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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. **Objective:** 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

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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.

METHODS

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.

RESULTS

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%)

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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%

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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.

Conflicts of Interest

The authors declare no conflict of interest.

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