses were selected through convenient sampling method. The study was completed in four months from October 2023 to January 2024. Data were analyzed using SPSS Version 25. **Results:** Findings of study showed that 18 participants were male and 97 were female. Overall results indicated that 8.7% (n=10) nurses have poor knowledge, 39.1% (n=45) have average knowledge, 43.5% (n=50) have a good knowledge and only 8.7% (n=10) have excellent knowledge. On the other side, 71.3% (n=82) have a positive attitude and 28.7% (n=33) have negative attitude regarding ALS. **Conclusions:** A significant proportion of nurses have average to good knowledge and positive attitude. Only a few nurses have poor knowledge and negative attitude.

## INTRODUCTION

Cardiovascular disease is a general term that describes the disease of heart and blood vessels collectively and is the major cause of death all over the world [1]. According to American heart association (AHA), about 237.9 per 100,000 people have cardiovascular diseases globally according to the statistics of 2024 [2]. According to WHO, it is estimated that about 23 million of people will die every year due to cardiovascular diseases in Pakistan and the chances of cardiac arrest are greater in people who have history of cardiovascular diseases [3]. Basic life support (BLS) providers in such conditions can intervene early to reduce associated morbidity and mortality. The BLS course has altered greatly over the years to make it more useful to the general public [4]. Cardiac arrest has no time, place, or personal boundaries [5]. It can happen anywhere, inside or outside the hospital setting. It has been seen in the elderly, children, and adults [6]. Every year 15-25% of people die worldwide due to In-Hospital Cardiac Arrest and Out-Hospital Cardiac Arrest incidences. According to WHO about 17.9 million of all fatalities globally happen each year due to cardiac arrest [7]. Advanced life support training and knowledge is very important and consists of a set of life-saving protocols, interventions, and skills. It includes advanced cardiac life support and basic life support [8]. Advanced life support involves techniques like cardiopulmonary resuscitation, defibrillation, and tracheal

intubation; administering emergency drugs, operating ventilators, and cardiac monitors [9]. Creating awareness and educating medical personnel is critical to avoid delays in initiating cardiac resuscitation. Medical staff are frequently the initial responders to hospital cardiac arrests, and the effectiveness of a resuscitation may be a reflection of their knowledge and attitude toward the most recent advanced cardiac life support standards [10]. Practical skills, and relevant competencies related to CPR are significantly important to enhance the survival rate in cardiac arrest victims [11]. In hospital settings, nurses spend comparatively more time with patients than other healthcare workers like doctors, pharmacists, technicians, respiratory therapists, and paramedics [12]. Nurses working in cardiac settings must be prepared to provide a high level of life-saving support. So, up-to-date knowledge regarding advanced life support is mandatory for nurses working in these specialties [13]. Several studies have shown that most of the nurses in clinical setting have poor knowledge and attitude towards CPR. [14]. In Pakistan, the formal training of ALS has never been a part of the syllabus of graduation and post-graduation programs.

Therefore, this study aimed to assess the knowledge and attitude of critical care nurses towards advanced life support.

## M E T H O D S

A descriptive cross-sectional study was conducted among charge nurses of Coronary Care Unit, Intensive Care Unit and Cardiac Emergency of Punjab Institute of Cardiology, Lahore. The purposive sampling technique was used to collect the data. A sample size of 115 was calculated using 5% margin of error and 95% confidence interval from 260 population using Solvin's formula. Charge nurses working in Critical Care Unit, Intensive Care unit, and Emergency Room of Punjab Institute of Cardiology with at least six-month experience were included in the study. Nurses working in General wards, Outdoor departments were excluded from the study. An adopted knowledge and attitude tools were used in the study [14]. Knowledge assessment tool consisted of 10 multiple choice questions. Correct answer was given score 1 and wrong answer 0. Total score ranged from 0-10. Participants' knowledge levels were categorized as follows based on their total scores: poor (0-4), average (5-6), good (7-8), and excellent (8-10). The attitude assessment tool consists of 7 items and participants marked on 5 point Likert Scale (1 for Strongly Disagree to 7 for Strongly Agree). Total score ranging from 7 to 35. Participants' attitudes were categorized as either positive (22-35 score) or negative (7-21 score) based on their total scores. Permission to conduct the study was obtained from Ethical Review Board Committee of Punjab Institute of Cardiology Lahore, with Ref. No. RTPGME-Research-282. Informed written consent was obtained

from participants to participate in the study. The study duration was four months from October 2023 to January 2024. Data were analyzed using SPSS version 25. Frequencies and percentages were calculated for descriptive variables. Chi square test was used to assess the association between level of knowledge, attitude and demographic characteristics of nurses.

## R E S U L T S

Table 1 shows that about 46 (40%) were aged between 25 to 29 year and 45 (39.1%) were of age 30 to 35 year, and majority 97 (84.3%) were female and only 18 (15.7%) were male. About 44 (38.3%) nurses were from ER and 42 (36.5%) were from CICU. Majority 48 (41.7%) nurses had General Nursing diploma and 45 (39.1%) had B.Sc Nursing 2 year degree.

**Table 1:** Demographic Characteristics of Nurses

| Variable | Categories | Frequency (%) |
|---|---|---|
| Age | Under 25 | 14 (12.2%) |
| | 25 to 29 | 46 (40.0%) |
| | 30 to 35 | 45 (39.1%) |
| | More than 35 | 10 (8.7%) |
| Gender | Male | 18 (15.7%) |
| | Female | 97 (84.3%) |
| Department | CCU | 29 (25.2%) |
| | CICU | 42 (36.5%) |
| | ER | 44 (38.3%) |
| Education Level | General Nursing | 48 (41.7%) |
| | B.Sc Nursing 2 year | 45 (39.1%) |
| | B.Sc Nursing 4 year | 22 (19.1%) |

Table 2 shows the level of knowledge of nurses regarding ALS. About 50 (43.5%) nurses had good knowledge of ALS and 45 (39.1%) had average knowledge, 10 (8.7%) had poor and excellent knowledge regarding ALS.(39.1%) had B.Sc Nursing 2 year degree.

**Table 2:** Level of Knowledge of Nurses Regarding ALS

| Level of Knowledge | Frequency (%) |
|---|---|
| Poor Knowledge | 10 (8.7%) |
| Average Knowledge | 45 (39.1%) |
| Good Knowledge | 50 (43.5%) |
| Excellent Knowledge | 10 (8.7%) |
| Total | 115 (100%) |

Table 3 shows the overall attitude of respondents regarding ALS according to which 33 (28.7%) of respondents has a negative attitude whereas 82 (71.3%) respondents showed a positive attitude.

**Table 3:** Level Of Attitude of Nurses Regarding ALS

| Level of Attitude | Frequency (%) |
|---|---|
| Positive attitude | 82 (71.3%) |
| Negative attitude | 33 (28.7%) |
| Total | 115 (100%) |

Table 4 illustrates the association between the knowledge level and demographic characteristics of nurses, using the Chi-square test for analysis. A significant association was found between gender and the knowledge of nurses (p = 0.01). Among female nurses, 44 (45%) had good knowledge, 38 (39%) had average knowledge, 10 (10.3%) had poor knowledge, and 5 (5.2%) had excellent knowledge. In contrast, male nurses had no instances of poor knowledge, with 7 (39%) having average knowledge, 6 (33%) having good knowledge, and 5 (28%) having excellent knowledge. Similarly, there was a significant association between qualification and the knowledge of nurses (p = 0.001). Nurses with a B.Sc. Nursing (2 years) degree exhibited the highest level of good knowledge (37, 77.1%), compared to those with General Nursing qualifications (6, 13.3%) and B.Sc. Nursing (4 years) qualifications (7, 31.8%). There was no significant association between department and the knowledge of nurses (p = 0.550), nor between age groups and knowledge (p = 0.768). Among age groups, nurses aged 25-29 years had the highest level of good knowledge (22, 47.9%), while nurses working in the ER had the highest level of good knowledge among departments (20, 45.4%).

**Table 4:** Association of Knowledge of Nurses with Demographic Characteristics

| Variables | Poor Knowledge | Average Knowledge | Good Knowledge | Excellent Knowledge | P-value |
|---|---|---|---|---|---|
| Male | 0 (0%) | 07 (39%) | 06 (33%) | 05 (28%) | 0.01 |
| Female | 10 (10.3%) | 38 (39%) | 44 (45%) | 05 (5.2%) | |
| General nursing | 08 (17.7%) | 29 (64.4%) | 06 (13.3%) | 02 (4.4%) | 0.001 |
| B.Sc. Nursing (2 years) | 00 (0%) | 03 (6.2%) | 37 (77.1%) | 08 (16.7%) | |
| B.Sc. Nursing (4years) | 02 (9.1%) | 13 (59.1%) | 07 (31.8%) | 00 (0%) | |
| CCU | 05 (17.2%) | 09 (31%) | 13 (44.9%) | 02 (6.9%) | 0.550 |
| C.ICU | 02 (4.7%) | 18 (42.8%) | 17 (40.5%) | 05 (12%) | |
| ER | 03 (6.7%) | 18 (41%) | 20 (45.4%) | 03 (6.9%) | |
| Under 25 years | 01 (7.1%) | 07 (50%) | 05 (35.8%) | 01 (7.1%) | 0.768 |
| 25 – 29 years | 04 (8.6%) | 14 (30.4%) | 22 (47.9%) | 06 (13.1%) | |
| 30 – 35 years | 04 (8.9%) | 21 (46.7%) | 17 (37.8%) | 03 (6.6%) | |
| More than 35 years | 01 (10%) | 03 (30%) | 06 (60%) | 00 (0%) | |

Table 5 shows the association between the attitude and demographic characteristics of nurses. Among male nurses, 13 (72.2%) had a positive attitude, compared to 69 (71.1%) of female nurses. There was no significant association between gender and the attitude of nurses (p = 0.925). Nurses with a B.Sc. Nursing (2 years) degree had a significantly higher level of positive attitude (43, 89.6%) compared to those with a General Nursing diploma (26, 57.8%) and a B.Sc. Nursing (4 years) degree (13, 59.1%). There was a significant association between qualification and the attitude of nurses (p = 0.001). No significant association was found between department and age of

nurses with their attitudes, as indicated by p-values of 0.678 and 0.546, respectively. Nurses aged 25-29 years (36, 78.3%) and those working in the C.ICU (32, 76.2%) exhibited a higher level of positive attitude compared to nurses working in the ER and CCU.

**Table 5:** Association of Attitude of Nurses with Demographic Characteristics

| Variables | Positive attitude | Negative attitude | P-value |
|---|---|---|---|
| Male | 13 (72.3%) | 05 (27.7%) | 0.925 |
| Female | 69 (71.1%) | 28 (28.9%) | |
| General Nursing | 26 (57.8%) | 19 (42%) | 0.001 |
| B.Sc. Nursing (2 years) | 43 (89.6%) | 05 (10.4%) | |
| B.Sc. Nursing (4years) | 13 (59.1%) | 09 (40.9%) | |
| CCU | 20 (69.0%) | 9 (31.0%) | 0.678 |
| C.ICU | 32 (76.2%) | 10 (23.8%) | |
| ER | 30 (68.2%) | 14 (31.8%) | |
| Under 25 years | 10 (71.8%) | 4 (28.6%) | 0.546 |
| 25 – 29 years | 36 (78.3%) | 10 (21.7%) | |
| 30 – 35 years | 29 (64.4%) | 16 (35.6%) | |
| More than 35 years | 07 (70%) | 03 (30%) | |

# DISCUSSION

Millions of deaths occur every year due to sudden cardiac arrest worldwide. This mortality rate can be reduced remarkably by taking immediate and proper interventions [15]. The current study revealed that majority of nurses were female (84.3%) and majority of nurses were of age 25-29 year. These findings were in line with a research [16] who also reported that majority 72% nurses were female and aged between 21 to 35 year. Similarly, a study [14] also reported that majority of participants were female and had age between 20 to 40 year. The current study revealed that most of the nurses had Diploma in nursing program by PNC and Higher Education of Pakistan. This finding is consistent with previous study [16] who reported majority of nurses participants were diploma holders. Tomas *et al.* (2023) also reported significant association between qualification and attitude of nurses. In term of knowledge of nurses regarding ALS, majority 43.5% nurses had good knowledge regarding ALS. This finding is agreed with the findings of a cross-sectional study in Kyber Teaching hospital , reported good knowledge of 63% nurses regarding ALS [17]. In contrast, a study conducted [18] reported that only 22.7% of nurses have adequate knowledge regarding the cardiopulmonary resuscitation. Similarly, another study [19] reported that 59.5% of healthcare professionals have inadequate knowledge of ALS. A previous study [20] reported that 52.3 % of nurses have poor knowledge of ALS. The current study revealed that 71.3% nurses had positive attitude regarding ALS. Masih (2023) agreed this finding and reported that 50% patients had positive attitude towards ALS [1]. This was also consistent with a study [20] who reported 53%

participants' positive attitude towards CPR. A previous study also supported these findings and reported that 56.25% of healthcare workers have a positive attitude towards ALS[19].

## CONCLUSIONS

The study concluded that majority of nurses were female and aged between 25- 29 year. Majority of them had General Nursing Diploma. Majority of participant nurses had good knowledge and positive attitude towards ALS. There was a significant association between qualification and level of knowledge and attitude of nurses.

## Authors Contribution

Conceptualization: MZ, NAR, AR[1], AR[2]
Methodology: NAR, UAS, AR[1]
Formal analysis: UAS, AR[2]
Writing, review and editing: UAS, AM, MZ

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

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**Original Article**

OPEN ACCESS

# Assessing the Level of Knowledge Regarding Medication Errors among Nurses in Karachi, Pakistan

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## ABSTRACT

One of the key elements influencing hospital service quality and decreasing patient safety in healthcare systems is medical error. In the healthcare industry, medication errors are a frequent source of harm and fatalities. **Objective:** To assess the level of knowledge among nurses regarding medication errors. **Methods:** This cross-sectional study was conducted in a tertiary care hospital in Karachi among 120 nurses from January 2024 to March 2024. Participants were selected through a convenient sampling technique. The sample size was calculated by open EPI softer by taking into consideration a 95% confidence level and a 5% margin of error. The data were entered and analyzed by Statistical Package Social Sciences software version 26. **Results:** According to the study results, 14 (12%) of the participants had a low level of knowledge, and 37 (31%), had a moderate level of knowledge. while 69 (57%) had a high level of knowledge regarding medication errors. **Conclusions:** This study concluded that most of the nurses had a high level of knowledge regarding medication errors.

## INTRODUCTION

Errors in medication administration occur when a patient receives a different prescription than what his doctor suggested [1]. One of the primary elements influencing hospital service quality and decreasing patient safety in healthcare systems is medical mistakes (MEs). Sometimes they can result in mortality, particularly in underdeveloped countries [2]. In the healthcare industry, medication administration mistakes, or MAEs, are a frequent source of harm and fatalities. These mistakes not only jeopardize patient safety but also incur global financial costs [3]. WHO published a study on the frequency and expense of medication errors in Britain in February 2018. The study estimated that 237 million medication errors occur in Britain annually at all levels of the pharmacological procedure [4]. Preventable medication errors are responsible for between 18.7% and 56% of all adverse events among hospitalized patients. What's even more important to understand is that pharmaceutical errors can happen even when there is no patient injury. For all of these reasons and more, the World Health Organization initiated a global campaign in 2017 with the goal of halving drug errors by 50% in five years [5]. As a typical aspect of nursing practice, administering medication entails considerably more than merely psychomotor tasks. It depicts the complex interplay of multiple specific decisions and behaviors [6]. Any step of the drug administration process,

including prescription, transcribing, dispensing, preparation, and administration, might result in medication errors [7]. Because they spend so much time administering medication and because they get orders from doctors, chemists, and hospitals regarding medication dispensing, nurses are particularly vulnerable to medications errors [8]. Initiated in 2017, the third WHO challenge sought to secure a global commitment to cut the incidence and severity of medication-related harm by half during the following five years. To reach this objective, it is essential to determine all obstacles to reporting pharmaceutical errors [9]. Medication errors are a significant concern globally, The structural equation modeling analysis showed a positive significant correlation between medical errors (MEs) and psychological and functional factors, whereby excessive workload, complexity of tasks, stress, sleep deprivation, and fatigue were found to be predictors of MEs occurrence [10]. A study conducted in Quetta, Pakistan determined that documentation errors were the most prevalent medication errors observed in patients with kidney disease. Forgetfulness and duty shift were associated with documentation errors, whereas inattention was linked to prescribing and dispensing errors. The significant risk factor for medication errors was found to be a high number of prescribed medications [11]. Medication mistake is a significant problem in the healthcare sectors around the globe. It is a key component that leads to poor patient outcomes. Ultimately, the health of the patient will be directly impacted [12].

Considering the importance of vigilance in medication administration, this study aimed to assess the knowledge of nurses regarding medication errors.

## METHODS

In Karachi, Pakistan, at the Tertiary Care Hospital, a descriptive cross-sectional study was carried out from January to March 2024. Furthermore, 120 nurses both male and female working in different units were selected through a non-probability convenient sampling method. The optimal sample size was 120 and this was determined by open EPI calculator version 3.0, taking into account a 5% margin of error and a 95% confidence level with population size (for finite population factor correction factor or FPC) (N): 172. Before collecting data, the principal investigator received authorization and approval having reference number SSNHS/748/23 from the head of the department of Civil Hospital Karachi for the research. The goal of the study and the participant's rights to decline or withdraw from the study at any moment were all explained to the participants. Moreover, prior informed consent was taken from each participant in both Urdu and English. An open-access adopted questionnaire developed by Santos Karina (2020) [13] and informed consent were provided to the participating nurses. The inclusion criteria were the nurses

(male and female) working in the civil hospital Karachi having valid PNC license and were willing to participate in the study and the exclusion criteria were nurses' refusal to participate in the study, absence at the time of data collection, and incomplete forms. A two-part questionnaire consisting of demographic information and questions related to knowledge regarding medication errors was used for data collection. The demographic part has five while the knowledge has 10 questions. While scoring each right answer carries one mark, zero was given to the wrong ones. There was a maximum score of 10 and a minimum score of 0. A percentage was computed based on the overall score. Participants' knowledge of medication error was rated as poor by those with a score below 50%, as moderate by those with a score between 50% and 75%, and as high by those with a score above 75%. The Statistical Package for Social Sciences (SPSS) version 26.0 was used to enter and analyze the data. To assess the knowledge of nurses regarding medication error frequency and percentage were calculated.

## RESULTS

Table 1 shows the distribution of demographic variables of study participants. It has been noted that 43 (36%) subjects belonged to the 23-30 age group, 41 (43%) belonged to the 31-40 age, 29 (24%) belonged to the 41-50 age group and 7 (6%) belonged to the 50 above age group. 54 (45%) subjects were female, while the remaining 66 (55%) were male. 28 (23%) have the professional qualification of a Diploma in general nursing 30 (25%) have a BSN and 62 (51%) Post RN. 33 (27%) subjects have less than 03-year professional experience, 17 (14%) has 3-6 years professional experience while remaining 70 (58%) has more than 06 years professional experience. The area of practice of most participants was in the general wards 95 (79%) while 25 (21%) had an area of practice in critical areas.

**Table 1:** Distribution of Demographic Variable among study participants

| S. No. | Characteristics | Frequency (%) |
|---|---|---|
| | **Gender** | |
| 1 | Male | 66 (55%) |
| | Female | 54 (45%) |
| | **Age** | |
| 2 | 23-30 | 43 (36%) |
| | 31-40 | 41 (43%) |
| | 41-50 | 29 (24%) |
| | >50 | 7 (6%) |
| | **Qualification** | |
| 3 | Diploma | 30 (25%) |
| | GBSN | 62 (51%) |
| | Post RN | 33 (27%) |

| Working Area | | |
|---|---|---|
| 4 | Critical | 25 (21%) |
| | Non-Critical | 95 (79%) |
| **Experience** | | |
| 5 | <3 Years | 33 (27%) |
| | 3-6 Years | 17 (14%) |
| | > 6 Years | 70 (58%) |

Table 2 shows the level of nurses' knowledge regarding medication errors. This table shows that 14 (12%), had a low level of knowledge, and 37 (31%), had a moderate level of knowledge, while 69 (57%) had a high level of knowledge regarding medication errors.

**Table 2:** Level of Knowledge among study participants

| Level of Knowledge | | |
|---|---|---|
| S. No. | n= 120 | Frequency (%) |
| 1 | Low Level of Knowledge | 14 (12%) |
| 2 | Moderate Level of Knowledge | 37 (31%) |
| 3 | High Level of Knowledge | 69 (57%) |
| | Total | 120 (100%) |

# DISCUSSION

A significant amount of medication is given to patients daily in every area of the health care system. Medication mistakes are particularly frequent in this procedure and are a leading global source of harm and fatalities [14]. The present study's findings indicate that most subjects were male, with a mean age between 20 and 30 years. These results are not line with a study by Khan et al., (2023) that was carried out in Pakistan and revealed that 125 (62.1%) of the participants were female and had a mean age of 20 to 30 years [15]. The present study findings show that 28 (23%) have the professional qualification of a Diploma in general nursing 30 (25%) have a BSN and 62 (51%) Post RN. 33 (27%) subjects have less than 03-year professional experience, 17 (14%) has 3-6 years professional experience while remaining 70 (58%) has more than 06 years professional experience. The area of practice of most participants was in the general wards 95 (79%) while 25 (21%) had an area of practice in critical areas. Conversely, research carried out in Saudi Arabia by Alandajani et al., in 2022 revealed that the majority of participants (68.4%) had a generic BSN and that they were from non-critical areas [16]. The differences in qualifications, clinical experience, and practice areas may be due to variations in educational systems, healthcare infrastructure, and job market demands. Knowledge of medication errors is very significant for reporting medication errors. If nurses and other healthcare providers have adequate knowledge of medication errors. they can play a pivotal role in preventing medication errors and as a result, can impede injuries occurring due to medication errors. The findings of the current study indicate that the majority of the nurses 69 (57%) had a high level of knowledge, while 14 (12%), had a low

level of knowledge, and 37 (31%), had a moderate level of knowledge, regarding medication errors. These results are consistent with Iffat et al.'s study, which found that the knowledge of healthcare professionals was sufficient [17]. The finding aligns with the previous research conducted by Johnson et al., in Ajman, UAE, which showed that Iranian nurses, had a good understanding of medication errors [18]. Additionally, the result is different from the previous research conducted in Medina, Saudi Arabia by Abdellatif et al., which found that healthcare professionals, including doctors, chemists, and nurses, had insufficient knowledge regarding drug errors [19]. Moreover, it was found in research conducted by Alenezi AM and Baker OG, knowledge influences attitude, as nurses who have a deep understanding of the subject matter are more likely to have positive attitudes towards their patients, their colleagues, and their work [20]. Also, the findings of another study carried out in Pakistan indicated that final-year MBBS students, nurses, and doctors had poor knowledge regarding medication errors and needed to improve [15].

# CONCLUSIONS

The findings revealed that most of the participants (nurses) had a high level of knowledge regarding medication errors. Moreover, the findings showed that 14 (12%) of the participants (nurses), had a low level of knowledge, and 37 (31%), had a moderate level of knowledge. while 69 (57%) had a high level of knowledge regarding medication errors.

# Authors Contribution

Conceptualization: AA, SK
Methodology: A, AA, ZU, AJS, SU, MI[1], MI[2]
Formal analysis: SK, AB
Writing, review, and editing: AA, SK

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

# Conflicts of Interest

The authors declare no conflict of interest.

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**Original Article**

OPEN ACCESS

# Occupational Stress and Turnover Intentions: Implication for Nursing Management

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## ARTICLE INFO

## ABSTRACT

Most of the time, individuals have to endure many kinds of occupational stressors at their workplaces that challenge their serene and skilled personalities, disturbing their aptitude. Therefore, a person may quit their employment, which is their turnover intention. **Objective:** To assess the occupational stress and turnover intention: implications for nursing management. **Methods:** A descriptive cross-sectional research study design was used. The study used a purposive sampling technique. The study population was staff nurses, and the sample size was 133. **Results:** The study reported that the occupational stress to the staff nurses in the field, those who mostly agreed were 70% and strongly agreed were 20%, and 10% were uncertain about stress in their working setup. Most staff nurses agreed that nurses leave their jobs and turn over to the next hospital, which was 80%, and strongly agreed 10%, and those nurses who compromise on the field were 10%. **Conclusions:** The study concluded that most nurses have high occupational stress and turnover intention. Therefore, it's the responsibility of the management to provide a favourable or soothing environment by lowering workload and providing several staff nurses by the related departments, which helps the staff nurses to lower their occupation stress and thus limit turnover intentions in the hospital setup.

## INTRODUCTION

In the healthcare setting, nurses are the imperative part that delivers far-reaching attention to their patients with ethical concerns [1]. In the existing era, nurses need to advance their ethical understandings to perform their duties more professionally, improve their coping abilities, and offer secure, excellent, and permissible care to patients [2]. With the dainty of ethical codes, nurses reliably practice in response to the inquiry "How can I assist you?". In this way, nurses are always ready to serve their patients who need care and assistance, as it's the key role in the nursing profession [3]. It is common for nurses to experience stress. It lessens nurses' productivity and causes health issues in them. The nursing industry is well known for being stressful and for hurting a person's physical and psychological health [4]. Relationships between people and their surroundings that are viewed as taxing or exceeding their resources and endangering their well-being are essentially what stress is all about [5]. Stress reactions are the physiological (fast heartbeat, elevated blood pressure, etc.) and psychological (anger, terror) responses that happen when faced with a stressor; stressors are things and occurrences [6]. The World Health Organization has emphasized that stress is a global epidemic because it has recently been discovered that 90% of doctor visits are related to stress [7]. The unique requirements of hospital employees' occupations may be in part to blame for the results indication of their stress levels [8]. This entails role ambiguity, in which the employee frequently feels unsure of the exact nature and responsibilities of his or her employment [9]. The hospital may have experienced job-related stress due to work pressure, insufficient resource support, competing task

demands, and poor communication, among other factors. Stress-related to occupation is a vigour problem among nurses. Its frequency diverges between 9.2% and 68.0% [10]. It lessens the worth and proficiency of nurses' concerts. In this way, occupational stress raises the rate of burnout and turnover among nurses as it stimulates them emotionally and physically. Thus, nursing appears to be a challenging and chaotic profession. Work-related stress arises when your job does not cover your physical and psychological needs and demands [11]. Therefore, you have to face many confrontational situations in your working environment as well as in your organization. For the duration of the previous era, occupational stress underling was a great alarm. According to the American Institute of Stress, it is a core feature in up to 80% of work-related injuries and 40% of turnovers in the working area. Nursing is recognized as the most demanding profession. Working stress among nurses disturbs both personal skills and organizational running and also affects the care delivered by healthcare providers [12]. Literature activist says that stress leads to many physical and psychological diseases in the form of hypertension, anxiety, and depression that exacerbate burnout and turnover intentions and lessen job satisfaction, which directly and indirectly compromises patient care in the healthcare setting. Abundant job stress and occupational stress lead to increased turnover, especially for nurses in public hospitals [13]. Although nurses work in stressful environments, stressors in such environments have yet to be assessed. This noticeably indicates that extreme job stress/occupational stress in the hospital environment forced the able or skilled staff to move towards turnover for a healthy and favourable working environment [14]. As occupational/job stress indicates excessive turnovers and burnout in any organization, likewise, public hospitals face burnout and turnover conditions from the nurses, which leads to extreme occupational stress for the nurses who remain there [15]. Thus, the objectives of this study are to assess the occupational stress and turnover among nurses in public hospital settings to lower the turnout conditions for nurses and provide a healthy, favourable, encouraging, pleasant, and positive working environment for the nurses, which directly influence the quality of care delivered by the nurses to the patients as well as their attendants. Therefore, it's the responsibility of the leaders to emphasize a clear expression of values, objectives, and mission of the organization and try to raise confidence in employees by respecting and caring for them, supporting their views and suggestions, and providing a courageous and positive environment to lower the occupational stress and be optimistic about the future [16].

## METHODS

A descriptive cross-sectional research study was conducted among staff nurses of the Jinnah Hospital Lahore, Pakistan. The study targeted the population of staff nurses of a public hospital (Jinnah Hospital Lahore); those fully participated in the collection of data, and proper consent was taken from them. The purposive sampling technique was used to gather the sample from the total population. The sample size of 113 participants was calculated using Raosoft software by taking a population size of 500, an 8% margin of error, and a 95% confidence interval. The nurses who had experience of 10 years or less in the hospital were included in the study. Nurses from medical wards, surgical wards, orthopaedic wards, and ICUs were included in the study. The study tool "Occupational stress and Turnover Intention Questionnaire" was used to measure stress levels on a scale, of strongly agree to strongly disagree. This questionnaire was taken from the previous literature. 4 questions were related to occupational stress, and 5 questions were asked for the turnover intentions. The data were analyzed by SPSS version 25.0. The patient's demographics were presented by frequencies and percentages. The descriptive analysis was conducted for the Occupational stress and turnover intention questionnaire.

## RESULTS

Table 1 shows that participants in the study with age group 21-25 years were 25 (18.8%), with age group 26-30 years were 41 (30.8%), with age group 31-35 years were 44 (33.1%), and those with age group 36-40 years were 23 (17.3%). The male participant's frequency was 25 (18.8%), and female participants in the study with gender group frequency were 108 (81.2%). Among the participants, those who were single had a frequency of 20 (15%), while married participants had a frequency of 113 (85%). Among the study participants, those with a diploma in general nursing were 39 (29.3%), with Post-RN were 86 (64.7%), and with BSN Generic were 8 (6%). In terms of working experience, with 1-2 years of experience were 4 (3%), those with 3-4 years were 32 (24.1%), those with 5-6 years were 44 (33.1%), those with 7-8 years were 33 (24.8%), and those with 9-10 years of experience were 20 (15.0%). In the study ICU ward participants were 8 (6%) and surgical ward participants were 69 (51.9%) and with medical ward participants were 56 (42.1%).

**Table 1:** Demographic Variables of study participants

| Variables | N (%) |
|---|---|
| **Age** | |
| 21-25 Years | 25 (18.8%) |
| 26-30 Years | 41 (30.8%) |
| 31-35 Years | 44 (33.1%) |
| 36-40 Years | 23 (17.3%) |
| **Gender** | |
| Male | 25 (18.8%) |
| Female | 108 (81.2%) |

| Marital Status | |
|---|---|
| Single | 20 (15.0%) |
| Married | 113 (85.0%) |
| **Qualification** | |
| Diploma in General Nursing | 39 (29.3%) |
| Post RN | 86 (64.7%) |
| BSN ( Generic) | 8 (6.0%) |
| **Experience** | |
| 1-2 Years | 4 (3.0%) |
| 3-4 Years | 32 (24.1%) |
| 5-6 Years | 44 (33.1%) |
| 7-8 Years | 33 (24.8%) |
| 9-10 Years | 20 (15.0%) |
| **Department** | |
| ICU | 8 (6.0%) |
| Surgical Ward | 69 (51.9%) |
| Medical Ward | 56 (42.1%) |

Table 2 presented that from the total number of respondents who answered the question "Handling a large number of patients alone at a hospital", those strongly agreed with it were 29 (21.8%), those agreed with the statement 54 (40.6%), those uncertain about the given statement were 17 (12.8%), those disagree were 19 (14.3%), and those who strongly disagree with the given statement were 14 (10.5%). Respondents about the question "Inadequate staffing levels", strongly agree with it were 34(25.6%), those who agreed 55 (41.4%), those uncertain about question 14 (10.5%), those who disagreed 22 (16.5%), and those who strongly disagreed with the given statement were 8 (6.0%). Respondents answering the question "Frequent night duty", strongly agreed with it were 89 (66.9%), agreed were 24 (18.0%), those who uncertain about question were 7 (5.3%), disagree were 6 (4.5%), and those strongly disagreed with the given statement were 7 (5.3%). Respondents answering the question "Lack of opportunity for growth/promotion", strongly agreed with it were 25 (18.8%), those agreed 69 (51.9%), those uncertain about the question 29 (21.8%), those disagreed 4 (3.0%), and those who strongly disagree with the given statement were 6 (4.5%).

**Table 2:** Response of the Participants for the Occupational Stress Analysis in their Working Setup

| Variables | N (%) |
|---|---|
| **Handling a Large Number of Patients Alone at Hospital** | |
| Strongly Agree | 29 (21.8%) |
| Agree | 54 (40.6%) |
| Uncertain | 17 (12.8%) |
| Disagree | 19 (14.3%) |
| Strongly Disagree | 14 (10.5%) |
| **Inadequate Staffing Levels** | |
| Strongly Agree | 34 (25.6%) |
| Agree | 55 (41.4%) |
| Uncertain | 14 (10.5%) |

| | |
|---|---|
| Disagree | 22 (16.5%) |
| Strongly Disagree | 8 (6.0%) |
| **Frequent Night Duty** | |
| Strongly Agree | 89 (66.9%) |
| Agree | 24 (18.0%) |
| Uncertain | 7 (5.3%) |
| Disagree | 6 (4.5%) |
| Strongly Disagree | 7 (5.3%) |
| **Lack of Opportunity for Growth/Promotion** | |
| Strongly Agree | 25 (18.8%) |
| Agree | 69 (51.9%) |
| Uncertain | 29 (21.8%) |
| Disagree | 4 (3.0%) |
| Strongly Disagree | 6 (4.5%) |

Table 3 presented that from the total number of respondents answering the question "when I feel that the working condition of friends who work in other hospitals was better", those strongly agreed with it were 42 (31.6%), those agreed 48 (36.1%), those uncertain about the question were 27 (20.3%), those who disagree were 8 (6.0%), and those who strongly disagree with the given statement were 8 (6.0%). The question "when do I feel my salary was low in comparison to my workload." The participants who strongly agreed with it were 51 (38.3%), those who agreed were 57 (42.9%), those uncertain about the question were 14 (10.5%), those disagreed were 6 (4.5%), and those who strongly disagree with the given statement were 5 (3.8%). The question "when better job opportunities come" and the participants who strongly agreed with it were 71(53.4%), those who agreed were 44 (33.1%), those uncertain about the question were 6 (4.5%), those who disagreed were 3 (2.3%), and those who strongly disagree with the given statement were 9 (6.8%). The question "when I am transferred to a department where I don't want to work." The participants who strongly agreed with it were 6 (4.5%), those who agreed were 40 (30.1%), those uncertain about the question were 75 (56.4%), those disagreed were 6(4.5%), and those who strongly disagree with the given statement were 6 (4.5%). The question "when I cannot perform my tasks due to an excessive workload." And the participants who strongly agreed with it were 23 (17.3%), those who agreed were 65 (48.9%), those uncertain about the question were 29 (21.8%), those who disagreed were 10 (7.5%), and those who strongly disagree with the given statement were 6(4.5%).

**Table 3:** Response of the Participants for the Turnover Intentions in Accordance to the Hospital Setup

| Variables | N (%) |
|---|---|
| **When I feel that the Working Condition of Friends who Work in other Hospitals are Better** | |
| Strongly Agree | 42 (31.6%) |
| Agree | 48 (36.1%) |
| Uncertain | 27 (20.3%) |

| | |
|---|---|
| Disagree | 8 (6.0%) |
| Strongly Disagree | 8 (6.0%) |
| **When I feel my Salary is Low in Comparison to my Workload** | |
| Strongly Agree | 51 (38.3%) |
| Agree | 57 (42.9%) |
| Uncertain | 14 (10.5%) |
| Disagree | 6 (4.5%) |
| Strongly Disagree | 5 (3.8%) |
| **When Better Job Opportunities Come** | |
| Strongly Agree | 71 (53.4%) |
| Agree | 44 (33.1%) |
| Uncertain | 6 (4.5%) |
| Disagree | 3 (2.3%) |
| Strongly Disagree | 9 (6.8%) |
| **When I am Transferred to Department where I don't Want to Work.** | |
| Strongly Agree | 6 (4.5%) |
| Agree | 40 (30.1%) |
| Uncertain | 75 (56.4%) |
| Disagree | 6 (4.5%) |
| Strongly Disagree | 6 (4.5%) |
| **When I cannot Perform my Tasks due to an Excessive Workload** | |
| Strongly Agree | 23 (17.3%) |
| Agree | 65 (48.9%) |
| Uncertain | 29 (21.8%) |
| Disagree | 10 (7.5%) |
| Strongly Disagree | 6 (4.5%) |

# DISCUSSION

The current study assesses the occupational stress and turnover intention: implication for nursing management. Study results showed that the majority of the participants in the age group 31-35 years were 44 (33.1%) whereas the female participant's frequency was 108 (81.2%). Married participants in the study with Martial Status were 113 (85%) or Post RN participants in the study with education group frequency were 86 (64.7%) and 5-6 years experienced participants in the study were 44 (33.1%). The participants working in ICU were 8 (6%) and participants who participated in the study from the surgical ward were 69 (51.9%) and those participants who participated in the study from the medical ward were 56 (42.1%). Occupational stress influences the nurse's working capabilities and leads her/ him towards turnover intention which increases the burnout rate in the hospital setting. Healthcare is an inherently stressful profession with long working hours, difficult working conditions, and dealing with difficult patients and numerous occupational health and safety hazards [17-19]. Adzakpah et al., presented the concept the Occupational stress among nurses in Hospital settings in Ghana in the Journal of Research Gate [18]. Comparatively, the current study showed 54 (40.6%) staff nurses agreed that handling a large number of patients alone, was one of the great factors causing the occupational stress among nurses in the hospital setting which commonly leads the nurses to leave their jobs. Collectively excessive workload causes occupational stress among nurses. The study involved 126 participants related to palliative care nurses and the large number of nurses had three or not many years of experience. Therefore, almost 60% of nurses appeared as they were ready to leave their workplace due to the work stress. Thus the turnover intention remarkably correlates to the stressful environment [19]. Conferring the current study 65 (48.9%) participants agreed that they were not performing their actual tasks appropriately due to an excessive workload which causes work stress and only 10 (7.5%) disagreed with the given statement. Therefore, stressful workplaces lead to multiple negative consequences which significantly high the rate of turnover intentions. Surbakti et al., presented a study about the Analysis of Remuneration, Job Satisfaction, Commitment, and Work Environment on Turnover Intention with Job Stress as Intervening Factors on Nurses, the study showed higher turnover intentions influenced by factors such as pay, job satisfaction, organizational commitment, and job stress [20]. Thus related to the current study participants 42 (31.6%) agreed that their friend's working conditions are better in other hospitals than their hospitals and only 8 (6.0%) disagreed with the declaration, which showed dissatisfaction of the nurses with the hospital management. Occupational stress or work stress is the chief aspect that leads an organization especially the hospitals towards turnover intentions or higher burnout rates. Increased workload, inappropriate staffing, depreciation, or underpaid were such factors that caused dissatisfaction among nurses with their hospitals which created occupational stress and turnover intentions. Therefore, the hospital management should create interventions and support systems to enhance nurses' wellbeing by having a better understanding of nurses' essentials, rewarding, and appreciation to increase the nurses' morals. Thus it helps to advance job satisfaction levels among nurses which lessens turnover intentions among nurses in the hospital setting.

# CONCLUSIONS

Staff nurse's satisfaction was the significant key feature for the remarkable outcomes to not turnover next with the occupational stress. Therefore, hospital management should provide a whole, accurate rule and exceptional opportunities for the staff nurses to provide some relief during their shift to limit the occupational stress and turnover intentions and decrease the level of occupational stress and turnover intentions.

# Authors Contribution

Conceptualization: KT
Methodology: HS
Formal analysis: RJ
Writing, review and editing: HS, RJ, ST

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

OPEN ACCESS

# Effect of Educational Interventions on Awareness of Dengue Fever and Its Preventive Measures among High School Students

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## ARTICLE INFO

## ABSTRACT

Dengue fever was a communicable disease transmitted through a vector borne means. Dengue fever was also known as break bone fever and clinical manifestation in the form of headache, nausea, vomiting, and fever, joint and muscular pain occurred more frequently in patients. **Objective:** To improve the awareness on dengue fever and its preventive measures among high school student. **Methods:** A quasi- experimental (pre-test, post-test) study design was used. The duration of the study was six months, and a convenient sampling technique was used to collect data from high school students. The sample size of the current study was 36 and data were collected through adopted questionnaire. **Results:** 58.3% of study participants belong to 9thclass while remaining were from 10th (41.7 %.). As per age brackets, 38.8% students were belong to 15years of age, the 16 years age students were 33% while only 5% comes under the age of 18 years. The pre intervention mean awareness score was 7.13±1.41 while the post test enhancement in awareness score was 13.69 ±3.02. There was a statistically significant difference between pre and post intervention awareness score after the health education session. **Conclusions:** The findings of present study suggested that awareness of students was enhanced after educational interventions. Their awareness had been improved about the causative agent, sign/symptoms, mode of transmission, mechanism of infection etc. after educational session. Moreover, the participant's awareness improved about preventive measures of dengue control likely environmental control (spraying and fogging) and personal protection after educational program. Educational programs help to change the attitude and behavior of the participants towards control measures.

## INTRODUCTION

Every person has the right to live healthy life. It is the global concern to provide quality life to individual. There are two main health related concerns namely communicable and non communicable. Communicable diseases are illnesses which can be transmitted from one person to another person by direct/indirect contact, airborne transmission, and vector borne transmission, food and water borne transmission [1]. While, the Non communicable diseases are condition that cannot be transferred from one person to other through contact. They are chronic in nature and caused by multiple factors. Dengue fever is a communicable disease transmitted through a vector borne means. The word dengue was derived from a Swahili phrase having meaning of cramp like seizure [2, 3]. Dengue fever, an infectious disease which is spread to the humans by the bite of infected mosquitos' name Aedes Egypt and Aedes albopictus. Dengue fever regarded as one of the major viral illness of this modern era. Dengue virus belongs to Flaviviridae family and is caused by an infected mosquito [4]. Dengue fever is also known as break bone fever and

clinical manifestation in the form of headache, nausea, vomiting, fever, joint and muscular pain occurred more frequently in patients. The morbidity and mortality rate from severe form of dengue fever increased annually [5]. The death rate from dengue could be minimized by giving awareness to the patients and general public about this disease and it's preventing measures [6]. Over the past few decades, dengue fever prevalence has increased worldwide. The increase in the occurrence of dengue fever could potentially affect half of the world's population. Dengue fever is currently prevalent to 110 countries worldwide and is a tropical illness. An estimated 3 billion people are susceptible to dengue fever, of which 70–500 million are diseased and 20,000 die from the dengue fever each year [1, 7, 8].Lack of adequate information about wide range of sign/symptoms of dengue fever lead to wrong classification and inaccurate diagnosis worsened the case lead to high mortality rate. Moreover, dengue cases may be underreported in Pakistan [9]. Dengue fever is influenced by number of factors like huge population growth, poor waste management, and urbanization, ponds formation in rainy session and ineffective preventive measure of breading points of mosquitoes [10-12]. The most widely used strategy for the prevention and control of dengue spread among general public is the vector control. The vector control measure can be mainly created outside by intermittent fogging of prevalent areas. While the mosquitoes of dengue fever are difficult to kill by insecticide as Aedes aegypti remains in the hidden indoors, therefore exacerbating the severity of illness [13]. Effective preventive measures play an important role in the eradication of dengue fever. There should be a need to eliminate the breading points of mosquitoes both at indoor and outdoor places. The behavior of human plays a significant role in the creation of breading points and supporting the increase in mosquito's growth [14]. The production of mosquitoes can be controlled through the utilization of effective preventive measures for example, improvement in sanitation system of public and homes, proper waste disposal, good and concealed water supply chain, and changes in the people behavior to minimize the breading sites of dengue [15, 16]. The critical challenge for preventing the outbreaks of dengue in different tropical countries is the favorable temperature for the breeding of mosquitoes [17]. The humid, slightly hot temperature favors the replication of dengue viral around the year. Vector control strategies should be devised by local government or municipal corporations to prevent the break of dengue epidemic. The municipality is accountable for controlling the vector by eradicating the breading places through the use of insecticides [15, 18, 19]. The insecticides kill the larva and adult mosquitoes to suppress the mosquito vector activity and minimize the episodes of dengue fever among susceptible population [20, 21]. Dengue fever remains a significant public health concern in rural areas of Bahawalpur, where environmental factors such as fertile land near the River Sutlej, hot and humid climate, and inadequate waste disposal create ideal conditions for Aedes mosquito breeding. Limited healthcare access and a lack of awareness further exacerbate the impact of dengue, leading to frequent outbreaks that compromise the health, education, and livelihoods of affected individuals. High school students represent an ideal group for targeted educational interventions due to their capacity to learn, retain, and disseminate knowledge within their families and communities. By empowering students with accurate information about dengue fever and its preventive measures, they can play a pivotal role in reducing disease transmission. Engaging students as change agents not only helps to raise awareness among the wider population but also instills lifelong preventive habits that contribute to long-term vector control and disease reduction.

Therefore, the purpose of this study was to improve the awareness by educational interventions on dengue fever and its preventive measures among high school student.

## METHODS

A quasi- experimental one group (pre-test, post-test) study design was used to assess the awareness of students about dengue fever and its preventive measures before and after the educational interventions. The study was conducted among high school students, rural community of Bahawalpur, Pakistan. The target population was the school students of 9th and 10th class and included in study. All the participants who didn't give consent were excluded from study. Informed consent was diligently obtained from both parents and guardians as well as the students participating in the study. Prior to securing their consent, a comprehensive explanation was provided of the study's aims and objectives, ensuring that the students fully understood the purpose, procedures, and potential implications of their involvement. This thorough communication was essential to facilitate an informed decision regarding their participation in the research. The selection of school students as study participants for present study was a strategic approach for the prevention and control of disease spread. As students were the vulnerable age groups and at risk due to the exposure of mosquitoes in the playgrounds and class rooms. Educational interventions empower the students as a change agent that influences the families and communities to take on the measures to control the breeding places of mosquitoes. Moreover, students will share knowledge with other members of the family, cheering the awareness and participation in the initiatives

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of community-based prevention of dengue. This approach was cost effective and promotes healthy and well informed community. The duration of the study was six month from November, 2023 to April, 2024. A convenient sampling technique was used to gather data from study participants. There were 200 students in 9th and 10th class at study setting. Cochran formula was used to calculate sample size by taking margin of error (e) 0.15, an estimated proportion of population (p) 0.5, population of 200, 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 61 participants.

$$n = \frac{n_o}{1 + \frac{(n_o - 1)}{N}}$$

Here n0 was Cochran's sample size recommendation, N was the population size, and n was the new, adjusted sample size i.e. 36. While the students on leave and having understanding or hearing issues were excluded. Data were collected after taking permission from college management and school administration. Research has explained the purpose and aim of the study. Study participants were informed about the details of educational interventions and shared with them. Power point presentation, charts, role plays and demonstration were the teaching strategies used to convey the information the students about dengue and its preventive measures. All the data were recorded on a predesigned Performa. Student's awareness about dengue fever was assessed by short test, which includes questions about dengue and its preventive measures. Total 20 questions were asked. Each correct answer was scored as 1 and wrong as 0. Highest score indicates good awareness. Data were gathered at two point of time. The structured questionnaire was distributed/filled by students before start of the study and after 6 weeks of educational interventions. Data were analyzed by SPSS (Version-22.0) and paired sample t-test utilized to find out the improvement in the awareness of students about dengue fever and its preventive measures. The normality of data was checked by Shapiro wilk test and paired sample t- test was used to see difference among means on awareness of students about dengue fever and its preventive measures before and after the educational interventions. Moreover, the statistics of paired sample t-test depicted the improvement in the awareness level of students.

## RESULTS

The demographic characteristics of study participants deal with the distribution of students according to age, gender and grades. The data were summarized in terms of frequency and percentage. Table 1 depicted the demographic data of the students as 58.3% of study participants belong to 9th class while remaining were from 10th (41.7 %). As per age brackets, 38.8% students were belonging to 15 years of age, the 16 years' age students were 33% while only 5% comes under the age of 18 years.

**Table 1:** Demographics of study Participants

| Variables | Years | Frequency (%) |
|---|---|---|
| Age | 15 | 14 (38.8%) |
| | 16 | 12 (33.5%) |
| | 17 | 8 (22.2%) |
| | 18 | 2 (5.5%) |
| Gender | | 36 (100%) |
| Grades | 9th | 21 (58.3%) |
| | 10th | 15 (41.7%) |

Table 2 displayed the values of average mean before and after the educational interventions among high school students. The pre intervention mean awareness score was 7.13 ± 1.41 while the post test enhancement in awareness was 13.69 ± 3.02. There was statistically significant difference between pre and post intervention awareness score.

**Table 2:** Pre and Post Interventional Mean Awareness Score

| Awareness Score | Mean ± SD | p-Value |
|---|---|---|
| Pre Knowledge Score | 7.13 ± 1.417 | 0.00 |
| Post Knowledge Score | 13.69 ± 3.02 | |

## DISCUSSION

The aim of this study was to enhance the awareness on school students about the dengue fever and its preventive measures. The educational sessions plays an important role in enhancing the awareness and become a basis for preventive measures to control dengue outbreak. The present study results showed that all participants were male and majority was younger than 18 years. As per age brackets, 38.8% students belong to 15 years of age, the 16 years age students were 33% while only 5% comes under the age of 18 years. The finding of previous study was similar and majority of the students fall in the age bracket of 15 and 16 years [18]. According to the findings of the present study, the major information source of dengue fever was the media and health education. Media like TV, radio, audio visual information on social media disseminate important information about dengue fever and preventive measure among general public. These findings were consistent with one of the previous study results, where students were in touch with friends and the print media. But, media especially audio-visual were accessible to the students for quality education and facilitate to take precautionary measure to control the vector transmission of dengue [14, 22]. The present study results depict that majority study subjects have poor awareness before intervention about the dengue and its preventive measures but after intervention there awareness level increases and proves the effect of educational intervention. Similar

results of a study conducted by Namirimu and Kim (2024), revealed that educational intervention enhances knowledge about dengue fever and the history of transmission by the mosquito's name Aedes aegypti was the first vector of dengue illness which was transmitted to human beings by the bite of infected mosquitoes [23]. Moreover, the students in current study were fully aware that rainy, humid season as compare to summer /winter was a favorable season for the breading of dengue mosquitoes. These findings were supported by a study conducted in Malaysia about the effect of awareness education on dengue fever knowledge and the best season of mosquito breeding. The participants of this previous study knew the favorable season of dengue breading was moon soon weather [18, 24]. The participants of current study give positive responses to the sign and symptoms of dengue fever. They stated that nausea, vomiting, purple bruises followed by fever were the common symptoms of dengue fever. This was supported by the previous study data which was contrary to the current study result. According to previous study, majority subjects were not identified the symptoms of dengue fever correctly. The sign and symptoms of dengue fever ranges from abdominal problems to headache, body aches, bruises accompanied by fever [25]. As the results of current study presented that majority of the students become familiar about the breading places of dengue mosquitoes after attending educational session about dengue. Students become aware that accumulation of water either in rainy season or by manmade ponds was the breading place of mosquitos' production. One of the previous studies supports these study outcomes as humans were responsible for making watery breading places in or outside the home especially in factories and construction site [26, 27]. The respondents of the present study demonstrated a positive affirmation regarding preferred treatment places for dengue fever, highlighting government hospitals and dispensaries as essential facilities for providing quality care to patients, both temporarily and on an in-patient basis. Previous studies have suggested that government hospitals possess adequate resources to manage dengue signs and symptoms effectively during outbreaks. However, educational interventions were crucial to addressing gaps in awareness and guiding the community toward utilizing these resources efficiently, ensuring timely and appropriate care during dengue outbreaks [28, 29].

## CONCLUSIONS

The findings of present study suggested that awareness of students was enhanced after attending the educational interventions on dengue fever and its preventive measures. Educational programs plays significant role in enhancing the awareness and skills of students about mosquitoes control. The findings indicated a significant improvement in school students' understanding of dengue-related topics following the educational session. Additionally, the educational intervention increased participants' awareness of preventive measures, including environmental control strategies such as spraying and fogging, as well as personal protection methods.

## Authors Contribution

Conceptualization: FA
Methodology: RB, DYM, UH, AF
Formal analysis: DYM
Writing, review and editing: ZZ

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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