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Factors Influencing Healthcare Professionals' Knowledge, Attitude, and Self-efficacy in CPR: A systematic review

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Abstract
Cardiopulmonary Resuscitation (CPR) is a vital lifesaving intervention for cardiac arrest. The systematic review is to investigate CPR knowledge, attitude, self-efficacy, and influencing factors among health professionals. This review analyzed cross-sectional studies published from 2019 to 2024 using data sources from PubMed, Scopus, and Google Scholar. The result revealed a good knowledge ranging from 11.9% to 89.5%. Approximately 65% had positive attitudes, and 89.4% positive self-efficacy. Factors affecting include age, work experience, CPR training, specialty area, and exposure to cardiac arrest cases. The findings highlight the importance of standardized and frequent CPR training, leading to improved quality of care.

Keywords: Knowledge; Attitude; Self-efficacy; Cardiopulmonary Resuscitation

DOI:

1.0 Introduction

Cardiac arrest is a critical emergency and the leading cause of death worldwide, resulting in approximately 500,000 fatalities each year (Alsabri et al., 2024). This premature mortality predominantly affects individuals between the ages of 30 and 70 (Hasani et al., 2024). While some cases of premature death may be unavoidable, Basic Life Support (BLS) techniques can help maintain airway function, breathing, and circulation during a cardiac arrest, even without advanced medical equipment (Jabeen et al., 2024).

Cardiopulmonary Resuscitation (CPR), an essential component of BLS, is particularly important in emergencies, especially in areas with limited access to healthcare. Performing CPR within 4 to 6 minutes of cardiac arrest can prevent physiological death (Jabeen et al., 2024).

Healthcare professionals must recognize the signs of heart attacks and airway obstructions to intervene effectively. While they are trained in CPR techniques, having the right attitude and self-efficacy is also crucial for successful implementation. This study reviews

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significant literature on knowledge, attitudes, self-efficacy, and factors related to the performance of CPR among healthcare professionals.

2.0 Literature Review

Healthcare professionals are trained in cardiopulmonary resuscitation (CPR) through the Basic Life Support (BLS) Program to ensure they can respond swiftly and effectively in emergencies. However, a study by Koyuncu et al. (2024) in Poland revealed that only 37.5% of nurses applied the correct pressure at the proper depth during CPR. In Karachi, India, only 22.9% of nurses passed a BLS knowledge test (Ikram et al., 2024). Similar findings in India indicate that both nurses and doctors lack essential theoretical knowledge and practical skills in BLS (Ikram et al., 2024). Furthermore, only 10.8% of healthcare professionals were aware of the correct initial response for someone found unresponsive in the middle of the road, and just 24.5% knew the appropriate actions to take after confirming unresponsiveness (Ikram et al., 2024).

According to Hasnain et al. (2023), each minute of delay in performing CPR leads to a 7% to 10% decrease in its effectiveness. Moreover, delays in initiating CPR among healthcare professionals can contribute to negative attitudes stemming from a lack of confidence. This unpreparedness is often a result of inadequate training, fear of communicable diseases associated with mouth-to-mouth ventilation, and issues with non-functioning automated external defibrillators (AEDs) (Hasnain et al., 2023). Furthermore, Sasmito et al. (2024) indicate that even nurses with adequate knowledge of BLS may still experience a decline in their skills, which does not necessarily boost their confidence in performing CPR for cardiac arrest patients effectively.

Despite extensive research on CPR, there remains a significant gap in studies exploring healthcare professionals' knowledge, attitudes, and self-efficacy. The findings of these studies suggest that BLS training can be enhanced. It is crucial to foster a positive attitude and self-efficacy when performing CPR.

3.0 Methodology

3.1 Source

This systematic literature review was conducted according to the methodological framework and adhered to the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines (Liberati et al., 2009). To achieve a thorough and reproducible review, a structured approach was utilized that encompasses identification, screening, eligibility evaluation, and final inclusion (Haddaway et al., 2022). This meticulous strategy ensures transparency, replicability, and thoroughness in accordance with the best practices set forth by the PRISMA group for systematic reviews and meta-analyses.

3.2 Formulation of the Research Question

The research question for this study is formulated based on the PICO guidelines, emphasizing four key concepts: Population or Problem (P), Intervention or Exposure (I), Comparison (C), and Outcome Measures (O) (Stern et al., 2014). The study's population involves healthcare professionals who perform CPR. There is no specific comparison aspect in this context. Outcome measures focus on the level of knowledge, attitude, self-efficacy and factors associated. Therefore, the primary research question of this study is: "What is the extent of knowledge, attitude and self-efficacy of healthcare workers towards performing CPR, and what are the factors associated that influence the knowledge, attitude and self-efficacy of healthcare workers regarding CPR?"

3.3 Information Sources

A literature review was conducted to identify articles that met the inclusion criteria related to knowledge, attitudes, self-efficacy, CPR, and healthcare workers. The search utilized reputable databases, including PubMed, Web of Science, MEDLINE, Google Scholar, and Scopus, to ensure a comprehensive exploration of the field.

3.4 Search Strategy

The search strategy utilized terms such as "Cardiopulmonary Resuscitation (CPR)," "Basic Life Support (BLS)," "Healthcare Workers," "Knowledge," "Attitude," and "Self-efficacy" to collect relevant information. Articles were sourced from online databases and library catalogues, focusing exclusively on inclusion criteria on English publications from 2019 onward, with an emphasis on cross-sectional quantitative studies.

3.5 Selection Process

The selection process for the literature review is illustrated in Figure 1. A total of 63 records were identified through database searches conducted in English between 2019 and 2024. After removing duplicates, 58 records remained for screening based on their titles and abstracts. Out of these, 44 records were excluded for various reasons, which omitted study populations that did not involve nurses or

healthcare workers, outcomes that did not focus on knowledge, attitudes, or self-efficacy, and studies that were not aligned with the review's objectives. All 14 full-text articles were assessed for eligibility, and each met the inclusion criteria, making them suitable for the review. Ultimately, 14 studies were included in the final literature review, sourced from the following databases: Scopus (2), Google Scholar (4), and PubMed (8).

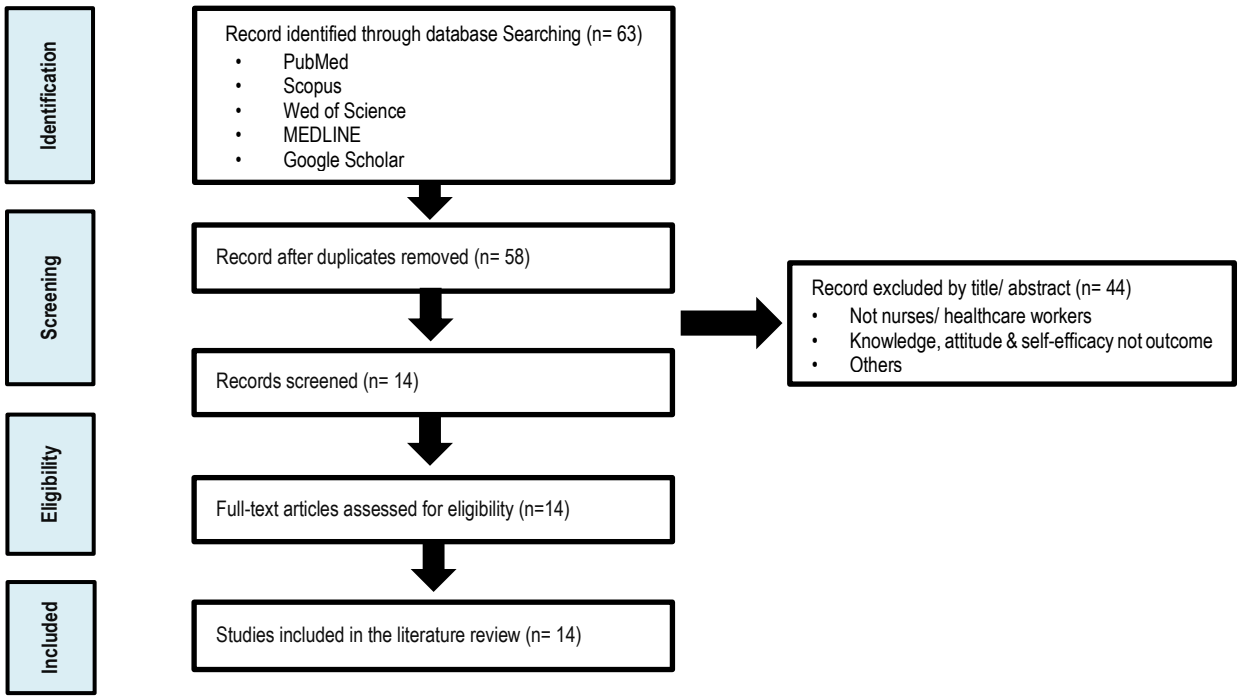

Fig. 1: Shows the CONSORT Flow Diagram of the Search Strategy

3.6 Quality Appraisal

The selection criteria for this study were as follows: articles published in English (Inclusion Criterion 1), discussing knowledge, attitudes, and self-efficacy related to CPR (Inclusion Criterion 2), focusing on healthcare workers (Inclusion Criterion 3), and comprising cross-sectional quantitative studies (Inclusion Criterion 4). As summarized in Table 3, a total of 14 articles that met these criteria were evaluated using the "Joanna Briggs Institute (JBI) Critical Appraisal Checklist" to assess their methodological quality and potential biases (Moola et al., 2015). The appraisal confirmed that the studies provided valid and reliable findings. Each criterion was scored as “Yes,” “No,” or “Unclear” and tabulated. Based on the appraisal, the high-quality studies that received a score of 8 or higher in “Yes” responses include Irfan et al. (2019), Isa et al. (2022), Mersha et al. (2020), Chaudhary et al. (2023), Tomas and Kachekele (2023), and Mohebi et al. (2023). The studies by Hasnain et al. (2023), Chik et al. (2023), Alkubati et al. (2022), and Sasmito et al. (2023, 2024) were classified as moderate quality, with scores ranging from 6 to 7 “Yes” responses. The low-quality studies, which received fewer than 6 “Yes” responses, include Shah et al. (2022), A. Alkhaqani et al. (2023), and Alaryani et al. (2021). This appraisal ensured that only studies with adequate methodological rigor were included in the synthesis, enhancing the reliability and validity of the review findings.

Table 3: Quality Appraisal

Author (year)	Database	Inclusion criteria	Study subject and setting	Validity and reliability of the study	Risk of bias	Identify confounding factors	Strategies to deal with confounders	Outcome measure	Statistical analysis
Hasnain et al. (2023)	PubMed	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Irfan et al. (2019)	PubMed	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Shah et al. (2022)	Google scholar	Yes	Yes	No	No	No	No	Yes	Yes

Author (year)	Database	Inclusion criteria	Study subject and setting	Validity and reliability of the study	Risk of bias	Identify confounding factors	Strategies to deal with confounders	Outcome measure	Statistical analysis
Isa et al. (2022)	Scopus	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Chik et al. (2023)	Google scholar	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Alkubati et al. (2022)	PubMed	Yes	Unclear	Yes	Yes	Yes	Yes	Yes	Yes
Sasmito et al. (2023)	Google scholar	Yes	Unclear	No	Yes	Yes	Yes	Yes	Yes
A.Alkhaqani et al. (2023)	Scopus	Yes	Yes	Yes	No	No	No	Yes	Yes
Mersha et al. (2020)	PubMed	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Chaudhary et al. (2023)	PubMed	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Tomas and Kachekele (2023)	PubMed	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Mohebi et al. (2023)	PubMed	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Alaryani et al. (2021)	PubMed	Yes	Yes	Yes	No	No	No	Yes	Yes
Sasmito et al. (2024)	Google scholar	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

4.0 Findings

4.1 Knowledge of CPR

Research shows that Basic Life Support (BLS) knowledge among healthcare professionals varies widely worldwide. Among the twelve studies summarized in Table 4, five reported a high level of CPR knowledge. In Malaysia, two studies revealed strong knowledge rates among healthcare professionals of 89.5% (Chik et al., 2023) and 84.0% (Isa et al., 2022). In Indonesia, the knowledge rate was 78.1% (Sasmito et al., 2023), while Namibia reported 63.0% (Tomas & Kachekele, 2023). In Yemen, the proportion of healthcare professionals with a good level of CPR knowledge was reported at 53.65% (Alkubati et al., 2022).

Several countries reported that most of their sample had moderate levels of CPR knowledge. In Saudi Arabia, 61.3% of participants demonstrated moderate knowledge (Alaryani et al., 2021), followed by Nepal with 55% (Chaudhary et al., 2023). In Pakistan, two studies found moderate knowledge rates of 52.9% (Shah et al., 2022) and 44.3% (Hasnain et al., 2023). In contrast, healthcare professionals in Ethiopia showed a high rate of poor CPR knowledge at 74.9% (Mersha et al., 2020). This was followed by Iraq, where 60% of respondents had poor knowledge (A. Alkhaqani et al., 2023) and Pakistan at 58.3% (Irfan et al., 2019).

4.2 Attitude Toward CPR

A total of four studies examined healthcare professionals' attitudes toward CPR. In Namibia, 65% of individuals performing CPR have a positive attitude toward it (Tomas & Kachekele, 2023). This is closely followed by 63% of healthcare professionals in Pakistan who also exhibit a positive attitude. In Ethiopia, 60.8% of healthcare professionals have a favourable view regarding CPR (Mersha et al., 2020). Conversely, Shah et al. (2022) found that in Pakistan, 60% of nurses and doctors did not perform CPR voluntarily, while 30% did perform BLS but not voluntarily, indicating a negative attitude toward the practice.

4.3 Self-efficacy Toward CPR

Research on self-efficacy in performing CPR among nurses in Saudi Arabia indicates that 89.4% of nurses demonstrated positive self-efficacy, as reported by Mohebi et al. (2023). This was supported by a study in Indonesia by Sasmito et al. (2024), which found that 86.7% of nurses demonstrated positive self-efficacy in performing CPR. In contrast, a study by Alaryani et al. (2021) found that only 63.8% of nurses reported positive levels of self-efficacy.

4.4 Factors Associated with Knowledge of CPR

Several studies indicate that various factors influence CPR knowledge among healthcare professionals. Key determinants of CPR knowledge include work experience, as evidenced by studies conducted in Pakistan ($p < 0.05$) by Irfan et al. (2019), Indonesia (p-value = 0.024) by Sasmito et al. (2023) and with a study from Ethiopia ($p<0.05$) by Mersha et al. (2020). Additional factors associated with CPR knowledge include age, supported by studies from Nepal (p-value = 0.022) (Chaudhary et al., 2023) and Indonesia (p-value = 0.008) (Sasmito et al., 2023). Furthermore, prior BLS training has been shown to influence CPR knowledge levels in Yemen (p-value = 0.000) (Alkubati et al., 2022), Ethiopia ($p<0.05$) (Mersha et al., 2020) and Nepal (p-value = 0.026) (Chaudhary et al., 2023).

Two studies conducted in Ethiopia ($p < 0.05$) (Mersha et al., 2020) and Yemen (p-value = 0.000) (Alkubati et al., 2022) found that access to CPR information or guidelines significantly influences healthcare professionals' knowledge of CPR. In Malaysia (Isa et al., 2022) and Namibia (Tomas & Kachekele, 2023), findings indicate that practice experience significantly influences CPR knowledge with p-values of 0.032 and 0.002, respectively. In addition, findings from Malaysia (Chik et al., 2023) and Pakistan (Hasnain et al., 2023) highlight that the healthcare professionals' area of specialty has a significant impact on their CPR knowledge, with p-values of 0.001 and 0.005, respectively.

Research conducted in Yemen highlights that a governance factor (p-value = 0.005) and educational level (p-value = 0.000) were significant factors in determining knowledge levels (Alkubati et al., 2022). In Pakistan, it was also found that CPR knowledge was affected by the time elapsed since the last session of BLS training ($p = 0.041$) (Hasnain et al., 2023). Additionally, in Ethiopia, factors associated with CPR knowledge included the number of work settings ($p < 0.05$) and exposure to cardiac arrest cases ($p < 0.05$) (Mersha et al., 2020).

4.5 Factors Associated with Attitude Toward Performing CPR

Previous studies identified CPR training as a key factor influencing attitudes toward performing CPR, with significant associations reported in Ethiopia ($p < 0.05$) (Mersa et al., 2020) and Pakistan (p-value =0.012) (Hasnain et al., 2023). Moreover, in Pakistan, the factors associated with attitude to performing CPR are age (p-value = 0.004), job designation (p-value = 0.050), and the time elapsed since the last CPR session attended (p-value = 0.015) (Hasnain et al., 2023). In Ethiopia, familiarity with CPR guidelines ($p < 0.05$) influences healthcare professionals' attitudes toward CPR (Mersa et al., 2020).

4.6 Factors Associated with Self-efficacy Toward Performing CPR

Research indicates that self-efficacy in performing CPR is influenced by both age and years of experience of example, Mohebi et al. (2023) found a statistically significant association between self-efficacy and age in Saudi Arabia (p =0.000). Likewise, Sasmito et al. (2024) identified a moderate positive correlation between self-efficacy and age in Indonesia, reporting a correlation coefficient of r=0.447.

Moreover, years of experience have been shown to significantly influence self-efficacy. Mohebi et al. (2023) reported a strong association between years of experience and self-efficacy in Saudi Arabia (p = 0.000). Similarly, Sasmito et al. (2024) found a moderate positive correlation in Indonesia (r=0.503). In addition, the number of cardiac arrest cases managed was also positively correlated with self-efficacy (r=0.419), further highlighting the impact of hands-on experience (Sasmito et al., 2024). Furthermore, a study conducted by Alaryani et al. (2021) in Saudi Arabia found that the relationship between self-efficacy in performing CPR and knowledge was significant ($p< 0.001$).

Table 4: List of Related Literature Review Toward Knowledge, Attitude, Self-efficacy and Factors Associated with Performing CPR)

No	Title	Author (Year) & Setting	N	Knowledge and factors associated	Attitude and factors associated	Self-efficacy and factors associated
1	Basic Life Support knowledge in a war-torn country: a survey of nurses in Yemen	Alkubati et al. (2022) & Yemen	200 (Nurses)	**Knowledge:** 53.7% - good knowledge **Factors Associated:** 1) Governance (p-value = 0.005) 2) Level education (p-value = 0.000) 3) Received training in CPR (p-value = 0.000) 4) Received information about CPR (p-value = 0.000)	NA	NA

No	Title	Author (Year) & Setting	N	Knowledge and factors associated	Attitude and factors associated	Self-efficacy and factors associated
2	Knowledge and Practice of Basic Life Support (BLS) Among Registered Nurse at a Private Hospital in Seremban	Isa et al. (2022) & Malaysia	170 (Nurses)	Knowledge: 84.1% - good knowledge Factor Associated: Practice (p-value = 0.032)	NA	NA
3	Current state of knowledge of Basic Life Support in health professionals of the largest city in Pakistan: A cross-sectional study	Irfan et al. (2019) & Pakistan	140 (Dentist, Nurses & Doctor)	**Knowledge:** 1) 15.2% - good knowledge 2) 58.3% - poor knowledge. **Factor Associated:** Work experience (p< 0.05)	NA	NA
4	Knowledge, Attitude and Practices of Basic Life Support among Nurses: A Cross-Sectional Study in Malakand Division, Khyber Pakhtunkhwa	Shah et al. (2022) & Pakistan	210 (Nurses)	**Knowledge:** 1) 11.9% - good knowledge 2) 52.9% - moderate knowledge 3) 35.2% - poor knowledge **Factor Associated:** NA	**Attitude:** 1) 60.0% - negative attitude (Not Performed) 2) 30.0% - negative attitude (Performed involuntarily) **Factor Associated:** NA	NA
5	Knowledge and Practice of Cardiopulmonary Resuscitation (CPR) among Registered Nurses	Chik et al. (2023) & Malaysia	316 (Nurses)	**Knowledge:** 1) 89.5% - good knowledge 2) 10.5% - moderate knowledge **Factor Associated:** Specialty area (p-value = 0.001)	NA	NA
6	Knowledge regarding Basic Life Support among Health Care Workers of the Hospital of Nepal	Chaudhary et al. (2023) & Nepal	95 (Healthcare Workers)	**Knowledge:** 1) 12.0% - good knowledge 2) 55.0% - moderate knowledge 3) 32.0% - poor knowledge **Factors Associated:** 1) Age (p-value= 0.022) 2) Previous training (p-value= 0.026)	NA	NA
7	Factors associated with knowledge and attitude towards adult cardiopulmonary resuscitation among healthcare professionals at the University of Gondar Comprehensive Specialized Hospital, Northwest Ethiopia: An institutional-based cross-sectional study	Mersha et al. (2020) & Ethiopia	406 (Healthcare Workers)	**Knowledge:** 1) 25.1% - good knowledge 2) 74.9% - poor Knowledge **Factors Associated:** 1) Work experience (p<0.05) 2) CPR training (p<0.05) 3) Number of work settings (p<0.05) 4) Exposure to cardiac arrest case (p<0.05) 5) Reading CPR guidelines (p<0.05)	**Attitude:** 60.8% - positive attitude. **Factor Associated:** 1) CPR training (p<0.05) 2) Reading CPR guidelines (p<0.05)	NA

No	Title	Author (Year) & Setting	N	Knowledge and factors associated	Attitude and factors associated	Self-efficacy and factors associated
8	Basic Life Support knowledge among nurses at public health center in rural Banten Province, Indonesia	Sasmito et al. (2023) & Indonesia	32 (Nurses)	**Knowledge:** 1) 78.1% - good knowledge 2) 21.9% - poor knowledge **Factors Associated:** 1) Age (p-value = 0.008) 2) Work experience (p-value = 0.024)	NA	NA
9	Nurses' Knowledge, Attitudes, and Practice of Cardiopulmonary Resuscitation at a Selected Training Hospital in Namibia: A Cross-Sectional Survey	Tomas and Kachekele (2023) & Namibia	108 (Nurses)	**Knowledge:** 1) 63.0% - good knowledge 2) 37.0% - poor Knowledge **Factor Associated:** Practice (p=0.002)	**Attitude:** 1) 65.0% - positive attitude 2) 35.0% - negative attitude **Factor Associated:** NA	NA
10	Determinants factors on Public Health Centre nurses ' confidence in performing cardiopulmonary resuscitation	Sasmito et al. (2024) & Indonesia	30 (Nurses)	NA	NA	**Self-efficacy:** 1) 86.7% - positive self-efficacy 2) 13.3% - negative self-efficacy **Factor Associated:** 1) Age (r = 0.447) 2) Year of service (r = 0.503) 3) Number of managed cardiac arrest cases (r = 0.419)
11	Nurses' perception and self-confidence of family presence during cardiopulmonary resuscitation in Saudi Arabia	Mohebi et al. (2023) & Saudi Arabia	147 (Nurses)	NA	NA	**Self-efficacy:** 1) 89.4% - positive self-efficacy 2) 10.6% - negative self-efficacy **Factor Associated:** 1) Age (p-value= 0.000) 2) Years of experience (p-value= 0.000)
12	Factors affecting knowledge and attitude of healthcare workers towards Basic Life Support in Khyber Teaching Hospital, Peshawar: a cross-sectional analysis	Hasnain et al. (2023) & Pakistan	201 (HOs, trained MOs, postgraduate residents, professors, speciality registrars & nurses)	**Knowledge:** 1) 16.4% - good knowledge 2) 44.3% - moderate knowledge 3) 39.3% - poor knowledge **Factors Associated:** 1) Time elapsed since the last session attended (p=0.041) 2) Specialty area (p=0.005)	**Attitude:** 63.0% - positive attitude **Factors Associated:** 1) Age (p=0.004) 2) Designation (p=0.05) 3) Number of BLS sessions attended (p=0.012) 4) Time elapsed since the last session attended (p=0.015)	NA
13	Exploring Nurses' Knowledge and Attitudes Concerning Basic Life Support: A Questionnaire Survey Study	A.Alkhaqani et al. (2023) & Iraq	200 (Nurses)	**Knowledge:** 60.0% - poor knowledge **Factor Associated:** NA	NA	NA

No	Title	Author (Year) & Setting	N	Knowledge and factors associated	Attitude and factors associated	Self-efficacy and factors associated
14	The relationship between knowledge and self-efficacy of nurses regarding early initiation of cardiopulmonary resuscitation and automated defibrillation in Saudi Arabia	Alaryani et al. (2021) & Saudi Arabia	287 (Nurses)	**Knowledge:** 1) 35.2% - good knowledge 2) 61.3% - moderate knowledge 3) 3.5% - poor knowledge **Factor Associated:** NA	NA	**Self-efficacy:** 1) 63.8% - positive self-efficacy 2) 36.2% - negative self-efficacy **Factor Associated:** Knowledge ($p < 0.001$).

5.0 Discussion

This systematic review highlights significant variability in healthcare professionals' knowledge, attitudes, and self-efficacy regarding Cardiopulmonary Resuscitation (CPR) across different countries and healthcare settings. For instance, countries like Malaysia and Indonesia report high levels of CPR knowledge among nurses, while others, such as Ethiopia and Iraq, exhibit alarmingly low levels. CPR is a psychomotor skill, and hands-on clinical training is more effective than lecture-based or video-based education in enhancing CPR performance (Moon & Hyun, 2019). In rural areas of Pakistan, 37.5% of nurses achieve a high level of knowledge after training; however, after a three-month follow-up, only 10% maintain that high level (Jabeen et al., 2024). Moreover, research in Pakistan indicates that training lasting more than two years is associated with a decrease in knowledge retention (Hasnain et al., 2023). Significantly, the training intervention led to improvements in knowledge. To sustain this level of knowledge, it is essential to conduct training sessions regularly (Jabeen et al., 2024). Suggestion by Hasnain et al. (2023), annually BLS training is needed to strengthen BLS knowledge. These disparities suggest that CPR training programs are not consistently implemented or standardized globally.

Attitudes toward CPR also vary, with some professionals demonstrating reluctance to perform CPR voluntarily, despite having adequate knowledge. Factors contributing to negative attitudes include fear of infection, lack of confidence, and insufficient hands-on training. Highlight a study in Pakistan that provides hands-on training to clarify the use of AEDs and offers regular updates on guidelines, thereby enhancing the confidence and competence of healthcare professionals in performing CPR (Ikram et al., 2024). Other studies in Saudi Arabia have found a positive correlation between training and attitudes toward BLS among healthcare professionals, as well as a negative correlation with concerns and not dwelling on any possible negative aspect of providing treatment (Abolfotouh et al., 2017). Interestingly, this indicates that training encourages participants to view BLS positively, rather than focusing on any negative aspects of providing treatment. This indicates that knowledge alone is insufficient; fostering a positive mindset and readiness to act is equally crucial.

Self-efficacy, or the confidence to perform CPR effectively, is strongly associated with clinical experience and exposure to real-life cardiac arrest cases. Studies from Saudi Arabia and Indonesia show that healthcare workers with more years of service and direct involvement in resuscitation scenarios exhibit higher self-efficacy. This underscores the importance of experiential learning and simulation-based training. Several influencing factors were identified, including age, years of experience, prior CPR or BLS training, specialty area, and access to updated CPR guidelines. These findings support the need for tailored interventions that consider individual and institutional contexts to improve CPR outcomes. In other words, performing CPR requires not only knowledge and the right attitude but also the ability or positive self-efficacy to handle cardiac cases effectively, which impacts CPR performance (Turner et al., 2009).

6.0 Conclusion and Recommendations

This review emphasizes the urgent need for customized, context-specific strategies to enhance the knowledge, attitudes, and self-efficacy of healthcare professionals regarding CPR. To achieve this, it is crucial to implement regular CPR training sessions that not only cover the latest techniques but also incorporate simulations of real-life cardiac emergencies. Additionally, providing healthcare professionals with access to updated clinical guidelines and evidence-based practices is essential to ensure they have the most current information. Creating supportive work environments that promote ongoing education and open communication can significantly help bridge the gap between theoretical knowledge and practical application. By prioritizing these measures, we can improve the preparedness of healthcare teams, ultimately leading to better patient outcomes during critical cardiac events. To enhance the effectiveness and consistency of CPR training worldwide, several key recommendations should be considered.

First, regular, simulation-based CPR training is essential for healthcare professionals to develop the technical skills and confidence needed to respond effectively in real-life emergencies. These hands-on sessions simulate critical scenarios, reinforcing muscle memory and decision-making under pressure. Second, it is vital to provide easy access to updated, evidence-based CPR

guidelines. This ensures that practitioners remain informed about the latest protocols and best practices. Third, implementing performance audits and constructive feedback mechanisms helps regularly assess CPR competency, identify gaps, and guide targeted improvements. Fourth, cultivating supportive learning environments that encourage continuous, enduring educational growth and collaborative communication fosters positive attitudes toward CPR and reduces anxiety related to emergency responses. Finally, integrating CPR and Basic Life Support (BLS) training into healthcare curricula ensures early exposure and consistent reinforcement throughout professional development, laying a strong foundation for lifelong competency in life-saving techniques.

By adopting these strategies, healthcare institutions can significantly improve the preparedness and responsiveness of their teams, ultimately leading to better patient outcomes during cardiac emergencies. This review emphasizes the need to enhance CPR-related competencies among healthcare professionals. Although some regions show promising levels of knowledge and confidence, gaps persist in both theoretical understanding and practical application. Addressing these gaps is essential for improving survival rates in cardiac emergencies.

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Paper Contribution to Related Field of Study

This review offers valuable insights into the knowledge, attitudes, and self-efficacy of healthcare professionals regarding CPR, as well as the factors that influence their performance of this lifesaving technique. It highlights the necessity for proper training standards to enhance the quality of care in the healthcare sector.

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