The Research of Medical Science Review
ISSN: 3007-1208 & 3007-1216 Volume 3, Issue 2, 2025

TO ASSESS THE KNOWLEDGE AND PRACTICE AMONG PUBLIC UNDERGRADUATE NURSING STUDENT'S REGARDING CARDIO-PULMONARY RESUSCITATION

Abdul Sami Awan[*1], Sadia Mushtaque[2], Mehak Ali Channa [3], Paras Arain[4], Noor Bano Dayo[5], Saba Bhatti[6], Fehmida Dayo[7]

*[*1]Nursing Instructor at College of Nursing) (female) Shikarpur*
[2,3,4,5,6,7] Students of 7th Semester at CON female Shikarpur

[*1]samiabdul193@gmail.com

DOI: https://doi.org/10.5281/zenodo.14881112

Keywords
Cardiopulmonary Resuscitation (CPR), Undergraduate Nursing Students, Knowledge & Practice.

Article History
Received on 07 January 2025
Accepted on 07 February 2025
Published on 17 February 2025

Corresponding Author: *
[*1]samiabdul193@gmail.com

Abstract

Cardio pulmonary arrest can be defined as the stoppage of spontaneous and effective ventilation and systemic circulation, and the Cardio-pulmonary resuscitation (CPR) is a core emergency procedure that focuses on revival of one's breathing and circulation during a heart attack, when performed appropriately, the impact can enhance proper survival chances, flows of blood, in critical patients. Research Objective was to assess the Knowledge and Practice among public Undergraduate Nursing Student's Regarding Cardio-Pulmonary Resuscitation (CPR). Methodology: A Quantitative Cross-Sectional Survey is conducted from Dec-25- Jan25. Study Setting: Data was collected from 03 different public Nursing colleges, Including College of Nursing (female) Shikarpur, College of Nursing (female) Sukkur, & College of Nursing (Male) Jacobabad. Sample Size: The sample was calculated through the Cochran's formula, after putting the total population of three Colleges, where the Confidence Interval was 95 %, where the estimated standard deviation was 0.371, and the margin of error was 0.05. After putting all these values, the sample size was n= 170. Sampling technique: Convenient sampling method was used for data collection. Research Tool: A questionnaire was consist of three following sections.

Section A: Demographic of Participants' including Gender, Age, Marital Status and Year of Study, & the Section B: This section is consisting of 10 items designed to evaluate the participants' knowledge & Section C: this section is consisting of 05 items regarding the participants' practice. Data Analysis: The quantitative data were analyzed through the latest version of SPSS V.29, with descriptive statistical analysis- Frequency and Percentage, Mean & Standard Deviation. Result: Table 01: indicates that the sample is composed of (89.4%) female and (10.5%) male. This remarkable variance shows the gender distribution of undergraduate nursing students. The age distribution of participants is shown in Table 02. The majority, (60.5%) is between the ages of 20-24 year's while (32.5%) are between under 20, and the (6.4%) is between 25-29 year's, and just 0.5% is 30 & above. Moreover, Table 06 shows

unfortunately (59.4%) participants' never practiced CPR in clinical settings (mean 0.4059 and S.D 0.4911). In addition to it (82.3%) never performed CPR in real life situation (mean 01765 and S.D 0.3813). But in contrast (78.8%) participants' believe that their current training have adequately prepared for performing CPR (mean 0.7882 and S.D 0.4085). Similarly (76.47%) participants' were aware of the latest CPR guidelines and updates (mean 0.77 and S.D 0.4185). Moreover, (84.7%) participants' feel confident in ability to perform CPR effectively.

Conclusion: It was conclude that undergraduate BSN students at public colleges possess basic knowledge of cardiopulmonary resuscitation (CPR), But significance gaps exist in both knowledge and practice experience. While most recognize CPR as essential for emergencies, many participants believe it should be performed in hospital as well as outside of hospital. Moreover, majority of participants never practiced CPR in clinical setting, even though; majority participants never performed CPR in real life emergencies. These findings are underscore the urgent need for enhanced educational programs of CPR that integrate both theory and practical training to better equip future healthcare providers in emergency situation.

INTRODUCTION

Background:

Cardiac arrest happens when the heart stops pumping blood properly, it's a very serious condition and right now, many people don't survive it, Cardiac arrest is now the leading cause of death around the world, causing 15% - 25% of all deaths, it can affect both peads and Adults, but it happens more often in adults [1]. Cardio pulmonary arrest can be defined as the stoppage of spontaneous and effective ventilation and systemic circulation. [2]. Cardiopulmonary resuscitation (CPR) is a core emergency procedure that focuses on revival of one's breathing and circulation during a heart attack, when performed appropriately, the impact can enhance proper survival chances, flows of blood, in critical patients [3]. Unstable angina a type of coronary artery disease, leads to 60-70 % of sudden cardiac arrest and 40-50% of sudden cardiac deaths [4] Cardio Vascular Disease (CVDs) cause 31% of the deaths each year and 80% due to sudden cardiac death and stroke,. Other risk factors include a family history of heart disease, obesity, diabetes, smoking, previous heart attacks [4]. Cardiopulmonary Resuscitation (CPR) is a lifesaving method used after sudden cardiac arrest, it includes chest compressions, Artificial breathing, and Shocks from an Automated External Defibrillator (AED), this device helps fix heart rhythm problems like pulse less ventricular tachycardia and ventricular fibrillation [5,6]. Nursing students are those students who are enrolled and registered with a college or university to pursue the nursing study, the curriculum of nursing students' is consist of different subjects, including the fundamental of nursing, anatomy and physiology, and other different subjects [7]. Demonstrating knowledge of CPR is important for undergraduate BSN nursing students as it enables the student to respond well emergencies occurring within cardiac related cases [8]. This will help to enhance proper survival chances, flows and understanding which the CPR is required for nursing students [9]. Knowledge and Skill of CPR, one of the key components of Basic Life Support (BLS), has become a very essential part of emergency response in every traumatic event [10].

So the aim of this study is to assess the knowledge and practice among undergraduate public nursing students.

Problem Statement

In developing countries, the knowledge and practices regarding CPR is often low in different cities of Pakistan Including Rawalpindi & Islamabad [11]. One of the study done in Hyderabad that stated the BSN students keep a moderate level of knowledge and practice regarding the CPR [12]. It is necessary

to examine the knowledge and practice of CPR among BSN students at our college, because after the assess of knowledge and practice, an educational trainings, and simulation trainings, will be conducted.

Research Objective:
To assess the Knowledge and Practice among public Undergraduate Nursing Student's Regarding Cardio-Pulmonary Resuscitation (CPR).

Significance & Contribution of Study:
This study focuses on assessing skills and knowledge of undergraduate nursing students regarding CPR. The significance of this study is to identify areas that can be improved in nursing curriculum by addressing these educational gaps. The research contribution is to prepare nursing students for handling cardiac emergencies. The main significance of this study is to equip future nurses with practical skills, they needed to increase patients' survival rate and provide high quality care, even in challenging situations.

Search Strategies:
Different research engines were utilized during the filtration, including the Google Scholar, PUBMed, CINHAL, EBSCO. The articles were filtered from past ten years 2015-2025, total 70 articles were filtered during searching, only 15 articles added in the literature Review.
Gap of knowledge and Practice of CPR among Undergraduate Nursing Students
A cross sectional study in South Africa showed that undergraduate nursing students lacked required knowledge on how to perform effective CPR, their mean score was below the competency score [13]. Moreover, another study done in Kenya, the study revealed that nurses and clinical officers and undergraduate students were having less competency on CPR this study also revealed that CPR is taught in various schools of nursing in Kenya and points out that CPR training lacks standardization [14].
Another study on theoretical knowledge of CPR in the Nigeria found that 22% of the nursing students were not aware on the recommended position for placing hands during CPR [15]. Similarly, a study in India it was reported that 23% of the students were not aware of the recommended hand position during CPR. Thus, studies highlight a concerning gap in knowledge among nursing students [16]. In Contrast, an interventional study in Spain, 71.8% of the nursing students were aware of the correct hand placement during chest compressions at pretest, nursing student's knowledge on CPR, 39% were not aware of the correct lower half of the sternum position [17].
Another study done in Egypt that stated in the practical study 81.8% of the students did not have the correct hand placement during CPR [18]. A related study done in India assessing nursing students' knowledge on CPR revealed that 62.5 % of the students defined CPR correctly [19]. The findings also mirror a study done in Iran where more than 70% of the students had a low CPR score, where the total CPR score was 120% [20].
Similarly, a study done in China among nursing students on offering cardiopulmonary resuscitation to trauma patients revealed that the students had unsatisfactory level of CPR knowledge, their mean score was 7.51 ± 1.93 [21]. In another study at a tertiary institute in India, assessing nursing student's knowledge on CPR, where the result to study stated, and 72.9% of the students were not aware of the adult carotid pulse assessment in CPR [22]. Another study done in India stated that 40.3% of the nursing students were not conversant with the effective chest compression to ventilation ratio.[23]
A quantitative experimental study in Pakistan, it was found out that Registered Nurses (RN) Bachelor of Science in Nursing (BSN) students lacked basic knowledge on CPR practices. In the pretest assessment only 2 students (3.2%) attained a desired competence score. The rest 96.8% of the students were scored to lack the basic resuscitation knowledge and skills [24]. One of study done in the twin cities Rawalpindi and Islamabad also reported that the working participants have insufficient knowledge regarding CPR during the course of their practical life [25].
An another study done in Hyderabad showed that 88.8% of participants recognized CPR as critical emergency procedure, and 85% understood the importance of timely intervention. However, only 66.3% were aware that CPR should be performed outside of the hospital setting. It was conclude that

although BSN students had a moderate level of knowledge regarding CPR, there are notable gaps in both their understanding of its application in various contexts and their practical experience [26]. Although BSN students from Karachi, Pakistan were evaluated and more than half of them were found to have no knowledge of CPR, it was concluded that prior training at Cardiopulmonary Resuscitation would improve the knowledge and its application [27].

Methodology:
A Quantitative Cross-Sectional Survey is conducted from Jan 25-feb 25.

Study Setting:
Data was collected from 03 different public Nursing colleges, Including College of Nursing (female) Shikarpur, College of Nursing (female) Sukkur, & College of Nursing (Male) Jacobabad.

Study Population:
The targeted population included the undergraduate Nursing Students (Generic BS Nursing) Students, the 1st year, 2nd year, 3rd Year. The total population of CON (female) Shikarpur is 175, and the population of CON (Male) Jacobabad is 160, and the total population of College of Nursing Sukkur (female) is 180.

Sample Size:
The sample was calculated through the Cochran's formula, after putting the total population of three Colleges, where the Confidence Interval was 95 %, where the estimated standard deviation was 0.371, and the margin of error was 0.05. After putting all these values, the sample size was n= 170.

Sampling technique:
Convenient sampling method was used for data collection.

Research Tool:
A questionnaire was consist of three following sections.

Section A: Demographic of Participants' including Gender, Age, Marital Status and Year of Study.
Section B: This section is consisting of 10 items designed to evaluate the participants' knowledge.
Section C: this section is consisting of 05 items regarding the participants' practice.

Inclusion Criteria:
All those undergraduate nursing students were added in data collection, which were enrolled in generic program, and were perusing the degree of Generic BS Nursing.

Exclusion Criteria:
Those who were on leave was the part of exclusion criteria, and the excluded students was n=10.

Data Collection tool:
The valid tool was adopted for data collection; in which demographic data was consist of Gender, Age, Marital Status, & Year of Study. Moreover, the knowledge part was consisting of 10 items with true & false, where the practice portion was consists of 05 items.

Data Collection Procedure:
The data was collected by the permission of principals, before starting the data collection, a consent form and verbal instruction were given to students, and each student 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 V.29, 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 rights in terms of consent form (English and Urdu Version) with the economic and social context of the studies objectives, activities, and potential benefits and hazards were also involved.

Results:

Demographic Analysis

Table 01: *Classification based on Gender*

CATEGORIES	FREQUENCY	PERCENTAGE
Male	18	10.5%
Female	152	89.4%
Total	**170**	**100%**

Table 01: indicates that the sample is composed of 89.4% female and 10.5% male. This remarkable variance shows the gender distribution of undergraduate nursing students.

Table 02 *Classification based on Age*

CATEGORIES	FREQUENCY	PERCENTAGE
Under 20	55	32.3%
20- 24 year	103	60.5%
25-29 years	11	6.4%
30 & above	1	0.5%
Total	**170**	**100%**

The age distribution of participants is shown in Table 02. The majority, 60.5%, is between the ages of 20-24 year's while 32.5% are between under 20, and the 6.4% is between 25-29 year's, and just 0.5% is 30 & above.

Table 03 *classification based on marital status*

CATEGORIES	FREQUENCY	PERCENTAGES
SINGLE	147	86.4%
MARRIED	22	12.94%
WIDOW	01	0.5%
DIVORCED	0	0
TOTAL	170	

Table 03 presents the participant's marital status classification. Only 12.94% of the population is married, while the great majority, 86.4% are single, and only 0.5% are included in widow population.

TABLE 04: *Classification based on year of the study*

CATEGORIES	FREQUENCY	PERCENTAGES
1st year	58	34%
2nd year	62	36.4%
3rd year	50	29.4%
Total	170	100%

According to their year of the study, participants' are distributed as shown in table 4, with equal representation from the 1st, 2nd, 3rd year. The majority (36.4%) included in 2nd year, while (34%) are in included in 1st year and (29.4%) are included in 3rd year of BSN nursing program.

Table 05. *Section B: knowledge related to CPR.*

S.NO	STATEMENT	True	False	Mean	S.D
1.	CPR is an emergency procedure which is attempted in an effort to return life in cardiac arrest.	166 97.6%	04 2.35%	0.97	0.15
2.	It has to be attempted always inside of a hospital not outside.	12	158	0.929	0.2563

		7%	92.9%		
3.	**CPR** is generally only effective if performed within 6-7 minutes of the stoppage of blood flow to vital organ.	135 79.4%	35 20.5%	0.7941	0.4045
4.	On average, 85-90% of people who receive CPR survive if conducted by experienced personnel.	59 34.7%	111 65.2%	0.6529	0.4759
5.	The brain may sustain damage after blood flow has been stopped for about 4mins and irreversible damage after 7 minutes .	122 71.7%	48 2.8%	0.7176	0.4503
6	Compression-only CPR by the is recommended to an adult having cardiac arrest in children is more likely to have a non-cardiac cause	116 68.2%	54 31.7%	0.6824	0.4657
7.	It is always better to be calm and contented while conducting CPR rather than look frightened	149 87.6%	21 12.3%	0.8765	0.3291
8.	CPR is often severely misrepresent in movies and television as being highly effective resuscitation a person who is not breathing and has no circulation	111 65.2%	59 34.7%	0.6529	0.4759
9.	Artificial respiration's are more appropriate than CPR if a person is not breathing but has palpable pulse (i.e. respiratory arrest)	101 59.4%	69 40.5%	0.5941	0.4911
10.	Is this the correct sequence to follow in CPR? Airway, Breathing, Chest Compression	136 80%	34 20%	0.2000	0.4000

Table 05: Shows that participants' knowledge of Cardiopulmonary Resuscitation (CPR), A significant majority (97.6%) understand that CPR is an emergency procedure for cardiac arrest, with a mean score of 0.96 and, S.D is 0.15. However, only (7%) incorrectly believe that it should only be performed inside a hospital, (mean 0.929) and S.D is 0.2563). Regarding time sensitivity 7.4% participants' think that CPR effectively with in the 6.7 minutes of blood flow cessation (mean 0.79 and S.D = 0.40). Moreover, incorrectly (34.7%) participants' believe that a patient who receive CPR can be effective if it conducted by experienced health care provider. (Mean 0.6529 and S.D 0.4759). Furthermore correctly (71.7%) believe that the brain may sustain damage after blood flow has been stopped for about 4 minutes and it can be irreversible damage after 7 minutes, (mean 0.7176 and S.D = 0.4503). In addition to it, (31.7%) participant incorrectly admitted it that, CPR is only recommended in an adults having cardiac arrest, while CPR in children (mean 0.6824 and S.D =4657). Similarly (12.3%) participants' believe that it is always better to be calm and contended while conducting CPR rather than look frightened. (mean 0.8765 and S.D =0.3291).In contrast, (65.2%) also recognized that CPR is often severely mispresent in movies and television as being highly effective resuscitation a person who isn't breathing and has no circulation, (mean 0.6529 and S.D = 0.4759). Moreover, nearly (40.5%) were un-certained that artificial respiration is more appropriate than CPR, if a person isn't breathing,

but has palpable pulse (mean 0.5941 and S.D = 0.4911). Similarly, (20%) participants' also accepted that is this the correct sequence to follow in CPR, airway, breathing, chest compression , (mean 0.200 and S.D = 0.400).\

Table 06: *Section C: Practice Related to CPR*

STATEMENT	YES	NO	MEAN	S.D
Have you practiced CPR in clinical setting?	69 40.5%	101 59.4%	0.4059	0.4911
Have you ever performed CPR in a real life emergency situation?	30 17.6%	140 82.3%	0.1765	0.3813
Do you believe that your current training has adequately prepared you for performing CPR?	134 78.8%	36 21.1%	0.7882	0.4085
Are you aware of the latest CPR guidelines and updates?	130 76.47%	40 23.5%	0.7738	0.4185
Do you feel confident in your ability to perform CPR effectively?	144 84.7%	26 15.2%	0.8471	0.3597

Table 06: Shows the practice of participants' related to Cardio-pulmonary Resuscitation. Moreover, unfortunately (59.4%) participants' never practiced CPR in clinical settings (mean 0.4059 and S.D 0.4911). In addition to it (82.3%) never performed CPR in real life situation (mean 01765 and S.D 0.3813). But in contrast (78.8%) participants' believe that their current training have adequately prepared for performing CPR (mean 0.7882 and S.D 0.4085). Similarly (76.47%) participants' were aware of the latest CPR guidelines and updates (mean 0.77 and S.D 0.4185). Moreover, (84.7%) participants' feel confident in ability to perform CPR effectively.
These findings underscore the need for enhanced educational programs to improve CPR knowledge among participants.

Discussion:
The findings of this study regarding participants' knowledge of Cardio-pulmonary Resuscitation (CPR) reveal both strengths and gaps. A significant majority (97.6%) correctly recognized CPR as a life saving procedure for Cardiac arrest, showing a solid understands its importance. This aligns with findings from[28], which similarly reported health care students are very aware of CPR is in emergencies. However, some misunderstandings remain, especially the idea that CPR should only be done in a hospital (7%). This reflects the given students that the CPR is also important in outside of the hospital [29]. In terms of time sensitivity, only 79.4% recognized that CPR is most effective when administered immediately following cardiac arrest [30]. While 71.7% recognized that brain damage can happen after only a few minutes of blood flow interruption [31]. Following a sequence, with only 80% knowing the incorrect order of Airway, Breathing Chest Compression [32]. Practical aspects of CPR show that only 40.5% of participants have performed CPR in clinical environment[33]. Despite limited resources, 78.8% feel that their training has been sufficient, and 84.7% are confident in their abilities [34,35]. Furthermore, the low awareness of latest CPR guidelines among participants 76.47% underscores a significant area for improvement, as highlighted by the American Heart Association [36].

Conclusion:
It was conclude that undergraduate BSN students at public colleges possess basic knowledge of

cardiopulmonary resuscitation (CPR), But significance gaps exist in both knowledge and practice experience. While most recognize CPR as essential for emergencies, many participants believe it should be performed in hospital as well as outside of hospital. Moreover, majority of participants never practiced CPR in clinical setting, even though; majority participants never performed CPR in real life emergencies. These findings are underscore the urgent need for enhanced educational programs of CPR that integrate both theory and practical training to better equip future healthcare providers in emergency situation.

Limitations:

A small sample size that does not reflect all nursing students at public colleges, survey error in self reported questionnaire tools, and a narrow focus that might fail to capture other possible influences on readiness for CPR, including institutional support, and practical training.

Funding source:

This research is carried out without any funding.

Acknowledgement:

I would like to sincerely thanks to my esteemed Principal, Lecturers, and Respondents for constant encouragement during my research.

REFERENCES:

1.Kassabry, M.F.(2023) The effect of simulation-based advanced cardiac life support training on nursing students' self-efficacy, attitudes, and anxiety in Palestine: A quasi-experimental study. BMC nursing, 221-420

2. Charlton, K., & Moore, H.(2021). PaRamEDIc assessment of laCTate in OHCA and survival to hospital (PREDICT procol), Journal of Paramedic Practice,13,3, 100-104

3.Sherin, P.(n.d). A Survey Was Conducted to Assess Nursing Teachers' Knowledge of American Heart Association (AHA) Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC) AT Selected Nursing Schools and Colleges in Uttar Pradesh.International journal of health sciences. 6(S7), 5538-55414.

4.Maurya, M.T., et al.(2023).A Study to Assess The Knowledge and Practice Regarding Cardiopulmonary Resuscitation Among Nursing Students Of Agra, Uttarpardesh. Journal of Advanced Zoology, 44.

5.Vazanic, D., et al.(2022) Out -of -hospital cardiac arrest outcomes By Stander Cardiopulmonary resuscitation rate improvement. Acta clinica Croatisa, 61(2), 265.

6 Ndungu, P.W., A. Mutisya, and Githemo , G.(2022). Knowledge of adult cardiopulmonary resuscitation among nursing students in selected nursing colleges in Kenya. African Journal of Health Sciences, 35(5) 564-573.

7. Emire MS, Haile TG, Tesu M. (2021 -2022) Assessment of Students' Attitudes Towards the Nursing Profession at Wolkite University, Ethiopia. Nursing Research and Reviews. 159-68.

8. Pargaien, M. & S.K. Dudi. (2023).efficacy of Cardiopulmonary Resuscitation Training Program on Knowledge and Practice of Nursing Student. International Journal of N ursing education.

9.Sherin, P. (2022).A survey was conducted to assess nursing teachers knowledge of American Heart Association (AHA) guidelines for cardiopulmonary resuscitation (CPR) and emergency cardiovascular care (ECC) at selected nursing schools and colleges in uttar pardesh. 5538-5541

10.Abbas, S., Abbas, B., Maqsood, A., Rabia , S., Azam R, & Ishaq H.(2021). Basic Life Support Awareness in Pakistan: Still in Embryonic Phase. Eur J Med Health Sciences,3(6),24-27

11.Ghauri , S. K., Javaeed, A., & Shah, F. (2019).Cardiopulmonary resuscitation knowledge and skills among junior doctors in twin cities of Pakistan pak J Med Sci, 35(5).1200-1395

12. Tripathi, H. K. & Vyas, (2021). Cardiopulmonary Resuscitation Knowledge / Awareness among final year B. 12(3).

13. Kwiecień-Jaguś, K., Mędrzycka-Dąbrowska, W., Galdikienė, N., Via Clavero, G., & Kopeć, M. (2020). A cross-international study to evaluate knowledge and attitudes related to basic life support among undergraduate nursing students—a questionnaire study. International Journal of Environmental Research and Public Health, 17(11), 1–11.
14. Kenya, M.O.H. (2018). Ministry Of Health Kenya National Guidelines For Cardiovascular Diseases Management Division Of Non-Communicable Diseases Republic Of Kenya Kenya National Guidelines For Cardiovascular Diseases Management Division Of Non-Communicable Diseases. Ministry of Health, Kenya.
15.Kelechi, E. Okonta (2015) theoretical knowledge of Crdiopulmonary Resuscitation among clinical medical students in the university of Port Harcourt Nigeria. African journal of medical and health sciences 14 (1) 42-46
16. Sangamesh, N. C. (2017). Awareness, Attitude and Knowledge of Basic Life Support among medical, dental and nursing faculties and students in the university hospital. Journal of international society of preventing and community dentistry .161-107.
17. Alarc, R., & Garc, J. (2021). Effects of a Clinical Simulation Course about Basic Life Support on Undergraduate Nursing Student's Learning. International Journal of Environmental Research and Public Health, 18-1409.
18. Qadir, H. K., Ahmed, H. A., & Hussein, M. M. (2017). Assessment of nursing students ` knowledge regarding cardio-pulmonary resuscitation in erbil medical technical institute. Polytechnic Journal, 7(4), 22–29.
19. Syeda, S. (2020). " A study to evaluate the effectiveness of planned teaching programmeon infant CPR among 3rd year BSc. Nursing Students in selected college of nursing , Kolkata ." International Journal of Research and Analytical Reviews, 7(2), 53–63.
20. Akhlaghdoust, M., Safari, S., Davoodi, P., Soleimani, S., & Khorasani, M. (2021). Awareness of Iranian Medical Sciences Students Towards Basic Life Support a Cross-Sectional study. Archives OfAcademic EmergencyMedicine. 9(1) E40, 9(1), 1–5. Awareness of Iranian Medical Sciences Students Towards Basic Life Support ; a Cross-Sectional study.
21. Baldi, E., Contri, E., Bailoni, A., Rendic, K., Turcan, V., Donchev, N., Nadareishvili, I., Yerolemidou, I., Petrenko, A., Labbe, G., Jashari, R., & Dalí, A. P. (2019). Final- year medical students' knowledge of cardiac arrest and CPR: We must do more! International Journal of Cardiology.
22. Vausedvan, B., Lucas, A., M, G. D., Bhaskar, A., & Areekal, B. (2016). Assessment of level of knowledge of basic life support algorithm among medical and nursing students in a tertiary care teaching hospital. International Journal of Community Medicine and Public Health, 3(12), 3520–3525.
23. Vausedvan, B., Lucas, A., M, G. D., Bhaskar, A., & Areekal, B. (2016). Assessment of level of knowledge of basic life support algorithm among medical and nursing students in a tertiary care teaching hospital. International Journal of Community Medicine and Public Health, 3(12), 3520–3525.
24.Sabir, M. (2017). Identify Knowledge of Basic Cardiac Life Support among Nursing Student. International Journal of Scientific and Research Publications, 7(6), 733– 738.
25. Ghauri , S. K., Javaeed, A., & Shah, F. (2019).Cardiopulmonary resuscitation knowledge and skills among junior doctors in twin cities of Pakistan pak J Med Sci, 35(5).1200-1395
26. Baloch, A. P., Wilson, N. R., Junejo, Z., Umrani, M. K., Parveen, F., & Parveen, A. (2024). The Knowledge and Practice of Cardiopulmonary Resuscitation (CPR) Among BSN Students at Isra University, Hyderabad. *Indus Journal of Social Sciences*, 2(2), 64-76.

27. *Zaheer H, Haque Z. (2009) Students' corner-awareness about BLS (CPR) among medical students: status and requirements. JPMA.59(1)57.*
28. Alsabri, M.A.H., et al., Knowledge and skill level among non-healthcare providers regarding cardiopulmonary resuscitation (CPR) training in the middle East (Arab countries): BMCPublic Health, 2024. 24(1): p.2081
29. Spinelli , G., et al., Assessment of the knowledge level and experience of healthcare personnel concerning CPR and early defibrillation: an internal survey . BMC cardiovascular disorder ,2021. 21: p.1-8
30. Alsabri, M.A.H., et al., Knowledge and skill level among non-healthcare providers regarding cardiopulmonary resuscitation (CPR) training in the middle East (Arab countries): BMCPublic Health, 2024. 24(1): p.2081
31. Achempim-Ansong, G., N. Gbordzoe, and E. Amoako-Mensah, perceptions of nurses regarding quality of adult cardiopulmonary resuscitation in Ghana: a qualitative study.2023
32. . Achempim-Ansong, G., N. Gbordzoe, and E. Amoako-Mensah, perceptions of nurses regarding quality of adult cardiopulmonary resuscitation in Ghana: a qualitative study.2023
33. George, B., K, Hampton, and M. Elliott, Effectiveness of an educational intervention on first year nursing students' knowledge and confidence to perform basic life support: a quasi- experimental study. Contemporary Nurse, 2023. 59(6): p. 478-490.
34. Sarvan, S and E. Efe, Thee effect of neonatenainnal resuscitation training based on serious game simulation method on nursing students' knowledge, skills, satisfication and self confidence levels: a randomized control trial. Nurse education today,2022.111:P. 105298.
35.Requena-Mullor, M.d.M., et al., effects of clinical simulation course about basic life support on undergraduate nursing students learning. International journal of environmental research and public health,2021.18(4): p.1409.
36.Requena-Mullor, M.d.M., et al., effects of clinical simulation course about basic life support on undergraduate nursing students learning. International journal of environmental research and public health,2021.18(4): p.1409.