Volume 4, Issue 6, 2026

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

ASSESSMENT OF KNOWLEDGE ABOUT CPR AMONG NURSING STUDENTS IN KARACHI, PAKISTAN

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DOI: https://doi.org/10.5281/zenodo.21056438

Keywords
CPR, Nursing, socio-demographic, significant, association

Article History
Received: 24 April 2026
Accepted: 06 June 2026
Published: 21 June 2026

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Abstract

Objective:
To assess the level of knowledge of CPR and its association with socio-demographic variables among undergraduate nursing students

Methods:
The analytical cross-sectional design was used. The research was conducted at Jesus and Mary Institute of Nursing and Allied Sciences and Male College of Nursing, Sindh Government Hospital Liaquatabad Karachi, Pakistan. The target population comprises of undergraduate nursing students. The non-probability convenience sampling technique was used to select sample. The sample size of 157 participants was calculated using open epi software. Independent t-test and ANOVA were used as a statistical test to find out the association among different variables.

Results:
The results of the research study showed that 66.2% of nursing students had adequate knowledge levels and 33.8% of nursing students had inadequate knowledge levels. The only significant association was found between academic year and CPR knowledge (p-value =0.001). No significant relationships were identified between socio-demographic variables and CPR Knowledge.

Conclusion:
The current study concluded that majority of the nursing students had good knowledge levels. The study also revealed that education levels have a significant impact on CPR Knowledge, Awareness sessions and workshops on CPR should be conducted regularly among nursing students Practical training sessions using mannequins should be included to improve hands-on skills.

INTRODUCTION

Cardiopulmonary resuscitation (CPR) training is crucial for nursing students as future nurses are the first responders in the ambulatory and hospital care chain. Simulation-based learning has been shown to be more effective in acquiring the knowledge and technical and non-technical skills required for CPR [1]. Survival rate in cardiac arrest is highly variable between the studies and populations studied. But over the past decade, survival rates have increased greatly due to improvements in treatment approaches. Increased survival rate can be attributed to faster response time, increased CPR training and availability of defibrillators [2]. Successful in hospital cardiac arrest relies greatly on the quality of resuscitation

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ISSN: (e) 3007-1607 (p) 3007-1593

and prompt execution of essential tasks, such as rapid recognition of cardiac rhythms, prompt defibrillation, effective basic life support and post resuscitation [3] Poor-quality CPR delivery is an avoidable harm within the healthcare setting. Since the students will become future healthcare professionals who may be involved in handling a case of cardiac arrest in their career, there is need to have effective training to address challenges faced by nurses [4]. To ensure learner's competency in carrying out certain skills like CPR for patients' safety, there is need for professors to offer proper instructions through innovation [5]. Most students know a lot about resuscitation they have good feelings about it and they do it correctly. There was a connection between what students know how they feel and what they do and some other factors [6]. The research study results showed that students knew more and could do resuscitation better after the simulation training. The students also felt more confident about doing resuscitation. The researchers said that simulation training for resuscitation should be part of the nursing program [7]. Maimuna et al., did a study to see what nursing students know and do about cardiopulmonary resuscitation at Aliko Dangote College of Nursing Sciences, Bauchi. They used a kind of study design and picked one hundred seventy-one nursing students to participate. The results showed that most students know what to do for resuscitation like the right steps and how to use a special machine. More than half of the students could do resuscitation correctly. However, the students did not know much about some cardiopulmonary resuscitation skills. The study said that nurses should learn about resuscitation and practice it using simulation training [8]. Vural et al., and others did a study to see what nursing students know about cardiopulmonary resuscitation. The results showed that nursing students know a lot about resuscitation but most of them do not know the right steps. A few students knew all the steps for cardiopulmonary resuscitation. The study said that nurses are very important in emergency situations so they should get training on cardiopulmonary resuscitation [9]. The research study found that knowing something does not mean that the students can actually do it [10]. The cross-sectional study found that 89.5% of the people in the study had an understanding of CPR and 97.9% of them practiced CPR skills well. However, the study did not find any connection between how registered nurses know and practice CPR and things like their age or where they are from [11]. The research study of nursing students they got a score of 64.62 on a test and only 18.3% of them did extremely well while 34.2% did not do well at all. Also 11% of them knew the right way to do compressions and ventilation and only 21.8% knew the right order to do CPR steps. This shows that nursing students know something, about CPR. They have a hard time actually doing it right [12]. Individual who have some knowledge there is a big need for better training programs and regular skill updates to make sure people are competent [13]. People who had received training did better in identifying symptoms and responding correctly. Fear of making mistakes and legal issues were barriers. Overall, the study highlights the need for CPR training and awareness programs [14]. Vural et al. pointed out that nursing students have an understanding of why CPR is important. However, their practical knowledge of clinical guidelines is not enough. The study found a gap in technical accuracy [15]. Nurses who work in the Intensive Care Unit or ICU and the Emergency department are really good at CPR. This is because they get to practice it a lot and they feel confident about what they're doing [16]. According to the study by Chik et al., registered nurses are very good at CPR. They score high on tests with 89.5 percent on the knowledge part and 97.9 percent on the practice part [17]. The objective of the current study is to assess the level of knowledge about CPR among undergraduate nursing students

METHODS

An analytical cross-sectional study design was used. The study was conducted nursing students at Jesus and Mary Institutes of Nursing and Allied Health Sciences and Male College of Nursing, Sindh Govt. Hospital Liaquatabad Karachi. A convenience sampling technique is use to select research participants. The sample size of 157

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ISSN: (e) 3007-1607 (p) 3007-1593

participants was calculated using open epi software, based on test for one sample proportion, knowledge level was 82% [18], with 95% confidence of interval, 80% power of test, 5% margin of error, an estimate population size of 500 participants. Inclusion criteria involves 2nd, 3rd, and 4th year BS nursing students, while 1st Year BS nursing students were excluded. A self-administered questionnaire was used for data collection. The study was conducted from January to March 2026. The data collection, permission was taken from both institutes. Prior to the research study, a pilot study was conducted on 20 participants to assess the reliability of the tool. The collected pilot data were entered and analyzed using SPSS. The reliability of the questionnaire was tested using Cronbach's alpha, which showed a value greater than 0.80, indicating good reliability and validity of the research tool. Data Analysis were done using SPSS software version 27 using descriptive statistics, independent t-test and ANOVA were used as statistical tests.

RESULTS

The table 1 provides an overview of socio-demographic characteristics among a sample of 157 individuals. In terms of age, the majority fall within the 18-22 age group (36.9%), followed by 23-28 (60.5%), and a smaller percentage in the above 28 range (2.6%). The gender distribution is (88.5%) male and (11.5%) female. Marital status indicates that 78.3% are unmarried, (17.8%) are married, and (3.9%) fall into the others category. Academic year distribution shows (55.4%) in Year 2, (21.0%) in Year 3, and (23.6%) in Year 4. Family types are predominantly nuclear (40.1%), with (59.9%) belonging to extended families. Regarding residence, the majority live with families (87.3%), while a small percentage live with hostels (7.6%) and live with friends (5.1%). Family income is diversified, with (29.9%) earning below 50,000, (52.9%) between 50,000-100,000, (11.5%) between 100,000-200,000, and (5.7%) earning above 200,000. Substance abuse is reported by (6.4%), with (93.6%) indicating no substance abuse.

Table 1: Sociodemographic Characteristics (n= 157)

Socio-Demographic Variables	Characteristics	N (%)
Age	18-22	58 (36.9)
	23-27	95 (60.5)
	28-Above	4 (2.6)
Gender	Male	139 (88.5)
	Female	18 (11.5)
Marital Status	Married	28 (17.8)
	Unmarried	123 (78.3)
	Others	6 (3.9)
Academic year	Second year	87 (55.4)
	Third year	33 (21.0)
	Fourth year	37 (23.6)
Family	Extended	94 (59.9)
	Nuclear	63 (40.1)
Residence	Family	137 (87.3)

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ISSN: (e) 3007-1607 (p) 3007-1593

	Friends	8 (5.1)
	Hostel	12 (7.6)
Family Income	Below 50K	47 (29.9)
	50K-100K	83 (52.9)
	100K-200K	18 (11.5)
	Above 200K	9 (5.7)
Substance Abuse	Yes	10 (6.4)
	No	147 (93.6)

The result of table 2 showed that 66.2% of nursing students had adequate knowledge levels and 33.8% of nursing students had inadequate knowledge levels.

Table 2: Levels of CPR Knowledge

CPR Knowledge	Percentage	Scores Obtained
Adequate Knowledge	66.2 %	Above 50%
Inadequate Knowledge	33.8 %	Below 50%

Table 3 shows the result of association of demographic variables with knowledge level score. The age group does not exhibit a significant association with knowledge (p 0.305). Gender shows no significant difference (p=0.147). Marital status also shows no significant difference (p = 0.865). However, academic year emerges as a significant factor (p=0.01). Residence type lacks a significant relationship with knowledge level (p=0.437). Family type and family income do not reveal significant associations (p=0.473, p=0.957). Additionally, variable such as substance abuse show no significant correlations with knowledge level (p=0.148)

Table 3: Association of demographic variables with CPR knowledge

Variables	Mean ± SD	N	P- Value
Age			
18-22	8.60 ± 3.032	58	0.305
23-27	9.27 ± 2.322	95	
28- Above	8.75 ± 3.096	4	
Gender			
Male	9.12 ± 2.693	139	0.147
Female	8.17 ± 1.886	18	
Marital Status			
Married	9.25 ± 2.413	28	0.865
Unmarried	8.97 ± 2.639	123	
Others	8.83 ± 3.656	6	
Degree Year			
2nd Year	8.99±2.802	86	0.001*
3rd Year	8.06±2.371	33	
4th Year	9.92±2.113	38	

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ISSN: (e) 3007-1607 (p) 3007-1593

Family			
Extended	9.15 ± 2.672	94	0.473
Nuclear	8.84 ± 2.596	61	
Residence			
Family	8.98 ± 2.602	137	0.437
Friends	8.38 ± 2.615	8	
Hostel	9.83 ± 2.949	12	
Family Income			
Below 50K	8.94 ± 3.137	47	0.957
50K-100K	9.11 ± 2.409	83	
100K-200K	8.94 ± 2.413	18	
Above 200K	8.67 ± 2.398	9	
Substance Abuse			
Yes	7.78 ± 2.279	10	0.148
No	9.09 ± 2.643	147	

DISCUSSION

The result of current study found that 66% of nursing students had knowledge about CPR. Similar results were found in the cross-sectional study conducted in Saudi Arabia reported results with about 70% of nursing students showing adequate CPR knowledge after structured training and simulation-based education [18]. In our study the year of study was strongly linked to CPR knowledge. A study in India found results with senior nursing students having better CPR knowledge than junior students. This is likely because senior students have clinical experience and practical learning opportunities [19]. However, we did not find any strong links between CPR knowledge and demographic variables like gender and marital status. A study in Pakistan reported findings with no significant difference in CPR knowledge levels among nursing students of different genders [20]. We also found that age was strongly linked to CPR knowledge among nursing students. A study in Pakistan found results with older nursing students having better CPR knowledge due to more clinical experience and academic experience [21]. Additionally, a study in Pakistan found that nursing students who attended Basic Life Support or CPR training sessions had significantly better CPR knowledge, than those who did not receive training [22].

CONCLUSION

The study we conducted shows that most nursing students have good knowledge about CPR. Factors such as your gender, substance abuse, where you live and whether you have a job do not really impact your knowledge of CPR. Nursing students play a vital role in taking care of patients in emergency situations; therefore, it is crucial that they know CPR. Awareness sessions and workshops on CPR should be conducted regularly among nursing students Practical training sessions using mannequins should be included to improve hands-on skills. Regular assessments and refresher courses should be organized. Qualified instructors or trainers should be available in institutions to guide students.

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