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Assess the Knowledge and Practice among Public Nurses' Regarding Basic Life Support in Pakistan

Abdul Sami Awan[1*] Saniya Khaskheli[2], Hina Bachal Soomro[3], Maida Mehrab Ali Soomro[4], Humaira Kalhoro[5]

[1] Nursing Instructor, CON Female Shikarpur Corresponding Author: samiabdul193@gmail.com
[2,3,4,5] Student of 7th Semester Generic BS Nursing CON Female Shikarpur

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Abstract:

Background: Basic life support involves identifying sudden cardiac arrest (SCA), rapidly defibrillating the patient with an automated external defibrillator (AED), initiating the emergency response system, and performing early cardiopulmonary resuscitation (CPR). **Research objective:** To assess the knowledge and practice among public Nurses' regarding basic life support. **Methodology:** a quantitative cross-sectional study was conducted from four different public hospitals. **Study Setting:** Data was collected from different public hospitals, including RBUT Civil Hospital Shikarpur, Civil Hospital Sukkur, Civil Hospital Jacobabad, and GIMS Hospital Gambat. **Sample size:** A sample size of 110 was obtained through the total population where the total population was 153 after putting the 95% confidence interval and 5% margin error the calculation sample turn out to be 110. **Sampling technique:** Convenient sampling method was used for data collection. **Research Tool:** A questionnaire was consisting of two following sections: **Section A:** demographic of participants include, Age, Designation, Area of work & clinical experience**. Section B:** This section is consisting 25 items designed to evaluate the participants' knowledge & Practice. **Data analysis:** The quantitative data were analyzed through the latest version of SPSS V29, with descriptive statistical Analysis-Frequency and Percentage, Mean & Standard Deviation. **Result:** Table 01: indicates that the sample is composed of 68% male and 42% female. The age distribution of participants is shown in table 02: the majority, 56% is between the ages of 30-40 years. Table 06: This table shows that while people have a good understanding of BLS principal's there are still gaps in their knowledge and practice. For instance, people were able to answer correctly about 80% of the time for the first 5 questions, with means score of 0.80 and a standard deviation of 0.42, However this percentage dropped to 55% for questions related to Automated External Defibrillator (AED) usage, with mean score of 0.55 and standard deviation of 0.50. **Conclusion:** This study highlights the importance of basic life support (BLS) training for healthcare professionals, exceptionally nurses. The result shows that while participants had some knowledge of BLS, there were gaps in their knowledge and practice. This is a concern because BLS is a critical skill that can save lives. To tackle this issue, healthcare organizations should prioritize BLS training for their staff. This can include regular workshops, training sessions, and practice exercises. By investing in BLS training, healthcare organization can improve patient outcomes, reduce clinical mishaps, and enhance the overall quality of care. Ultimately, this can lead to better patient care and more lives saved.

Background

Basic life support involves identifying sudden cardiac arrest (SCA), rapidly defibrillating the patient with an automated external defibrillator (AED), initiating the emergency response system, and performing early cardiopulmonary resuscitation (CPR) [1]. A healthcare provider must possess a solid understanding of basic cardiac life support knowledge and practices in order to reduce the mortality rate and increase the survival ratio [2]. Due to a lack of CPR facilities, approximately 92% of out-of-hospital cardiac arrest patients worldwide pass away. Out-of-hospital cardiac arrest (OHCA) accounts for up to 10% of all deaths in developing nations and is one of the major causes of death and disability globally [3]. The World Health Organization (WHO) reports that Pakistan has some of the highest rates of fatalities from injuries like traffic accidents and unintentional deaths; a recent analysis found that there were 146,000 fatalities and 2 million injuries from traffic accidents alone [4]. Health care professionals encounter such emergency situations very often so they should have sufficient knowledge of BLS [5]. A healthcare provider is a person or organization that gives medical care to the patients, they are trained in basic life support (BLS) and can handle medical emergencies, like cardiac arrest, to provide life-saving care when needed. Saving the life of someone is a responsibility of each and every individual having any role in society; the health care providers are the prime responsible persons for this matter. There are number of persons who experience difficulty in breathing and malfunctioning of cardiac system in numerous ways anytime, anywhere which need to be resolved rapidly, otherwise it creates rapid complications that leads to death [6]. Healthcare workers are usually the first responders in cases of hospital cardiac arrest. Their knowledge of basic life support is important for improving patient outcomes. They need to be knowledgeable and have a positive attitude towards basic life support [7]. Delay in any decisions in starting the basic steps of CPR will affect patient's condition and cause complication or even death of the patient. The knowledge of BLS is a major determinant in the success of resuscitation and plays a vital role in the final outcome of acute emergency situation [8]. However, Health care professionals are expected to be competent to resuscitate the patient as they encounter such situations very often. [9-10]

Problem statement:

In Pakistan there is high prevalence and mortality rates of cardiovascular disease, so that's way it is the basic requirement of health care provider to have proficient knowledge and practice regarding the basic life support [8]. Nevertheless, a significant knowledge gap exists among healthcare providers in Pakistan, compromising their ability to provide effective emergency care. This research seeks to explore the BLS knowledge and practice of public nurses', and pinpointing areas for improvement to enhance patient outcomes.

Research Objective: To assess the knowledge and practice among public Nurses' regarding basic life support.

Aims /purposes of the study:

1. The aims of this study is to analyze the current level of knowledge and Practice of healthcare provider concerning basic life support and to explore the interaction between knowledge and practice in order to identify gaps in knowledge and skills which could influence the patient outcomes.
2. To examine the barriers and challenges impeded by nurses' in providing basic life support including restricted resources, training, and support and to identify strategies for overpassing these barriers and improving quality of care.
3. The purpose of this study is to provide the in-depth knowledge and practice of nurses' in concern with basic life support and to determine the gaps for improvement that can overcome by training interventions.

Contribution and significance of the study:
This present analysis contributes significantly to the established research on basic life support (BLS) by identifying the improving areas in knowledge and practice among public Nurses'. The findings of this study will play a crucial role in developing targeted training programs, improving patient safety and quality of care and reducing medical errors and unfavorable outcomes.

Search strategies: different search engines were utilized during the filtration, including the Google Scholar, PubMed, CINHAL, and EBSCO. The articles were filtered from the past 10 years 2015-2025, total 60 articles were filtered during searching, only 10 articles added in the literature review.
Gap of knowledge and practice among healthcare provider regarding basic Life support

Literature review
A cross sectional study done in Nepal demonstrated most of the nurses working in high care units of teaching hospital didn't have in-depth knowledge about BLS and CPR only 2% had comprehensive knowledge about BLS there was no correlation between the knowledge and educational background or work experience [11]. Additionally, in other studies show the basic life support is the point of departure of emergency care and its efficacy correctly improves the prognosis of CPR victims, they also amplify that training directed to professionals, promoting the updating in CPR favors better quality care and outcome to the victim's health [12]. Furthermore, another study of Delhi India showed moderate expertise and poor skills among subjects. Nevertheless, the subjects working in ICU and emergency departments had specialized knowledge and performance compared to the other regions [13]. Additionally, another study done in western Nigeria shows meaningful relationship, with the majority of nurses revealing poor BLS/CPR knowledge which lasted a public health concern, especially in a restricted resource allocation this study also recommended that nurses are incompetent to provide good BLS in the event or cardiac arrest emergency [14]. Along with it , a study done in Bhagalpur Rajasthan showed that out of 180 interactors only 18 doctors(20%) scored above 70 % , 81 doctors (45%) scored between 50-59 45 doctors (25%) scored between 60-69% and 18 doctors (10%) scored less than 50% , Their awareness and knowledge about BLS was unacceptable and requires enhancement [15] .In a similar way another study showed knowledge and practice skills of BLS /CPR are poor in medical and nursing students , a substantial number of trainees do not obtain sufficient understanding in a single session of training , an organized curriculum for BLS and its protocols training is the need of the hour in medical education [16] .
Further study of health care professionals at Zia Uddin Hospital possess strong theoretical knowledge of BLS, there are key deficiencies in practical application, especially in emergency scenarios. To upgrade patient outcomes in emergencies, more relevant, scenario based training is necessary. This study emphasizes the necessity for ongoing, interactive learning sessions to reduce the disparity between knowledge and practice [17]. Another study shows profound recognition about BLS among doctors and empowering ecosystem of hospitals, there is a gap in practicing it. This gap requires completion through enduring motivation of health care providers [18]. Further investigation indicated 73% of nurses do not have pre-existing knowledge, twenty-seven percentage nurses do not have any information obtained through training program more than one year ago Simultaneously, the 94.6% of them eager to join CPR training programs and report they need to accomplish high quality CPR respectively [19] Level of assessment comprised of two parts theory paper and practical ability test. In initial paper based theory assessment, out of 280 participants, 197 (70%) students anchored less than 50% marks and failed when hands on skills assessed, 80.7% students could not meet expectations and failed, in practice abilities test students were unsuccessful due to data integrity error (199), ventilation rate error (196) and incorrect grip (213) when asked to perform CPR practically [20].

Methodology: A multi-cross sectional study was conducted from different public hospitals
Study Setting: Data was collected from different public hospitals, including RBUT Civil Hospital Shikarpur, Civil Hospital Sukkur, and Civil Hospital Jacobabad GIMS Hospital Gambat. Study population: A sample size of 110 was obtained through the total population where the total population was 153 after putting the 95% confidence interval and 5% margin error the calculation sample turn out to be 110 incomplete response forms were excluded from the final count of the sample. All those nurse were part of study who had valid PNC registration and was working in different assigned areas of hospital. Those nurses were excluded from study who were on leave and denied from data collection. The informed consent form was distributed among the participant voluntary. The survey was conducted after approve of the medical superintendent of the hospitals the study was divided into two sections demographic and knowledge and practice of basic life support. Data was entering and analyze through the SPSS v 29. A descriptive analysis is presented in frequency and percentage total score of knowledge and practice was categorize into two less than 50% and more than 50%.
Sampling technique: Convenient sampling method was used for data collection.
Research Tool: A questionnaire was consisting of two following sections:
Section A: demographic of participants include, Age, Designation, Area of work & clinical experience
Section B: This section is consisting 25 items designed to evaluate the participants' knowledge & Practice
Inclusion Criteria: all those nurses were added in data collection, which were registered in different public hospitals.
Exclusion Criteria: those who were on leave was the part of exclusion criteria.
Data Collection Tool:
The valid tool was adopted for data collection, in which demographic data was consist of Age, Designation, Area of work & Clinical experience. Moreover, the Knowledge & practice part was consisting of 25 items.

Data collection procedure:
The data was collected by the permission of medical superintendent of the hospitals, before starting the data collection, a consent form and verbal instruction were given to nurse's, and each nurse took 05 minutes to fill up the form, Moreover the questionnaire was collected again for data analysis method.

Data analysis:
The quantitative data were analyzed through the latest version of SPSS V29, with descriptive statistical Analysis-Frequency and Percentage, Mean & Standard Deviation.

Ethical Consideration: In this study the participants' right and privacy were protected. Moreover, the participants; were able to read the right in terms of consent form (English and Urdu Version) with economic and social context of the studies objective, activities and potential benefits and hazards were also involved.

Result:

Demographic Analysis

Table 01: classification based on Gender

Categories	Frequency	Percentage
Male	n=68	61.8%
Female	n=42	38.1%
Total	n=110	100%

Table 01: indicates that sample is composed of 38.1% female and 61.8% male. This remarkable variance shows the gender distribution of public nurses.

Table 02**:** Classification based on Age

Categories	Frequency	Percentage
20-30years	n=36	32%
30-40years	n=62	56%
40-50year	n=12	10%
Total	n=110	100%

Table 02: shows that the majority of participants were categorized in 30years-40years, where the frequency was (n=62) and percentage was (56%).

Table 03: classification based on Designation

Categories	Frequency	Percentage
Senior staff nurse	n=05	4.5%
Staff nurse	n=105	95%
Total	n=110	100%

Table 03: The survey result show a significant majority of staff nurses' with 105 participants 95% holding this position, while only 05 participants 5.5% hold the position of senior staff nurse.

Table 04: classification based on Area of work

Categories	Frequency	Percentage
RBUT civil hospital Shikarpur	n= 22	20%
Civil hospital sukkur.	n=46	41%

Civil hospital Jacobabad	n=03	2%
Gims Hospital Gambat	n=37	33%
Total	n=110	100%

Table 04: shows hospital wise distribution of participants reveal that Civil Hospital Sukkur has the largest share with 46 participants accounting for 41% of the total. GIMS Hospital Gambat follows closely, with 37 participants making up 33%. RBUT civil hospital Shikarpur accounts for 20% of the participants, while Civil Hospital Jacobabad has smallest representation, with only 03 participants 02%.

Table 05: classification based on years of clinical experience

Categories	**Frequency**	**Percentage**
1-5	n=62	56%
5-10	n=24	21%
10-15	n=15	13%
15-20	n=09	08%
Total	n=110	100%

Table 05: show the distribution of participants based on their clinical experience. A majority of the participants 56% have 1-5 years of clinical experience, followed by 21% with 5-10 years of experience. The remaining participants have 10-15 years 13% and 15-20 years 8% 0f clinical experience.

Table 06: Section B Knowledge & practice related to BLS

S:No	Statement	Correct	Incorrect	Mean	S.D
1.	What is the abbreviation of BLS?	110 100%	00 0%	1.0	0.00
2.	When you find someone unresponsive in the middle of the road, what will be your first response?	83 75%	27 24.5%	0.755	0.445
3.	If you confirm somebody is not responding to you even after shaking and shouting at him, what will be your immediate action?	93 84.5%	17 15%	0.845	0.349
4.	What is the location of chest compression?	88 80%	22 20%	0.800	0.422
5.	What is the chest compression in infants?	65 59%	45 40%	0.591	0.495
6.	If you do not give mouth to mouth CPR, then what can you done?	89 80%	21 19%	0.809	0.422
7.	How do you give rescue breath in infants?	85 77%	25 22%	0.773	0.448

8.	Depth of chest compression in adult during CPR?	88 80%	22 20%	0.800	0.422
9.	Depth of chest compression in children during CPR?	98 89%	12 10%	0.891	0.314
10.	Depth of chest compression in neonate during CPR?	91 82%	19 17%	0.827	0.391
11.	Rate of chest compression in adult and children during CPR?	86 78%	24 21%	0.782	0.433
12.	Ratio of CPR, single rescuer in adult is?	86 78%	24 21%	0.782	0.433
13.	In a new born the chest compression and ventilation ratio is?	92 83%	18 16%	0.836	0.375
14.	What are the key component s of an emergency response?	88 80%	22 20%	0.800	0.422
15.	What does abbreviation EMS stands for?	103 93%	07 6%	0.936	0.253
16.	If you and your friend are having food in a canteen and suddenly your friend starts expressing symptoms of choking, what will be your first step?	73 66%	37 33%	0.664	0.480
17.	You are witnessing an infant who suddenly started choking while he was playing with the toy, you have confirmed that he is unable to cry or cough, what will be your first response	80 72%	30 27%	0.727	0.445
18.	You are witnessing an adult unresponsive victim who has been submerged in fresh water and just removed from it. He has spontaneous breathing but he is unresponsive. What is the first step?	89 80%	21 19%	0.809	0.421
19.	You noticed that your colleague has suddenly developed slurring of speech and weakness of right upper limb. What will you done?	86 78%	24 21%	0.782	0.433
20.	A 50-year old gentleman with retrosternal chest discomfort, profuse sweating and vomiting what is next?	72 65%	38 34%	0.655	0.494
21.	Do you know when to initiate CPR?	99 90%	11 10%	0.900	0.315
22.	Do you know how to used bag valve mask?	93 84%	17 15%	0.845	0.392
23.	Have you used CPR techniques in practice?	89 80%	21 19%	0.809	0.421
24.	have you ever used an automated external defibrillator (AED)?	61 55%	49 44%	0.555	0.500
25.	Do you know how to interpret the AED?	59 53%	51 46%	0.536	0.500

Table 06: Having knowledge and practice in Basic Life Support (BLS) is crucial in saving lives during emergency situations. This table shows that while people have a good understanding of BLS principal's there are still gaps in their knowledge and practice. For instance, people were able to answer correctly about 80% of the time for the first 5 questions, with means score of 0.80 and a standard deviation of 0.42, However this percentage dropped to 55% for questions related to Automated External Defibrillator (AED) usage, with mean score of 0.55 and standard deviation of 0.50. This highlights the need for more practice and training in using AEDs, as well as other BLS skills. Furthermore, the results suggest that people need to practice BLS skills regularly to retain their knowledge and build their confidence. This especially important for healthcare professionals, who need to be able to respond quickly and effectively in emergency situation. By combining knowledge and practice, people can develop the skills and confidence they need to save lives and make a positive impact to their communities.

Discussion: The insights of this study illustrate that while nurses at different public hospitals have a analytical understanding of Basic life support (BLS), there are significant gaps in their hands on experience of these skills during emergencies. This gap is identical to result from studies in India and Saudi Arabia, where nurses exhibited solid theoretical knowledge but endured to implement BLS techniques in real life situations [21-22]. A core competency of this study was its comprehensive approach, which include a distinct group of nurses from various departments, ensuring a well-rounded assessment of BLS knowledge across hospital. The structured questionnaire based on time tested frameworks from the American Heart Association (AHA) and the European Resuscitation Council (ERC), added credibility and validity to the findings [23]. however, there are constraints to note, such as the reliance on self-reported data, which may introduce bias, and the cross sectional design that only provides a snapshot of BLS knowledge and practice at one point in time, without monitoring updates or the effects of prior training [24-25]. The result discloses that while 100% of participants identified the BLS abbreviation, only 75% could identify the correct immediate action for unresponsive victim. The findings emphasize a significant gap in practical trainings. Other studies have also found that nurses frequently have high theoretical knowledge but lack practical skills [26, 27]. Participants showed a in depth knowledge of the correct chest compression rates for both adult and children, with 78% their responses varied in emergency situations like choking or drowning, highlighting the needs for targeted training. A major advantage of this study was identifying specific areas where practical BLS training can improve. Although nurses were aware of Automated External defibrillator (AEDs) 53% awareness, respectively their ability to apply this knowledge in emergencies was unpredictable This inconsistency emphasizes the need for regular hands-on-training to enhance both theoretical knowledge and practical skills, overall while nurses have a strong theoretical foundation, this study highlights the need to unite the gap between knowledge and practice regular scenario-based exercises could better prepare nurses to handle emergencies , this recommendation corresponds with findings from other research emphasizing the value of practical training in improvement patient outcomes during cardiac and respiratory emergencies [28].

Conclusion: This study highlights the importance of basic life support (BLS) training for healthcare professionals, exceptionally nurses. The result shows that while participants had some knowledge of BLS, there were gaps in their knowledge and practice, this is a concern because BLS is a critical skill that can save lives. To tackle this issue, healthcare organizations should prioritize BLS training for their staff. This can include regular workshops, training sessions, and practice exercises. By investing in BLS training, healthcare organization can improve patient outcomes, reduce clinical mishaps, and enhance the overall quality of care. Ultimately, this can lead to better patient care and more lives saved.

Limitations: This study has some drawbacks that affect its result. Limitation is that the study only includes nurses working in four specific hospitals, which may not characterize the experience of nurse's working in other hospitals or healthcare settings.

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Assessment of Awareness of Basic Life Support among Doctors Practising in a Tertiary Care Hospital Muhammad Zakarya1* , Dr. Khalida Naz Memon2 , Tasleem Bibi3 , Bisharat Ali4 , Erum Aftab Jahangir5 , Farha Anil6 , Rahamatullah7

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