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ORIGINAL RESEARCH

Cardiopulmonary Resuscitation Knowledge Among Nurses in Herat Afghanistan: A Cross-Sectional Study

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Objective: This study assessed cardiopulmonary resuscitation (CPR) knowledge among nurses in Herat, Afghanistan, and examined demographic and workplace factors associated with differences in knowledge. By providing local evidence from a setting where standardized emergency-care training is limited, the study helps address an important national evidence gap.

Methods: A cross-sectional survey was conducted in 2024 among 321 registered nurses from public and private hospitals in Herat Province. Participants were recruited using convenience sampling. Data were collected using a structured, self-administered questionnaire adapted from validated instruments and analyzed in SPSS v27. Descriptive statistics summarized responses, and chi-square tests assessed associations between knowledge level and participant characteristics.

Results: Most participants recognized CPR as important (95.6%) and lifesaving in cardiac arrest (98.4%). Support for compulsory CPR training was high for healthcare professionals (90.7%) and medical students (86.3%). Knowledge was also strong regarding defibrillation (87.9%), maintaining calm during CPR (88.8%), and the risk of irreversible brain injury after 7 minutes (77.6%). However, important gaps remained in specific domains—particularly pediatric considerations and public misconceptions: only 60.4% knew that compression-only CPR is less effective in children, and 42.1% recognized that media portrayals often misrepresent CPR outcomes. The proportion with higher knowledge was greater among nurses working in private hospitals (66.7% compared to 52.4%) ($p = 0.009$), those with 2–4 years of experience (69.3%) ($p = 0.012$)—notably higher than groups with longer experience—night-shift nurses (81.1%) ($p = 0.009$), nurses aged 23–28 (58.0%) ($p = 0.041$), and those working standard shifts of 8–12 hours/day (59.9%) ($p = 0.005$).

Conclusion: CPR knowledge among nurses in Herat was generally high, but consistent deficits were observed in pediatric CPR-related concepts and misconceptions about CPR outcomes. These findings provide baseline evidence to guide targeted refresher training, simulation-based education, and institutional standardization to strengthen emergency response capacity in Afghanistan.

Keywords: cardiopulmonary resuscitation, nurses, knowledge, cross-sectional studies, Afghanistan

Introduction

Cardiac arrest remains a major global health challenge, with survival largely dependent on the rapid initiation of high-quality cardiopulmonary resuscitation (CPR). In hospital settings, nurses are often the first healthcare professionals to respond to cardiac emergencies, placing them in a critical position to influence immediate patient outcomes. Adequate CPR knowledge and preparedness among nurses are therefore essential components of effective emergency care. However, evidence from low- and middle-income countries (LMICs) consistently indicates gaps in CPR knowledge and skills among nurses, raising concerns about the readiness of healthcare systems to manage cardiac arrest effectively.[1]

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In Afghanistan, the assessment of CPR preparedness is particularly important. The healthcare system continues to face structural challenges, including shortages of trained personnel, limited access to continuing professional education, and inconsistent availability of standardized emergency-care training programs. Nurses working in such environments may have fewer opportunities for guideline-based education and skill reinforcement, potentially compromising preparedness for time-critical events such as cardiac arrest.[2] Despite these challenges, CPR knowledge among nurses in Afghanistan has not been systematically studied, and nationally standardized approaches to CPR training and retraining remain limited. This lack of local evidence restricts the development of targeted policies and training strategies.

International studies highlight substantial deficiencies in CPR knowledge among nurses across diverse settings. For example, research from Brazil has demonstrated serious gaps in both CPR knowledge and practical readiness, particularly among nurses working outside intensive care units.[3] In Bahrain, although 58% of nurses reported confidence in recalling CPR guidelines, only 7% successfully passed a CPR knowledge assessment, illustrating a marked discrepancy between perceived and actual competence.[4] Similarly, in South Africa, none of the 133 nurses evaluated achieved the recommended 80% benchmark score for CPR knowledge, and no significant association was observed between years of experience and knowledge level.[5]

Importantly, multiple studies suggest that experience alone does not ensure CPR competency. Structured training appears to be the key determinant of adequate knowledge. In India, targeted CPR training improved knowledge levels from 41.3% to 79.5%, demonstrating the effectiveness of formal educational interventions.[6] Conversely, studies from Nigeria and Brazil have shown that although baseline awareness of CPR may be moderate to high (eg, 74.9% of nurses reporting good knowledge in Nigeria), negative attitudes toward CPR practice and declining knowledge retention remain common in the absence of regular refresher training.[7,8]

Similar findings have been reported in other Asian settings. In Nepal, only one-third of nurses demonstrated good CPR knowledge based on American Heart Association guidelines, with formal training—but not age or years of experience—significantly associated with higher scores.[9] In Pakistan, charge nurses achieved a mean CPR knowledge score of only 9.67 out of 22, again with no meaningful correlation between knowledge and years of service.[10] In Indonesia, 63.3% of emergency nurses exhibited poor CPR knowledge and performance, underscoring the clinical implications of theoretical deficiencies.[11]

Overall, the international literature consistently shows that nurses often possess limited or outdated CPR knowledge, that knowledge retention declines without reinforcement, and that structured, periodic training is essential for maintaining competency. Despite this growing body of evidence, it remains unclear how these patterns apply to the Afghan context, where healthcare delivery operates under unique structural and resource constraints.

Accordingly, this study aimed to evaluate the level of CPR knowledge among nurses working in public and private hospitals in Herat, Afghanistan, and to examine demographic and professional factors associated with variations in knowledge. By generating baseline, context-specific evidence, this study seeks to inform targeted refresher training, simulation-based education, and institutional policy development to strengthen emergency response capacity and improve patient safety in Afghan healthcare settings.

Methods

Study Design and Setting

A hospital-based cross-sectional study was conducted to assess CPR knowledge among registered nurses working in healthcare facilities across Herat Province, Afghanistan. Data collection took place throughout 2024. The study included one major public hospital (Herat Regional Hospital) and 22 private hospitals, including Sehat Hospital, Afghan Arya Hospital, and Abu Ali Sina Medical Hospital. Inclusion of both public and private institutions aimed to capture variation in training exposure and clinical practice environments.

Study Population and Eligibility Criteria

The study population comprised registered nurses who were actively employed in the participating hospitals during the data collection period. Nurses from emergency, intensive care, medical, surgical, pediatric, and other clinical wards were

eligible. Inclusion criteria were: (1) age ≥18 years; (2) current employment as a nurse in the selected hospitals; (3) ability to complete a self-administered questionnaire; and (4) provision of informed consent. Exclusion criteria included nurses on administrative leave or those unable to complete the questionnaire independently.

Sampling Method and Sample Size

A convenience sampling strategy was used due to the absence of a comprehensive and up-to-date nursing registry in the region, which limited the feasibility of probability-based sampling. Hospital administrators and department heads facilitated access to nursing staff and coordinated questionnaire distribution. Sample size was calculated using Cochran's formula, assuming a 5% margin of error, a 90% confidence level, and an expected prevalence of adequate CPR knowledge of 50%. The minimum required sample size was 273. To account for potential non-response, 350 questionnaires were distributed; 321 completed questionnaires were returned and included in the final analysis.

Data Collection Instrument

Data were collected using a structured, self-administered questionnaire adapted from a previously validated instrument developed by Vural et al,[12] originally aligned with American Heart Association CPR guideline concepts. The adapted questionnaire preserved the original structure and content, with minor contextual modifications to ensure relevance to the Afghan healthcare setting. The questionnaire consisted of four sections: (1) sociodemographic and professional characteristics (eg, age, sex, education, hospital type, ward, shift pattern, work hours, CPR training history, and CPR performance experience); (2) knowledge of the importance of CPR in clinical practice (8 items with Yes/No/Do not know responses); (3) knowledge of CPR purpose and procedural concepts, including updated sequence (CAB), compression–ventilation ratio, and chest compression techniques; and (4) knowledge of CPR indications, methods, and effectiveness (15 statements with True/False/Do not know responses). The questionnaire was translated into Persian and back-translated into English to ensure semantic consistency. Content validity was assessed by a panel of five academic and clinical experts. A pilot study involving 30 nurses was conducted to evaluate reliability, yielding Cronbach's alpha of 0.73, indicating acceptable internal consistency.

Scoring and Knowledge Classification

Each knowledge item was scored dichotomously, with correct responses assigned one point and incorrect or "don't know" responses assigned zero points. Two composite knowledge scores were calculated: (1) knowledge of CPR importance (score range: 0–8) and (2) knowledge of CPR indications, methods, and effectiveness (score range: 0–15). Because no validated or universally accepted cut-off exists for defining adequate CPR knowledge using this instrument, particularly in the Afghan context, the median score of the study population was used as the cut-off for categorization. The median score for knowledge of CPR importance was 8, and the median score for knowledge of CPR indications, methods, and effectiveness was 12. Participants scoring below the median were classified as having *low knowledge*, whereas those scoring at or above the median were classified as having *high knowledge*. This approach was adopted because the median cutoff is a standard dichotomization method commonly used in KAP surveys, particularly when data are not normally distributed, and has been applied in previous studies.[13,14]

Data Collection Procedure and Quality Control

After obtaining institutional permissions, questionnaires were distributed to eligible nurses during duty hours with the assistance of department heads. Participation was voluntary and anonymous. Completed questionnaires were collected in sealed form to minimize reporting bias. Questionnaires were checked for completeness at the time of collection, and only complete responses were included in the analysis.

Statistical Analysis

Data were analyzed using SPSS version 27. Descriptive statistics, including frequencies and percentages, were used to summarize sociodemographic characteristics and CPR knowledge responses. Chi-square tests were performed to examine

associations between categorical variables and CPR knowledge levels. A p-value of <0.05 was considered statistically significant. Results were presented in tables and figures to enhance clarity and interpretation.

Ethical Approval and Accordance

The study protocol was reviewed and approved by the Institutional Review Board of Jami University (J.2024.2.27.9). All procedures involving human participants were conducted in accordance with the ethical standards of the institutional and/or national research committee and with the Declaration of Helsinki (1964) and its later amendments.

Results

A total of 321 nurses participated in the study. Females constituted 56.4% of the sample, and males 43.6%. Half of the participants were aged 23–28 years (50.5%), and the majority were single (57.9%). Most nurses held a diploma-level qualification (79.4%) and were employed in public hospitals (52.3%). Regarding professional characteristics, 39.6% had 2–4 years of work experience, while 37.7% had less than two years and 22.7% had five years or more of experience. Nurses were distributed across medical (28.0%), surgical (24.0%), emergency/ICU (25.9%), pediatric (13.4%), and other wards (8.7%). Most participants worked standard 8–12-hour shifts (55.1%) and predominantly morning shifts (58.3%). Daily patient exposure was most commonly moderate (16–40 patients/day; 43.6%). With respect to CPR exposure, nearly half of the nurses (49.8%) reported a low caseload (0–1 CPR case/day), while 38.9% reported moderate exposure (2–4 CPR cases/day). Two-thirds of participants (67.0%) had received formal CPR training, and 54.2% had previously performed CPR in clinical practice. Academic institutions were the most common source of CPR knowledge (53.9%), followed by workplace training (31.8%) (Table 1).

Table 1 Sociodemographic Characteristics of Participating Nurses in Herat, Afghanistan (N = 321)

		N	%
Gender	Male	140	43.6
	Female	181	56.4
Age (year)	Young (18–22)	99	30.8
	Middle-aged (23–28)	162	50.5
	Older (29–60)	60	18.7
Marital status	Single	186	57.9
	Married	135	42.1
Education	Diploma (Medical Institute)	255	79.4
	Bachelor (Higher Education)	66	20.6
Hospital	Public (Herat Regional Hospital)	168	52.3
	Private (All Other Hospitals)	153	47.7
Experience (year)	Newcomer (0–1 years)	121	37.7
	Moderate (2–4 years)	127	39.6
	Experienced (5–25 years)	73	22.7
Employment Status	Permanent Contract	172	53.6
	Intern	65	20.2
	Volunteer	84	26.2
Ward	Medical	90	28.0
	Surgical	77	24.0
	Emergency/ICU	83	25.9
	Pediatrics	43	13.4
	Others	28	8.7

(*Continued*)

Table 1 (Continued).

		N	%
Work hours (per day)	Short hours (1–7)	107	33.3
	Typical hours (8–12)	177	55.1
	Long hours (13–24)	37	11.5
Dominant Shift	Morning	187	58.3
	Afternoon	31	9.7
	Night	37	11.5
	In Circulation	66	20.6
Patients Exposure (per day)	Low (0–15)	100	31.2
	Moderate (16–40)	140	43.6
	High (41–200)	81	25.2
Patients with CPR Exposure (per day)	Low caseload (0–1)	160	49.8
	Moderate caseload (2–4)	125	38.9
	High caseload (5–20)	36	11.2
CPR Special Trainings	Yes	215	67.0
	No	106	33.0
CPR Information Source	Faculty/Institute	173	53.9
	Workplace	102	31.8
	Other sources	46	14.3
CPR Performing Experience	Yes	174	54.2
	No	147	45.8
Total		321	100.0

Overall, nurses demonstrated strong awareness of the importance of CPR in clinical practice. Most participants acknowledged CPR as essential (95.6%) and recognized it as a basic emergency intervention that improves health outcomes (97.2%). A high proportion supported making CPR knowledge mandatory for healthcare professionals (90.7%) and medical undergraduates (86.3%), and 91.9% expressed willingness to participate in CPR awareness programs. Negative perceptions were uncommon, with fewer than 11% viewing CPR as unethical, harmful, or a waste of resources (Table 2).

Knowledge regarding CPR indications, methods, and effectiveness was generally high but revealed important domain-specific gaps. Nearly all participants correctly identified CPR as a life-saving intervention in cardiac arrest (98.4%) and recognized the role of defibrillation in restoring a viable heart rhythm (87.9%). Most knew that CPR should

Table 2 Distribution of Responses to General Knowledge Statements Regarding the Importance of CPR

	Yes	No	Don't know
	%	%	%
I am aware of the importance of CPR in clinical practice.	95.6	3.1	1.2
According to me, knowledge about correct CPR procedure is mandatory to all health care professionals, and it should be made compulsory	90.7	7.5	1.9
I believe CPR is a basic emergency need for the betterment of mankind and health status	97.2	2.2	0.6
I would like to participate in CPR awareness programs and have lifesaving experience	91.9	7.2	0.9
I believe CPR procedures are arduous, unethical, incorrect and purely inhuman	10.6	87.9	1.6
Rather than being beneficial, it is more harmful to the patients	4.4	91.9	3.7
Conducting CPR is simply a waste of man power and time	4.0	93.8	2.2
Teaching and mastering CPR intervention should be made mandatory to all medical undergraduates	86.3	7.8	5.9

be continued until return of spontaneous circulation or death is declared (82.9%), and 88.8% emphasized the importance of maintaining composure during its administration. Awareness of physiological consequences was also high, with 77.6% recognizing irreversible brain injury after approximately seven minutes of circulatory arrest.

However, misconceptions persisted in several critical areas. Only 67.3% correctly identified the optimal time window for CPR effectiveness, and just 60.4% recognized that compression-only CPR is less effective in children due to the higher likelihood of non-cardiac causes of arrest. Knowledge regarding bystander behavior and public perception was limited, with 58.6% correctly stating that strangers are more likely than family members to initiate CPR, and only 42.1% acknowledging that CPR outcomes are often exaggerated in media portrayals (Table 3).

Figures 1–5 illustrate domain-specific variation in CPR knowledge. More than half of participants (53.3%) demonstrated low understanding of the purpose of CPR, answering only 0–2 items correctly, while 22.7% answered five or more items correctly. Knowledge of the compression-to-ventilation ratio was particularly limited, with 83.5% answering only one or two items correctly and only 15.3% demonstrating full accuracy. Awareness of chest compression techniques was moderate overall, whereas knowledge of the updated CPR sequence (CAB) was poor, with only 26.2% responding correctly. In contrast, knowledge of the correct chest compression location was relatively high, with 66.7% identifying the mid-chest position accurately.

Analysis of factors associated with higher CPR knowledge showed several statistically significant relationships. Nurses working in private hospitals demonstrated higher knowledge regarding CPR importance than those in public hospitals (66.7% compared to 52.4%) ($p = 0.009$). Knowledge was highest among nurses with 2–4 years of experience (69.3%) compared with newcomers and those with ≥5 years of experience ($p = 0.012$). Night-shift nurses exhibited significantly higher knowledge (81.1%) than morning or afternoon shift workers ($p = 0.009$). Age was also associated with knowledge, with nurses aged 23–28 years demonstrating higher scores than younger nurses ($p = 0.041$). For

Table 3 Distribution of Responses to Knowledge Statements on CPR Indications, Method, and Effectiveness

	True	False	Don't know
	%	%	%
CPR is an emergency procedure which is attempted in an effort to return life in cardiac arrest	98.4	1.2	0.3
It has to be attempted always inside of a hospital not outside	21.5	72.0	6.5
CPR is generally only effective if performed within 6–7 minutes of the stoppage of blood flow to vital organs	67.3	22.7	10.0
Artificial respirations are more appropriate than CPR, if a person is not breathing but has palpable pulse (ie, respiratory arrest)	80.1	10.0	10.0
On average, 85–90% of people who receive CPR survive if conducted by experienced personnel	76.0	10.0	14.0
The brain may sustain damage after blood flow has been stopped for about 4 mins and irreversible damage after about 7 mins	77.6	7.8	14.6
According to the recent survey people with no connection to the victim are more likely to perform CPR than a member of their family	58.6	17.4	24.0
If blood flow ceases for>10 hours, virtually all cells of the body die	79.8	10.9	9.3
CPR is generally continued until the person regains return of spontaneous circulation or is declared dead	82.9	12.5	4.7
Defibrillator is an electrical device used as shock to the heart and needed to restore a viable or "perfusing" heart rhythm	87.9	3.7	8.4
Compression-only CPR by the lay public is recommended to an adult having cardiac arrest out of hospital	73.2	17.4	9.3
The survival rate is very high if immediate CPR is done followed by defibrillation within 3–5 minutes of sudden cardiac arrest	79.8	8.4	11.8
Compression-only CPR is less effective in children than in adults, as cardiac arrest in children is more likely to have a non-cardiac cause	60.4	19.3	20.2
It is always better to be calm and contented while conducting CPR rather than look frightened	88.8	7.5	3.7
CPR is often severely misrepresented in movies and television as being highly effective in resuscitating a person who is not breathing and has no circulation	42.1	32.1	25.9

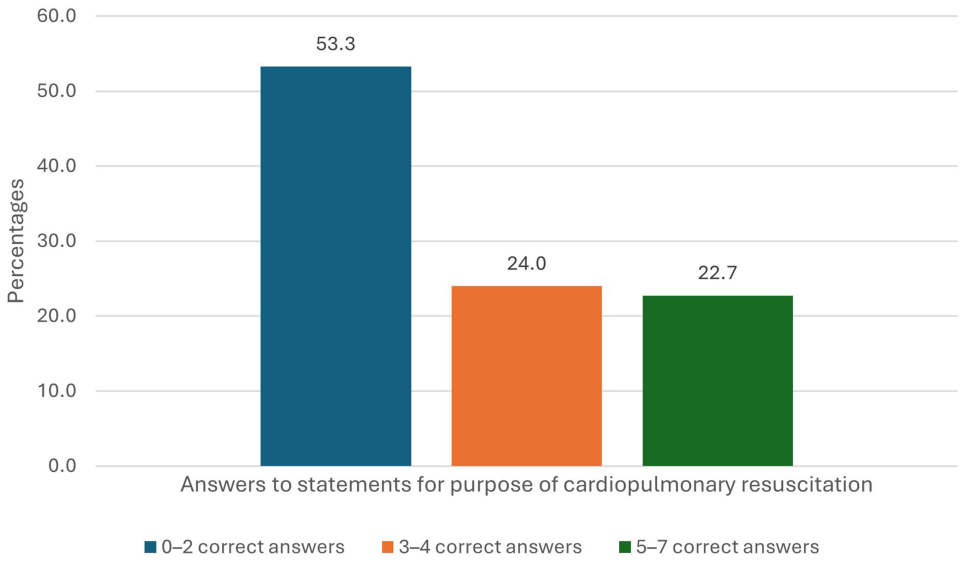

Figure 1 Percentage of correct answers to statements for purpose of cardiopulmonary resuscitation.

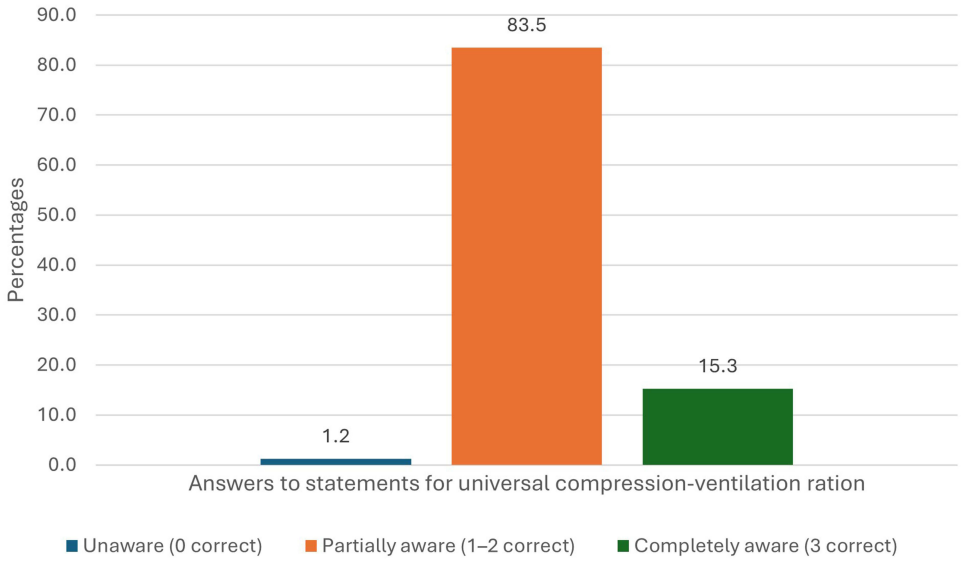

Figure 2 Percentage of correct answers to statements for universal compression-ventilation ration.

knowledge related to CPR indications, methods, and effectiveness, employment in private hospitals ($p = 0.045$) and working standard 8–12 hour shifts ($p = 0.005$) were significantly associated with higher knowledge levels (Table 4).

Discussion

The present study provides a comprehensive overview of CPR knowledge among nurses in Herat, Afghanistan. The findings indicate encouraging levels of awareness regarding the importance of CPR, while also identifying specific gaps in procedural and guideline-based knowledge. When considered alongside regional and international literature, these results reveal both strengths and areas requiring continued attention, in line with the study objectives. However, because convenience sampling was used, the findings may not be fully generalizable to all nurses in Herat or other regions of Afghanistan.

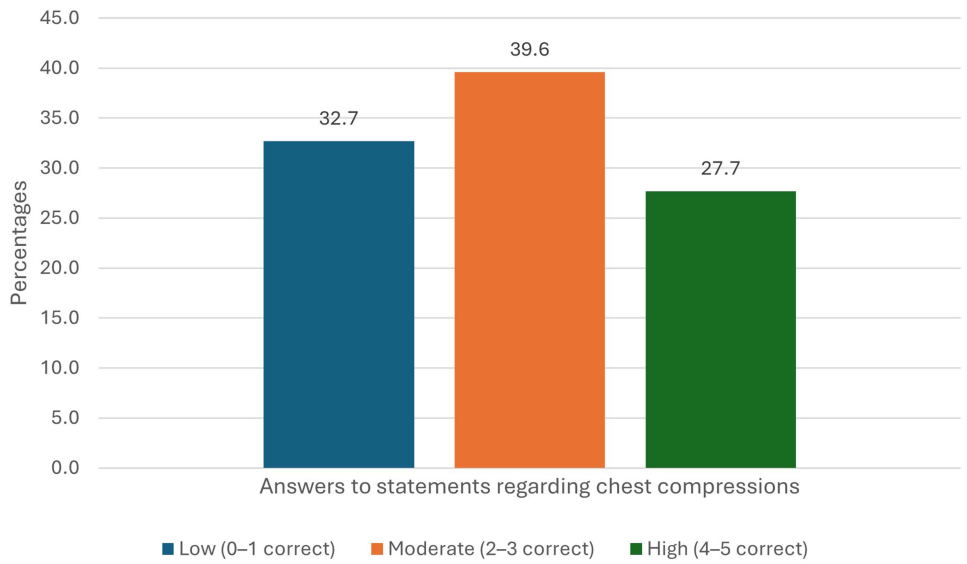

Figure 3 Percentage of correct answers to statements regarding chest compressions.

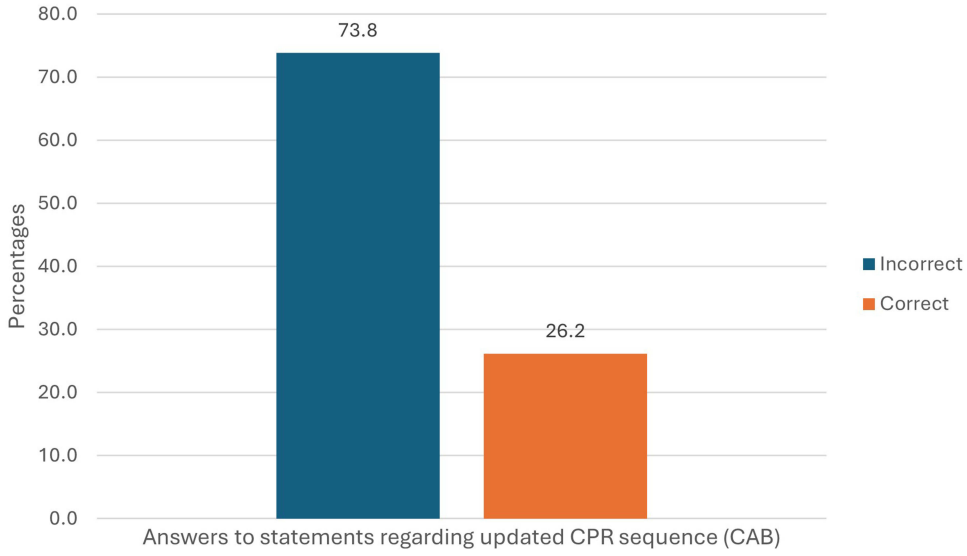

Figure 4 Percentage of correct answers to statements regarding updated CPR sequence (CAB).

The results show that 95.6% of participants recognized CPR as a vital clinical intervention and 97.2% acknowledged it as a basic emergency requirement. These levels of awareness are comparable to findings from Nepal, where 91.3% of nurses correctly identified CPR indications and 93.3% recognized the importance of pulse assessment before initiation.[15] Similarly, studies from Nigeria have reported high CPR awareness among nurses, although this was not always accompanied by adequate practical competence.[16] Together, these findings suggest that awareness of CPR importance is generally high across settings, but does not necessarily guarantee comprehensive knowledge or performance.

In the present study, 90.7% of nurses supported mandatory CPR training for healthcare professionals, and 91.9% expressed willingness to participate in CPR awareness programs. Comparable enthusiasm has been reported in Greece, where 91.9% of nurses expressed interest in CPR education,[17] and in Pakistan, where 97.1% of ICU nurses reported prior CPR training.[18] This shared perception highlights a widespread recognition of CPR as an essential clinical skill among nursing professionals.

Nearly all participants (98.4%) correctly identified CPR as a life-saving response to cardiac arrest, consistent with findings from Pakistan, where 97.1% of nurses demonstrated similar understanding.[18] In addition, 87.9% recognized the

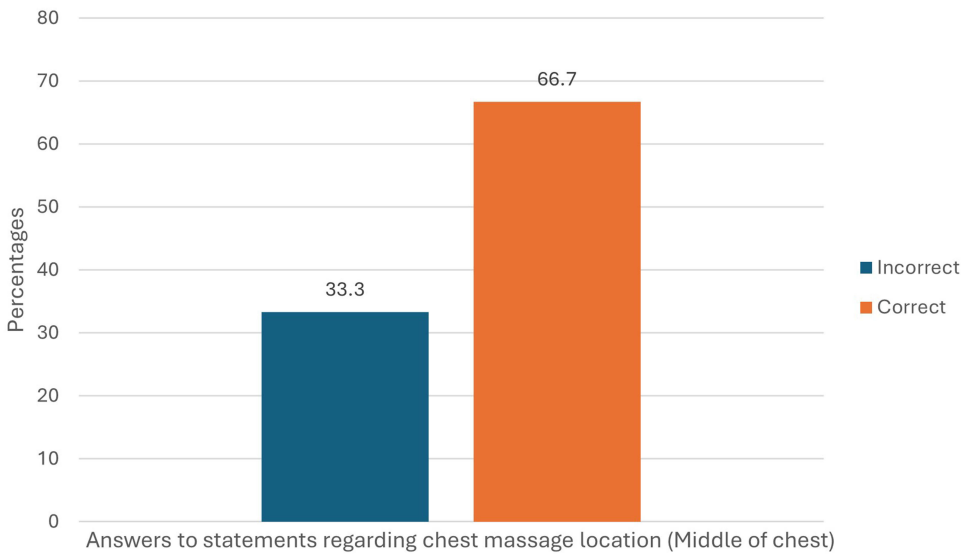

Figure 5 Percentage of correct answers to statements regarding chest massage location (Middle of chest).

role of defibrillation in restoring a viable heart rhythm. However, studies from Nepal and other settings have shown that detailed knowledge of CPR algorithms and advanced procedures is often limited despite strong foundational awareness.[15] This pattern is also reflected in the present findings.

Encouragingly, 77.6% of nurses in Herat were aware that irreversible brain damage may occur after approximately seven minutes of circulatory arrest. This proportion exceeds that reported in some regional studies, where fewer nurses demonstrated accurate knowledge of timing-related CPR outcomes.[15] Nonetheless, important gaps were identified. Only 60.4% of participants recognized that compression-only CPR is less effective in children, and just 42.1% acknowledged the frequent over-representation of CPR success in media. Similar misconceptions have been documented elsewhere and may contribute to unrealistic expectations and inappropriate application of CPR techniques.[18]

Analysis of professional factors showed significant associations between CPR knowledge and hospital type, work experience, and shift pattern. Nurses working in private hospitals demonstrated higher knowledge levels than those in public hospitals, a finding also reported in studies from Pakistan and other South Asian settings.[19] While causality cannot be inferred from this cross-sectional design, the association may reflect differences in training opportunities, institutional resources, or continuing education practices.

Nurses with 2–4 years of experience demonstrated the highest knowledge levels, consistent with findings from Nigeria indicating better theoretical performance among nurses early in their careers.[20] Similarly, night-shift nurses showed higher CPR knowledge compared with morning and afternoon shifts. This pattern may be related to greater exposure to high-acuity emergencies during night shifts and increased reliance on independent clinical decision-making when fewer senior staff are immediately available, although further investigation is needed to confirm these explanations.

Although overall CPR knowledge among nurses in Herat appears satisfactory, evidence from multiple settings indicates that knowledge and skills decline without regular reinforcement. Barriers such as limited training opportunities, heavy workloads, and inadequate equipment have been identified as obstacles to effective CPR practice in low-resource environments.[16,21] These challenges are likely relevant in the Afghan healthcare context.

Taken together, the findings support the implementation of structured, periodic CPR training and retraining programs. Educational interventions should prioritize identified knowledge gaps, including pediatric CPR, updated algorithms, and defibrillator use. Incorporating CPR training into continuing nursing education programs and providing practical, simulation-based workshops may help maintain competency and improve emergency response capacity. Addressing systemic constraints, such as access to equipment and workload pressures, will also be essential to translate knowledge into effective clinical practice.

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Table 4 Associations Between Sociodemographic and Professional Variables and High Knowledge of CPR Importance and Indications, Methods, and Effectiveness

Variable	Option	Total Number	High Knowledge of Importance	p-value	High Knowledge of Indications, Methods, Effectiveness	p-value
			N (%)		N (%)	
Gender	Male	140	86 (61.4)	0.473	81 (57.9)	0.122
	Female	181	104 (57.5)		89 (49.2)	
Age (year)	Young (18–22)	99	56 (56.6)	0.646	42 (42.4)	0.041
	Middle-aged (23–28)	162	100 (61.7)		94 (58.0)	
	Older (29–60)	60	34 (56.7)		34 (56.7)	
Marital Status	Single	186	115 (61.8)	0.259	90 (48.4)	0.054
	Married	135	75 (55.6)		80 (59.3)	
Education	Diploma	255	150 (58.8)	0.793	137 (53.7)	0.589
	Bachelor	66	40 (60.6)		33 (50.0)	
Hospital	Public	168	88 (52.4)	0.009	80 (47.6)	0.045
	Private	153	102 (66.7)		90 (58.8)	
Experience (years)	Newcomer (0–1)	121	63 (52.1)	0.012	59 (48.8)	0.455
	Moderate (2–4)	127	88 (69.3)		72 (56.7)	
	Experienced (5–25)	73	39 (53.4)		39 (53.4)	
Employment Status	Permanent	172	108 (62.8)	0.358	97 (56.4)	0.267
	Intern	65	35 (53.8)		29 (44.6)	
	Volunteer	84	47 (56.0)		44 (52.4)	
Ward	Medical	90	56 (62.2)	0.915	49 (54.4)	0.742
	Surgical	77	45 (58.4)		45 (58.4)	
	Emergency/ICU	83	50 (60.2)		41 (49.4)	
	Pediatrics	43	24 (55.8)		22 (51.2)	
	Others	28	15 (53.6)		13 (46.4)	
Work hours (per day)	Short (1–7)	107	57 (53.3)	0.312	43 (40.2)	0.005

	Typical (8–12)	177	110 (62.1)		106 (59.9)	
	Long (13–24)	37	23 (62.2)		21 (56.8)	
Dominant Shift	Morning	187	102 (54.5)	0.009	101 (54.0)	0.409
	Afternoon	31	15 (48.4)		12 (38.7)	
	Night	37	30 (81.1)		21 (56.8)	
	In Circulation	66	43 (65.2)		36 (54.5)	
Patient Exposure/day	Low (0–15)	100	63 (63.0)	0.507	56 (56.0)	0.312
	Moderate (16–40)	140	78 (55.7)		77 (55.0)	
	High (41–200)	81	49 (60.5)		37 (45.7)	
CPR Patient Exposure/day	Low (0–1)	160	96 (60.0)	0.708	88 (55.0)	0.518
	Moderate (2–4)	125	75 (60.0)		66 (52.8)	
	High (5–20)	36	19 (52.8)		16 (44.4)	
CPR Special Trainings	Yes	215	131 (60.9)	0.366	115 (53.5)	0.787
	No	106	59 (55.7)		55 (51.9)	
CPR Info Source	Faculty/Institute	173	102 (59.0)	0.884	87 (50.3)	0.561
	Workplace	102	62 (60.8)		58 (56.9)	
	Other	46	26 (56.5)		25 (54.3)	
CPR Performance	Yes	174	104 (59.8)	0.818	98 (56.3)	0.189
	No	147	86 (58.5)		72 (49.0)	

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Conclusion

The findings of this study show that nurses in Herat, Afghanistan demonstrate strong awareness of CPR, particularly its clinical importance, urgency, and key foundational concepts. Nevertheless, critical knowledge gaps remain in several areas, most notably pediatric CPR, public misconceptions about CPR outcomes, and updated algorithm-based components. The observed differences in knowledge by hospital type, work experience, and shift pattern underscore the importance of targeted and equitable training strategies to ensure that all nurses, regardless of workplace setting, receive consistent support. Implementing structured retraining, simulation-based learning, and standardized institutional CPR policies may improve knowledge retention and readiness for cardiac emergencies in Afghan healthcare facilities.

Data Sharing Statement

The datasets generated and/or analyzed during the current study are available from the corresponding author, Dr. Mohammad Masudi (mhmasoudy313@gmail.com), upon reasonable request.

Ethical Approval and Accordance

The study protocol was reviewed and approved by the Institutional Review Board of Jami University (J.2024.2.27.9). All procedures involving human participants were conducted in accordance with the ethical standards of the institutional and/or national research committee and with the Declaration of Helsinki (1964) and its later amendments.

Consent to Participate

Written informed consent was obtained from all participants prior to data collection. Participation was voluntary, and confidentiality of responses was maintained throughout the study.

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We used Chat-gpt 5.2 Plus, and Paperpal for grammar checking and language editing.

Author Contributions

All authors made a significant contribution to the work reported, including conception, study design, execution, data acquisition, analysis, and interpretation. All authors also participated in drafting, revising, and critically reviewing the manuscript. Each author has given final approval of the version to be published, has agreed to the journal to which the article has been submitted, and accepts responsibility for all aspects of the work.

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Disclosure

The authors have no conflicts of interest to declare for this study.

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