



Teachers Knowledge and Attitude toward Cardiopulmonary Resuscitation in Primary Schools in Karbala City

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Abstract

Cardiopulmonary resuscitation (CPR) is one of the fastest developing disciplines in modern medicine and also one of the life-saving procedures for many emergencies. It is indicated in suffocation, near-drowning, electrocution injury, myocardial infarction and any other time when breathing or circulation ceases. The purpose of this study was to evaluate knowledge and attitude toward cardiopulmonary resuscitation in primary school teachers, as well as to determine the association between their knowledge, attitudes and some demographic factors. The findings showed that 54% of teachers had a moderate level of CPR knowledge. There were statistically significant associations between the level of knowledge and some socio-demographic characteristics, especially sex, and years of service. Moreover, the majority of teachers had negative attitudes towards CPR and a significant correlation was found between attitudes and place of residence. The research found that teachers had moderate knowledge but negative attitudes of cardiopulmonary resuscitation. It is advisable that school health service should be enhanced with the support of school nursing programs as those in developed countries, provision of a qualified full time or part-time school nurse in all schools and development of regular teacher education program related to CPR and BLS training.

Keyword: Teachers, Knowledge and Attitude, Cardiopulmonary Resuscitation, Primary Schools.

Introduction

Out-of-hospital cardiac arrest (OHCA) continues to be a major public health challenge globally, as survival rates vary between 2% and 11%. Prognosis is highly reliant on a timely “chain of survival” activation. About half of OHCA episodes are witnessed by bystanders, and immediate bystander CPR has been demonstrated to double or triple survival. CPR training has been demonstrated to increase peoples’ likelihood of acting during emergencies and studies indicate that focused CPR training is able

to dramatically improve survival. School teachers have been recognised as an alternative, high-yield target for CPR education: 25% of the schoolteachers who participated in a quantitative intervention study in Northern Belgium reported a prior witnessed cardiac arrest (Alwidyan et al., 2023).

Early recognition and intervention are crucial for survival in cardiac arrest. The chances of survival decrease by 7%–10% per minute without CPR and defibrillation. Current CPR protocols have been just as dumbed down so that the common man (or woman) with no medical training can do a good job at saving a life. In the industrialised world, the frequency of IHCA handled by resuscitation teams is around 2 events per 1,000 admissions. Systemised personnel training, designated resuscitation teams, and mandatory certification in CPR have led to better survival rates. However, there remains some paucity in the data on the profile, prevalence and outcome of facility-based CPR in most of the developing countries (Al-aaragi, Al-Nasrawii, & Al-Latif, 2021)

Schoolteachers make for a natural audience for CPR training, often for a variety of reasons. And because they are members of an educated citizenry, they can be trained quickly and can also train others --students and colleagues. Teachers are in small schools and could have emergencies. Global campaigns such as the World Health Organisation's "Kids Save Lives" champion the importance of teachers as catalysts and educators in basic life support (BLS). International organizations, such as European Parliament, American Heart Association and International Liaison Committee on Resuscitation support the inclusion of CPR in school curricula to increase bystander intervention rates (Alhagbaker & Aziz, 2022; Alwidyan et al., 2023).

Childminders and teachers are likely to be the first to experience paediatric emergencies such as airway obstruction or cardiac arrest. Since they have long hours of monitoring and watching the students, these staff persons are supposed to know how to perform CPR correctly and be able to do so in an emergency (Altherwi et al., 2022).

Ensuring Early bystander CPR is essential in the improvement of survival and neurocognitive outcomes post-OHCA. Several countries and international health agencies endorse training school-children in CPR with trained teachers being an effective instructor (Chen et al., 2019). While there is no replacement for well-trained medical personnel, teachers trained in CPR in schools may act as another level of readiness should they be needed within the community because teachers assume leadership roles working closely with local communities (Al Enizi et al., 2016; Alahmed et al., 2023).

Although the importance of CPR is acknowledged in saving lives, little has been known on teachers' knowledge and attitude towards CPR. Educators are first responders in the school and have an essential role to ensuring student's safety. But it is unclear what their level of knowledge and attitude about CPR (Abelairas-Gómez et al., 2020). Hence, this investigation aims to assess teachers' CPR knowledge and attitudes, define the inadequacies of existing training programs, and contribute to support for the design of specific educational interventions targeted at improving teacher preparedness in assisting in-school medical emergencies.

Objectives of the Present Study:

- To evaluate the knowledge and attitudes of teachers about cardiopulmonary resuscitation.
- To investigate the correlation of teachers' knowledge and attitude for CPR with demographic variables.

Methods

Design of the Study

A descriptive study (cross-sectional) was conducted to assess teacher's knowledge and attitude toward cardiopulmonary resuscitation in primary schools in Karbala city from the period of 5 November 2023 to 30th May 2024.

Setting of the Study

The current study was conducted in several primary schools in Kerbala city which revealed in Table (1).

Table 1. Names of Schools and Number of Samples Conducted.

School name		Number of samples
1	Al Suwdid	3
2	Al Iskandaruna	11
3	Ali Alakbar	8
4	Al Nimaa	13
5	Al Nublaa	12
6	AbiTamam	3
7	Al Aws	7
8	AsshabAlkisaa	5
9	Naby Al rahma	7
10	DirYasin	8
11	Al Anbar	7
12	Al Arabia	9
13	Al Shaheed Muslim Al Taiy	7
Total		100 without pilot study

Sample of the Study

Non- probability (convenience sample) of (100) teachers in several primary schools (male and female).

The Study Instrument

The questionnaire is based on the extensive review of related literature and previous studies (Al Enizi et al., 2016).

- Part I Socio-demographic Characteristic of the Teachers: It is consisting of (8) items which included: gender, age, level of education, specialization, years of service, residency, marital status, training about CPR.
- Part II Teachers Knowledge about Cardiopulmonary: Resuscitation include Two Sections
 1. First: This section includes (9) items assess of general teachers' knowledge about CPR.
 2. Second: This section includes (12) items assess of teachers' specific knowledge about CPR.
- Part III: Teachers Attitudes about Cardiopulmonary Resuscitation: It is consisting of (6) items to assess the personal attitudes and opinions of the teachers toward CPR.

Validity of the Questionnaire

A panel of 8 experts in the study's fields reviewed the instrument to improve its validity. The study's instruments were reviewed by professionals, who added and removed items. After considering experts' opinions and recommendations, the instrument is valid.

Reliability of the Questionnaire

Cronbach's Alpha coefficients were applied to test the reliability of the study instrument. The result of the test showed acceptable as shown below for the structured questionnaire format conducted a sample of (100) made up 10% of total population, as demonstrated in Table (2).

Table 2. Reliability Coefficients of the Studied Questionnaire.

No. of items	Alpha Cronbach	Assessment
Knowledge 21 items	0.723	Acceptable
Attitude 6 items	0.715	Acceptable

Pilot Study

A pilot study was also carried out in order to evaluate the reliability and feasibility of the research instrument. A pilot was implemented at Al-Suwdīd and Al-Nubalā'a schools between 27 November and 29 November, 2023. A pilot study was conducted with a sample of 10 teachers outside the main study.

Objectives of the Pilot Study

- To assess the questionnaire's reliability. Assessing the clarity, readability and content validity of the survey instrument and making necessary changes.
- To calculate the mean time for responding to the questionnaire.
- To determine if there were any barriers or possible obstacles that participants would face during data collection.

Results of the Pilot Study

The questionnaire demonstrated acceptable reliability. The questionnaire items were not ambiguous, could be comprehended easily and were suitable for data collection on the studied variables. The questionnaire took the participants on average 10 minutes to fill out.

Ethical Considerations

All teachers provided written informed consent. The researcher presented the purpose of the study and procedures before participation. Respondents were told that participation was voluntary and all data would remain anonymous, securely stored and confidential throughout the study and afterwards.

Data Collection Methods

Information was obtained through personal interviews based on a structured questionnaire. The questionnaire was filled out by teachers themselves and clarification provided if necessary. Data were collected between 3 to 31 December 2023 in elementary schools of Holy Karbala city. Approval was obtained from the Directorate of General Education and teachers willingly participated in the study. The researcher defined the purpose of the study and time to fill out each questionnaire (about 10 min).

Data Analysis

Statistical package for social sciences (SPSS) software version 26 was used to analyze the data.

Statistical Analysis

- Frequency (F) and Percentage (%)
- Standard Deviation (SD)
- Independent t-test
- Analysis of Variance (ANOVA)

Results

The results of Table (3) revealed that 44% of the teacher were within the age of 37-49 years, 80% of them were female. 70% of them were had years of experience (1-10) years,94% of them were urban living, 61% of them had diploma, 84% of them were married. 82% of them had no training course on CPR.

The study results reveal that the level of teacher's knowledge about knowledge about Cardiopulmonary Resuscitation in primary schools was moderate (n = 54; 54.0%).

Table 3. Distribution of Participants according' sociodemographic.

Variables	Groups	F	%
Age Mean (SD) = 16.32± 1.89	24-36	33	33.0
	37-49	44	44.0
	More than 50	23	23.0
Gender	Male	20	20.0
	Female	80	80.0
Educational level	Diploma	61	61.0
	Bachelors	39	39.0
Years of experience	1-10	70	70.0
	More than 10	30	30.0
Residency	Urban	94	94.0
	Rural	6	6.0
Marital status	Single	7	7.0
	Married	84	84.0
	Divorced	4	4.0
	Widow	5	5.0
Training courses	Yes	18	18.0
	No	82	82.0

Table 4. Overall Assessment the Knowledge of Teachers about Cardiopulmonary Resuscitation.

Level	F	%
Low	44	44.0
Moderate	54	54.0
High	2	2.0
Total	100	100

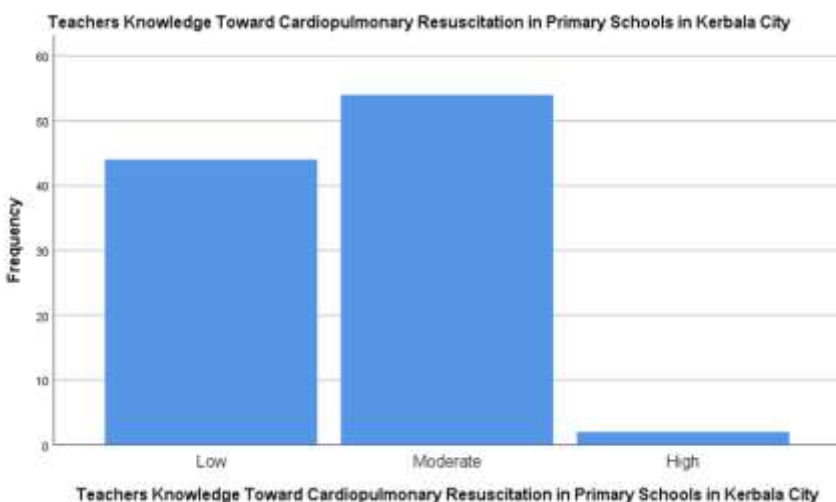


Figure 1. Level of teachers' knowledge about Cardiopulmonary Resuscitation (N=100).

Table 5. Overall Assessment the Attitudes of Teachers about Cardiopulmonary Resuscitation.

Attitude	F	%
Negative	89	89.0
Positive	11	11.0
Total	100	100.0

The study results reveal that the teacher's Attitude toward knowledge about Cardiopulmonary Resuscitation in Primary Schools were majority negative (n = 89; 89.0%).

Table 6. Relationships between Teachers' Knowledge and their Socio-demographic Characteristics.

	Test	P-value	Relationship
Age	f=.981	.378	NS
Gender	t=2.272	.025	S
Educational level	t=.466	.642	NS
Years of Service	t=-.484	.030	S
Residency	t=.883	.380	NS
Marital Status	f=.017	.050	NS
Training courses	t=1.004	.318	NS

This Table 6 indicated that there was significant relationship among teachers' knowledge with regard to their gender, years of service, residency and socioeconomic status except level of education, occupation and smoking status.

This Table (6) indicated that there was significant relationship among teachers' attitudes with regard to their residency.

Table 7. Relationships between Teachers' Attitudes and their Socio-demographic Characteristics.

	Test	P-value	Relationship
Age	f=-.002	.966	NS
Gender	t= -.510	.611	NS
Educational level	t=-.459	.647	NS
Years of service	t=1.102	.273	NS
Residency	t=-2.272	.025	S
Marital status	f=.195	.660	NS
Training courses	t=.169	.065	NS

Attitude

Discussion

Distribution of Participants according to their Socio demographic Characteristics

Sample Characteristics and Socio-Demographic Distribution: The present study's sample was 100 primary school teachers. Table 3 is showing the distribution of participants according to socio-demographic characters and they are discussed below:

1. Teachers' Age: The majority of teachers were 37–49 years old (44% of the sample). These results are similar to those found in (Alwidyan et al., 2023; Pivač, Gradišek, & Skela-Savič, 2020) that the majority of teachers were between 31 and 40 years old or =41 years old. Similarly, Refs. (Al Enizi et al., 2016; Tamur et al., 2023) reported that 66.5% of the teachers were aged between 31 and 50 years old.
2. Teachers' Gender: The proportion of female teachers was high (80%); this is similar to the findings in (Aldinc & Gun, 2022) which observed that about 71% of primary, secondary school teachers were females. Likewise, Al Widyan et al. (2023) (Alwidyan et al., 2023) revealed 64.2% of the subjects to be females.
3. Educational Level: A diploma was the highest level of education for majority of teachers (61%). This finding is in contrast in with study conducted in Istanbul in (Aldinc & Gun, 2022) which found a large proportion of teachers had up to a bachelor's degree (80.8%).
4. Years of Experience: Seventy percent of teachers reported 1–10 years of teaching experience. This finding is along with the study implemented (Lima et al., 2025), which also described the majority of teachers as having 11–20 years of service.
5. Residency: Most of the participants (94%) lived in urban regions; Marital Status; Most teachers were married (84%).
6. Training Courses: History of CPR training ranged from 0% to 18%. This observation is similar to study that found that only 56 of their 385 participants had previous CPR training, and another study accordance with who reported 112 out of 305 respondents had been trained in CPR (Fan, Leung, Leung, Hon, & Fan, 2019; Nurumal, Nor, Hasan, Noviani, & Jamaludin, 2025).

General Attitude and Knowledge Towards CPR (Tables 4,5)

1. Overall Knowledge Assessment: Results showed that 54% of teachers had medium knowledge level of CPR. These results are no different from (Chen et al., 2019) in China where overall, fair CRP knowledge was reported among school teachers.

2. Overall Attitude Assessment: The teachers, 89% had poor attitudes toward CPR in our study. This finding is contrary to that in (Alhejaili, Alghamdi, & Al-Dubai, 2020) which revealed high proportion of teachers with positive attitude towards CPR, 79.9%.

Relationships Between Variables (Tables 6,7)

1. Regarding the relationship between teacher knowledge and sociodemographic information. The study results revealed a statistical significance among gender and years of experience at a P-value of < 0.05 . These results agree with a study conducted in Saudi Arabia (Alqahtani et al., 2025), which announced the positive correlation between teacher knowledge about CPR and some sociodemographic factors: gender, age, experience years, and residency.
2. Attitudes and Residency: A positive relationship between the teachers' attitude towards CPR and their residency. These findings, agree with the results of a study (Fariduddina & Siau, 2021), was aimed to investigate student teachers' knowledge, attitudes, and perceptions towards Basic Life Support training and find a relationship between knowledge and attitude with sociodemographic (Fariduddina & Siau, 2021).

Conclusion

Most of the participants were 37 to 49 years old, female, and urban residents. Most of the participants worked duration 1–10 years, had diploma degrees, were married and were not trained in CPR. The overall knowledge of cardiopulmonary resuscitation among teachers was moderate. School teachers' attitude towards cardiopulmonary resuscitation was poor. Gender and number of years working were found to be significantly correlated with teachers' knowledge. There was a significant association between teachers' attitudes and their residency.

Recommendations

- Reinforce the provision of health services in schools, by means of launching school nursing system like in foreign countries and posting registered nurses to every public school.
- Design, and implement ongoing teacher education programmers' in CPR, and BLS.
- Empower primary health care centers by establishing outreach teams to teach CPR and emergency life support skills for schools.
- Enhance professional education and promote continuing education in child health to promote that teachers can contribute to a safer and healthier school.

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