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A Cross-Sectional Study on Pediatric Basic Life Support Knowledge Among Primary School Teachers

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KEYWORDS: Determination, Teachers, Knowledge, pediatric BLS.

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ABSTRACT

Many diseases, accidents, and situations occur daily that affect the safety of communities, families, and individuals worldwide. More than 2,000 people die daily due to unintentional accidents. In schools, physical exertion, sports participation, or other trauma-related injuries or airway obstruction are associated with cardiac arrest. One million cardiac arrests occur annually in the United States and Europe. This study was conducted to assess teachers' knowledge of pediatric basic life support (BLS) in primary schools and to determine any significant relationship between teachers' sociodemographic characteristics and their knowledge of pediatric BLS. A non-probability (purposive) sample of ten public primary schools was selected, and (140) primary school teachers were then randomly selected. The study was conducted from January 1, 2023, to May 29, 2023. A two-part self-administered questionnaire was used. The first part included an inquiry into the participants' sociodemographic characteristics, while the second part included 22 questions related to knowledge of pediatric BLS. The study tool was validated by (14) experts from different disciplines (face validity). Data were analyzed using descriptive and inferential statistical analysis**.**

The current study's finding indicated that teachers' general knowledge regarding basic life support for children is weak**.**The study concluded that there is a highly statistically significant relationship between the overall assessment of teachers' knowledge and economic status, while other data were not statistically significant**.**The study recommended the need for coordination between educational and health staff in each school and the activation of the role of community health nurses in the field of school health to avoid or reduce unnecessary accidents.

INTRODUCTION

Sometimes, some people are exposed to emergency incidents that exceed their biological tolerance, leading to a deficiency in essential elements such as oxygen or causing a loss of the ability to survive [1]. These incidents or injuries later lead to death, hospitalization, lifelong disability, or a visit to the emergency room, depending precisely on the severity of the injury.Two important factors contribute to the increased risk of injury: the child's behavior and development. Extensive curiosity to explore their surroundings, increased activity and movement, swallowing objects, lack of experience in dealing with risks, attraction to and experience of dangerous objects, lack of experience, and bold situations are all causes and stimulating factors for young children, making them more vulnerable to harm. On the other hand, the cultures and influences of parents and peers contribute to the occurrence of unintentional injuries in children at various stages (Tamur,et al, 2023)

"Kids Save Lives" is an international initiative recently launched to encourage the inclusion of basic life support training in primary education curricula, providing a justification for this in six key points. In other words, teaching basic life support to the general public should not rely solely on voluntary training. It is well known that school-age children are capable of learning basic life support, and the goal of instilling a sense of responsibility from an early age makes the school environment a safe and ideal

environment for teaching basic life support. Implementing the "Kids Save Lives" statement, supported by the World Health Organization, would contribute to considering basic life support and basic life support, traditionally considered within the purview of healthcare workers, as a general educational goal, similar to swimming and cycling (Boettiger et al., 2016.)

However, the inclusion of these contents in primary school curricula has raised several questions, including the age at which schoolchildren can begin learning basic life support. Although CPR and basic life support were historically assumed to be taught by healthcare professionals, recent studies have shown that school teachers (with adequate training) may be the most appropriate group to do so. Who should be properly trained in this field? (Al-Hujaili and Al-Ghamdi, 2020.)

In recent years, evidence has emerged that psychosocial support training can begin in early childhood. Positive learning outcomes have been recorded for children in the second cycle of schooling (aged 6–12 years) in remembering emergency phone numbers, assessing consciousness and breathing, placing the injured person in the lateral recovery position, providing correct information for emergency calls, and using an automated external defibrillator (AED). In the case of cardiopulmonary resuscitation (RCP), it has been shown that children as young as 9 can learn it,6 and that children aged 12–14 achieve a quality of resuscitation (chest compressions) similar to adults, in line with their physical development (Hockenberry and Wilson, 2013)

In addition to teachers, parents of young children should also play an important role in this endeavor in various ways: on the one hand, parents can respond to the many incidents that occur at home immediately if they receive appropriate training. On the other hand, there is evidence that kinship training can be a resource and reinforce for children's basic life support. Therefore, we conducted a study to assess the financial analysis knowledge of school teachers (of school age) and parents of children in the corresponding age groups ((Hockenberry and Wilson, 2019).

Study Significance

Emergencies occur at any time and place, whether on the street, at home, or even in the school environment. Schoolchildren are particularly at risk of unintentional injuries in emergencies at any time and place, whether on the street, at home, or even in the school environment. This is due to their intense activities during school hours, especially during play periods between lessons. Injuries can also occur during sporting events and extracurricular activities. Injuries and accidents are a leading cause of death among children worldwide. Therefore, there is a need for those who regularly work with children to have knowledge and skills in Basic Life Support (BLS) (Al Zeedi et al, 2020).

This study describes the knowledge and attitudes regarding CPR, choking response, and the recovery position among primary school teachers in Erbil, seeking to explore the barriers and enabling factors for teachers to provide emergency care. This study could inform evidence-based practice interventions to save students' lives in cases of cardiac arrest (e.g. when foreign objects are lodged in the throat) and the recovery position. The study contributes to raising awareness of school emergencies among school teachers and school administration staff, thereby reducing emergency problems by enhancing teachers' skills in implementing appropriate rescue interventions. Basic life support is of paramount importance when an individual is in danger, and learning skills is essential for effective resuscitation, saving lives, and preventing complications in emergency situations in both the school environment and the local community (Charalampos, 2021).

METHODOLOGY

Design of the Study: A descriptive cross-sectional design was adopted in the current study to achieve the objectives stated earlier.

The setting of the Study: The study was conducted at Al-Najaf Health Directorate in primary schools in (Sharifa Bint Al Hassan, Al-Sahwa, Al-manihel, Al-Fawatim School, the names of Allah, Kinda Elementary School, Malik Al-Ashtar, Iraqi mother, Nablus, The sun of the suns).

Population and Study Sample: A Non-probability (purposive) sample of ten governmental primary schools were selected, and then (140) primary school teachers were selected randomly.

Including Criteria:

1. All teachers who deals with kids in the primary school.
2. Different ages and level of education.
3. Both gender (male and female)

Study Instrument:

The researcher developed a self-administered questionnaire to measure the variables of interest. This questionnaire was designed to determine teachers' knowledge of the Pediatric Basic Life Support (PBL) program. The questionnaire consisted of two parts: the first included inquiries about the participants' socio-demographic characteristics, while the second included 22 questions about their knowledge of the PPBL program.

Data Collection:

Data were collected using a developed questionnaire with the help of a structured interview. The researcher used a structured self-report method with teachers, conducting individual interviews with them at school, and using the same questionnaire for all teachers

included in the study sample. Data collection took place from February 1, 2023, to April 29, 2023. The interview technique lasted approximately 20-25 minutes per topic.

Validity of the Instrument:

The questionnaire validity faces validity for the initially developed instrument, which is specified through a panel of (14)) nursing and statistical experts (with experience of more than 5 years at their jobs field).

Statistical analysis:

The data analysis process entailed using the Statistical Package for Social Sciences computer software to categorize information in graphs and charts created by SPSS. Statistical analysis was performed using Statistical Package for Social Sciences version 20 for Windows (SPSS Inc., Chicago, IL, USA). Descriptive statistics were used to present the demographic data and patterns of answers to the different questionnaire items; categorical variables were presented as Tables (Frequencies), Statistical figures (Bar Charts), Summary Statistics tables including Mean, Mean of scores, Standard Deviation (SD), and relative sufficiency, and degree of defect (DOD). In addition, the assessment by cutoff point (66.66%) due to the three points likert scales with three levels of assessment, never (1-1.66), sometimes (1.67-2.33), and always (2.34-3).on the other hand use the Inferential Data Analysis: This approach is used to accept or reject the statistical hypothesis, which includes the following: Alpha Cronbach for the reliability of the questionnaire (Internal consistency), Chi-Square test for testing the independency distribution of the observed frequencies, and for measuring the association between the study variables according to its type.

STUDY RESULTS AND FINDINGS

Table (1) The Socio-demographic characteristic of the Teachers (n=140)

Socio-demographic Data		Freq.	%
Age groups (Years)	<= 29	33	23.57
	30 - 35	43	30.71
	36 - 41	36	25.71
	42 and More	28	20
Gender	Males	24	17.14
	Females	116	82.86
Marital Status	Single	8	5.71
	Married	126	90
	Divorced	3	2.14
	Widow	2	1.43
	Separated	1	.71
Residence	Urban	136	97.14
	Rural	4	2.86
Economic state	Enough	38	27.14
	Enough to somextent	45	32.14
	Not enough	57	40.71
Level of education	Secondary school or less	4	2.86
	College	103	73.57
	Institute	26	18.57
	others	7	5
Number of children	<= 2	62	44.6
	3 - 5	73	52.52
	6 and more	4	2.88
Total		140	100%

Table (1) displays the statistical distribution of the study sample by their socio-demographic data. It states that the Favorable percentage of the Teachers are ages 30 - 35 (30.71%), females (82.86%), married (90%), those living in urban areas (97.14%), those who have not enough (40.71%), level of education was at College of Nursing (73.57%) and have number of children was at 3 – 5 (52.52%).

Table (3-2) The Education characteristic of the Teachers (n=140):

Education Data		Freq.	%
Schools	Sharifa Bint Al Hassan	16	11.43
	Al-Sahwa	13	9.29
	Al-manihel	17	12.14
	Al-Fawatim School	15	10.71
	the names of Allah	12	8.57
	Kinda Elementary School	15	10.71
	Malik Al-Ashtar	14	10
	Iraqi mother	15	10.71
	Nablus	13	9.29
	The sun of the suns	10	7.14
Have you ever received any information about pediatric BLS	Reading	0	0
	TV	25	17.86
	Training course	10	7.14
	Previous experience	12	8.57
	Internet	33	23.57
	No	60	42.86
Total		140	100%

Table (2) display the statistical distribution of the study sample by their Education characteristic, it states that the most percentage of the Schools participants was at Al-manihel (12.14%), and those get information from Internet (23.57%).

Table (3): The Mean scores for assessment of Knowledge according to each item of the scale among the Teachers (n=140):

Items of scale		**Freq.**	**%**	**MS**	**Assess.**
Which of the following include critical characteristics of high-quality CPR?	Incorrect	99	70.71	0.29	Poor
	Correct	41	29.29		
What is the age considered for a child for CPR purposes?	Incorrect	44	31.42	0.68	Good
	Correct	96	68.58		
Why are ventilations delivered to a pediatric arrest person before seeking assistance in single-rescuer scenarios?	Incorrect	108	77.14	0.23	Poor
	Correct	32	22.86		
The correct way to determine a child's unresponsiveness is:	Incorrect	100	71.43	0.29	Poor
	Correct	40	28.57		
The child begins to breathe spontaneously at a rate of 18. Her pulse is 50. What is the next step?	Incorrect	100	71.43	0.29	Poor
	Correct	40	28.57		
What is the compression-to-ventilation ratio for a single rescuer performing CPR on a school-aged child?	Incorrect	80	57.14	0.43	Fair
	Correct	60	42.86		
Where should you attempt to perform a pulse check in children?	Incorrect	79	56.43	0.44	Fair
	Correct	61	43.57		
To perform BLS on a school-aged child, do the following?	Incorrect	91	65.00	0.35	Fair
	Correct	49	35.00		
In children, the chest compression to ventilation ratio for one-rescuer CPR is?	Incorrect	115	82.14	0.18	Poor
	Correct	25	17.86		
Which of the following is the best way to give mouth-to-mouth resuscitation after opening the airway and compressing the nose of an unconscious child?	Incorrect	100	71.43	0.29	Poor
	Correct	40	28.57		
	Incorrect	121	86.43	0.14	Poor

When should you activate the emergency response system while you are alone in taking steps to save a child's life?	Correct	19	13.57		
For children under 8 years old, the chest compression and ventilation ratio is ?	Incorrect	112	80.00	0.20	Poor
	Correct	28	20.00		
techniques of chest compressions for school age children are ?	Incorrect	96	68.57	0.31	Poor
	Correct	44	31.43		
The heart is a hollow, muscular organ that consists of?	Incorrect	123	87.86	0.12	Poor
	Correct	17	12.14		
Pediatric cardiopulmonary resuscitation simply consists of:	Incorrect	117	83.57	0.16	Poor
	Correct	23	16.43		
What does AED stand for?	Incorrect	90	64.29	0.36	Fair
	Correct	50	35.71		
If you are performing cardiac compressions on a child what depth do you compress the chest?	Incorrect	103	73.57	0.26	Poor
	Correct	37	26.43		
what is the best technique to open an unresponsive child's airway, If powerless to cover both nose and mouth wholly with your mouth?	Incorrect	110	78.57	0.21	Poor
	Correct	30	21.43		
What are the conditions that require basic life support for children ?	Incorrect	81	57.86	0.42	Fair
	Correct	59	42.14		
A ventilator is one of the following options?	Incorrect	80	57.14	0.43	Fair
	Correct	60	42.86		
If you witness a cardiac arrest in a child, What should you do??	Incorrect	92	65.71	0.34	Fair
	Correct	48	34.29		
What is the recovery status?	Incorrect	131	93.57	0.06	Poor
	Correct	9	6.43		
Total		**140**	100%		

MS: Mean of Scores; Poor: MS =<0.33; Fair: MS = 0.34-0.67; Good: MS ≥ 0.68.

Table (3) shows the assessment (mean of scores) of Knowledge among the Teachers; it reveals that the assessment of the number (2) items was (Good), the assessment of the (6,7,8,19,20, and 21) items was (Fair) and all other Items were (Poor). This assessment is based on the statistical scoring system that indicates the total mean of scores (=<0.33) as (Poor); and those between (0.34-0.67) as (Fair), those with scores more than (0.68) as (Good).

The following figure shows the assessment of overall items (mean of scores) of Knowledge among the Teachers; it reveals that the overall assessment of the items was (Poor). This assessment is based on the statistical scoring system that indicates the total mean of scores (=<0.33) as (Poor); and those between (0.34-0.67) as (Fair), those with scores more than (0.68) as (Good)

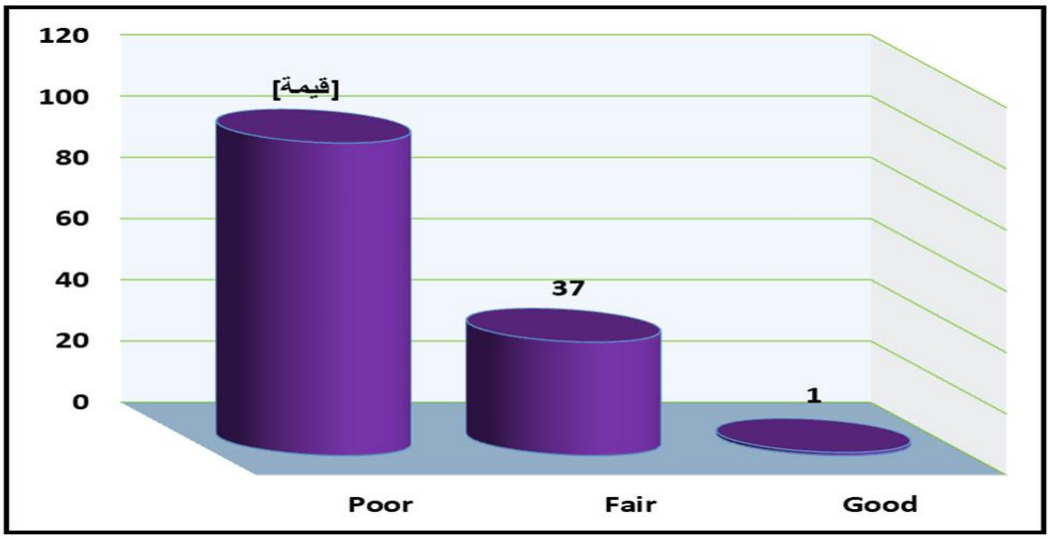

Table (4): Mean Difference between Socio-demographic data and overall assessment of Knowledge.

Socio-demographic Data		Freq.	MS	SD	F-Test	P-value (sig.)
Age groups (Years)	<= 29	33	0.29	0.09	1.899 (3)	0.594 (NS)
	30 - 35	43	0.27	0.08		
	36 - 41	36	0.31	0.10		
	42 and More	28	0.29	0.10		
Gender	Males	24	0.30	0.10	0.523 (1)	0.601 (NS)
	Females	116	0.29	0.09		
Marital Status	Single	8	0.29	0.06	4.374 (4)	0.358 (NS)
	Married	126	0.29	0.09		
	Divorced	3	0.26	0.11		
	Widow	2	0.39	0.10		
	Separated	1	0.41	0		
Residence	Urban	136	0.29	0.09	1.449 (1)	0.147 (NS)
	Rural	4	0.35	0.08		
Economic state	Enough	38	0.28	0.09	9.109 (2)	0.011 (S)
	Enough to somextent	45	0.32a	0.10		
	Not enough	57	.027a	0.08		
Level of education	Secondary nursing school or less	4	0.33	0.07	3.651 (3)	0.302 (NS)
	College of Nursing	103	0.28	0.09		
	Institute of Nursing	26	0.31	0.09		
	M.sc of Nursing	7	0.32	0.14		
Number of children	<= 2	62	0.28	0.10	2.352 (2)	0.309 (NS)
	3 - 5	73	0.29	0.09		
	6 and more	4	0.35	0.08		
Total		140				

For multi-comparisons: LSD was showed in similar letters, P = probability value. S= significant, NS= non-significant.

Table (4) shows that there is a significant mean difference only between overall assessment of Knowledge and Economic state (p-value=0.011), while other data were statistically not significant.

Table (5): Mean Difference between Education Data and overall domains of Knowledge assessment.

Socio-demographic Data		Freq.	MS	SD	F-Test	P-value (sig.)
Schools	Sharifa Bint Al Hassan	16	0.28	0.10	13.746 (9)	0.132 (NS)
	Al-Sahwa	13	0.28	0.10		
	Al-manihel	17	0.26	0.07		
	Al-Farqadin Private	15	0.25	0.08		
	the names of Allah	12	0.35	0.07		
	Imam Ali Hadi	15	0.31	0.12		
	Malik Al-Ashtar	14	0.29	0.09		
	Iraqi mother	15	0.28	0.07		
	Nablus	13	0.32	0.09		
	The sun of the suns	10	0.29	0.09		
Have you ever received any information about pediatric BLS	Reading	0	0	0	0.310 (4)	0.989 (NS)
	TV	25	0.29	0.12		
	Training course	10	0.29	009		
	Previous experience	12	0.27	0.09		
	Internet	33	0.29	0.09		
	No	60	0.29	0.08		
Total		140				

For multi-comparisons: LSD was showed in similar letters, P = probability value., NS= non-significant.
Table (5) shows that there is a non-significant mean difference between overall assessment of Knowledge and Education Data (p-values were > 0.05).

DISCUSSION

Part-I: Discussion Socio-demographic characteristic of the Teachers.

Tables (3.1,3.2) According to teachers age, the study shows that more teachers (30.71%) were30- 35 years old. This outcome is reinforced by a study done by (Al-Tameemi and Khudair 2016) who concluded was Majority of participants were aged more than 30 years.
Regarding gender, the results reveal that the Majority are (82.86%)of subjects are female and (90%) were married. This outcome is reinforced by a study done by (Al-Tameemi and Khudair 2016) Mentioned that females are the dominant gender.
Regarding Residency, the current study results show that most of the sample (97.14%) live who at urban areas, and the remaining is living in rural areas, This result is in agreement with Kumar et al. in (2013). In their studies they reported that most of teachers were from urban areas.
Concerning the level of teachers education, the result reveals that (73.57%) were graduate from college. This approves with the result of Akhagbaker and Aziz (2022)
Regarding to receive any information about pediatric BLS the present study showed that only (23.57. %), of teachers were obtained information from internet, while the highest percentage of teachers was (42.86%) They did not receive any information because they did not have enough time and were preoccupied with their family and professional lives this is quite similar to the findings of (Abd-el-Ghany et al, in 2014) in which revealed that the internet had the lowest score among other sources of information
(Table 3.3,3.4) shows the assessment of overall items (mean of scores) of Knowledge among the Teachers; it reveals that the overall assessment of the items was Poor. This outcome is reinforced by a study done by (Al-Tameemi and Khudair 2016)

Part. II: Discussion the Mean Difference between Socio-demographic data and overall assessment of Knowledge

Table (3.5,3.6) show there is No statistically significant association was found between the overall knowledge score of teachers with socio-demographic characteristics, except significant correlation with teachers monthly income (P=0.011) this result Consistent with the study conducted by (Al-Robaiaay ,2013)

CONCLUSION

based on the study results of data analysis, and according the aims of the current study.
1. It is concluded that the most of the research sample are female, and their educational levels are collage
2. It is concluded that the majority of participants are older than 30 years.
3. Most teachers have poor knowledge which is due to a lack in educational and training programs in this field.
4. It is concluded that there are high significant relationship between the overall assessment of teachers Knowledge and Economic state while other data were statistically not significant.

RECOMMENDATIONS

Based on the study conclusion, the investigator recommends the following:
1- The study recommends establishing mandatory courses for training teachers on first aid, using incentives for encouraging teachers to learn first aid, retaining a PBLS box at each school, providing professionally trained nurses on PBLS to work in schools, using mass media, posters and leaflets about PBLS as tools for education about it.
2- Training about BLS skills is very important for teachers to save students' lives
3- Finally, there must be coordination between the health and educational staff of each school and activate the role of school health to protect the lives of kids in emergency circumstances.

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