Exploring the extent of knowledge of CPR skills among school teachers in Riyadh, KSA


Department of Paediatrics, Medical College, Al Maarefa Colleges, Riyadh, KSA

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Abstract

Objectives: Cardiopulmonary resuscitation (CPR) is one of the most evolving areas in modern medicine. CPR is a lifesaving technique that is useful in combating different types of emergencies. In cases of emergencies, school teachers are expected to play a key role in performing CPR on school children. The purpose of this study is to assess the knowledge of CPR among school teachers in Riyadh, KSA.

Methods: This cross-sectional study was conducted using a 12-statement questionnaire about CPR knowledge that was administered to teachers of general educational schools in Riyadh.

Results: As many as 43% of school teachers knew about CPR, but 57% had no previous information about CPR. Sources of information about CPR included previous study at a university (29.3%), training courses (15.2), TV (24.2%), and the Internet (18.2%). When faced with a case that needed CPR, 38.9% of teachers performed CPR, while 37% called an ambulance. Approximately 53% agreed that CPR training courses should be mandatory. Only 63% of teachers knew the contact numbers for emergency services.

Conclusions: This study has revealed a critical issue that a majority of school teachers do not have adequate knowledge about CPR. We recommend the mandatory implementation of CPR and basic life-support training and refreshing courses for all school teachers across KSA. In addition to enrolling in training courses, teachers must be aware of the availability of first aid kits at schools and the contact numbers of the Saudi Red Crescent Services.

* Corresponding address: Department of Paediatrics, Medical College, Al Maarefa Colleges, Riyadh, KSA.

E-mail: yfh-1990@hotmail.com (Y.F. Horaib)

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Introduction

Cardiopulmonary resuscitation (CPR) is one of the most evolving areas of modern medicine. It is a life-saving technique that is useful in many emergencies. CPR is a life-saving technique that is simple enough for anyone to learn. However, research has shown that several factors prevent bystanders from taking action, including fear that they will perform CPR incorrectly, fear of legal liability, and fear of infection from performing mouth-to-mouth ventilation. Since 1984, the Saudi National Cardiopulmonary Resuscitation Committee has been working on disseminating the science of resuscitation throughout KSA. It achieved this by increasing the human resources for training instructors of CPR courses and accrediting training centres at governmental and private levels. The Saudi Heart Association, the sole body responsible for the CPR activities in the kingdom, is affiliated with an international liaison committee on resuscitation. The basic life support (BLS) course highlights the fundamental steps needed to resuscitate victims successfully either before they are brought to the hospital or while they are in the hospital. Additionally, it emphasizes that these steps should be mastered by healthcare providers and trained lay persons/bystanders. It is usually held for one day and costs approximately 100 US Dollars. Other advanced courses have certain eligibility criteria and different costs.

School teachers are expected to play a role in performing CPR on school children in urgent cases, but little is known about their actual capacity to perform CPR. Unfortunately, only a few studies have been conducted in KSA to analyse the knowledge of CPR among school teachers. For this reason, we conducted this study to evaluate the knowledge of school teachers about CPR.

Materials and Methods

A cross-sectional study with a 12-statement questionnaire about CPR knowledge was administered to teachers at general educational schools in Riyadh, KSA. The study was conducted for five weeks and began in April 2016. Five schools were chosen randomly to be part of the study. Two were primary schools, and three were secondary schools. The 12-item questionnaire was designed to assess the CPR knowledge among the teachers. Written consent was given by teachers before conducting the study.

Ethical approval

The study was approved by the ethical committee at the College of Medicine of Al Maarefa Colleges following approval of the ministry of education, Riyadh, KSA.

Statistical analysis

After the collection of the data, the data were reviewed, organized, tabulated and statistically analysed using SPSS version 16 (Statistical Package for Scientific Studies). A chi-squared test was used to test significance. The descriptive statistics included percentages. A P value of <0.05 was considered significant.

Results

Of the 250 questionnaires distributed to teachers, a total of 228 were returned, which is a response rate of 91.2%. Among all the participants, 125 (54.8%) were male, and 103 (45.2%) were female. A total of 179 (78.5%) were Saudis, and 49 (21.5%) were non-Saudis. The educational levels of the teachers were as follow: 192 Bachelor degree holders, 26 Master degree holders and 10 Ph.D. holders (Table 1).

Of all respondents, 43% (98/228) of school teachers knew about CPR, while 57% (130/228) did not have any previous knowledge about CPR (Figure 1).

Table 1: Demographic characteristics and CPR Knowledge among teachers.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>125 (54.8)</td>
</tr>
<tr>
<td>Female</td>
<td>103 (45.2)</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
</tr>
<tr>
<td>Saudi</td>
<td>179 (78.5)</td>
</tr>
<tr>
<td>Non-Saudi</td>
<td>49 (21.5)</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
</tr>
<tr>
<td>-Bachelor</td>
<td>192 (84.2)</td>
</tr>
<tr>
<td>-Master</td>
<td>26 (11.4)</td>
</tr>
<tr>
<td>-Ph.D.</td>
<td>10 (4.4)</td>
</tr>
<tr>
<td>Knowledge about CPR</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>98 (43)</td>
</tr>
<tr>
<td>No</td>
<td>130 (57)</td>
</tr>
</tbody>
</table>
The percentages of participants who acquired knowledge of CPR from various sources are shown in Figure 2. The largest percentage of participants, 29.3%, gained knowledge of CPR while studying at the university. In addition, only 15.2% of the teachers had received previous training, indicating that 84.8% of the teachers had not received training and are thus incompetent to perform CPR, exposing students to a hazard in case of emergency situations. The courses were taken by these teachers more than 2 years ago.

Fifty-four (23.7%) of the participants had encountered a case needing CPR, while 174 (76.3%) had not. The cases were mostly fainting, falling down or choking of a student.

Among the teachers who were faced with a case requiring CPR, 21 (38.9%) performed CPR, 20 (37%) called an ambulance, 8 (14.8%) transferred the student to an emergency department, and 5 (9.3%) did nothing due to feelings of incompetence caused by fear, confusion or lack of appropriate skills and training. When the different ways of dealing with the problem were compared between male and female teachers (Table 2), there were no statistically significant differences ($t$ value 2.577, $P \leq 0.05$) in the results of Chi-squared tests.

A total of 71% of the teachers thought that the CPR is important for saving lives in case of an emergency. Additionally, 63% of teachers were aware of the emergency contact number (Saudi Red Crescent), and 34% of the teachers knew the location of the nearest health centre and the time required to get there. The location of the first aid kit at school was known by only 78% of the teachers.

Regarding the opinion about taking CPR training courses, 53% of the teachers felt that it should be compulsory, 42% felt it should be optional, and 5% support the idea only (Figure 3).

When teachers were asked about ways to increase the awareness of the students about CPR, 155/228 (68%) believed that there is a need to add it to the curriculum.

**Discussion**

School teachers should have sound CPR knowledge. The ministry of education should introduce CPR and first aid training to all teachers throughout KSA. This study explored the present knowledge of CPR among teachers in Riyadh city.

This study revealed that school teachers had inadequate knowledge of CPR as well as poor knowledge regarding
different services to be provided in case of emergencies. Only 43% of the teachers had knowledge about CPR according to a study performed more than two years ago. The study performed in Al-Qassim supports our finding that secondary school teachers lack CPR training and have little knowledge and few skills.7 Another Saudi study shows that 31% of university students lack knowledge of CPR.3 Similar studies in the United Kingdom support our finding that CPR knowledge among teachers is poor.5 In our study, only 15.2% of the teachers had previous CPR training. This is very low in comparison to a survey among Flemish teachers, which showed that 59% of them had received CPR training.9 Even among the teachers who received previous training in our study, not one enrolled in a second course to refresh their memories and improve their skills in performing CPR. In addition, items such as emergency contact numbers, the location of the nearest healthcare centres, and even the location of the first aid kit at school were not familiar to most of the teachers, despite the verdict of international resuscitation councils that the teaching of resuscitation in schools should be regarded as a primary educational strategy to achieve widespread learning of CPR.10

The source of information about CPR was mostly a course taken while studying at the university (29.3%), while television and the internet contribute 24.2% and 18.2%, respectively. This indicates the importance of the media to increase the awareness of the community. With the advancement of technology, there is a high accessibility of information about CPR through the internet and media.11

A total of 37% of the teachers called an ambulance when faced with a case requiring CPR. In a large city such as Riyadh, which faces heavy traffic on the road, the average ambulance response time is nearly 40–50 min, which indicates the immediate need of CPR as crucial for saving student lives. Immediate first aid provision at the scene of an emergency can significantly reduce the risk of mortality from such accidents. A study among school children in Malaysia found that the average ambulance response time was 18 min.12

Of the participants, 21 (38.9%) performed CPR when needed, and 5 (9.3%) were reluctant to do anything because of fear, confusion, lack of previous training or lack of skill. Possible reasons behind the unwillingness to perform CPR are that people have insufficient practical skills or are afraid of disease transmission when using mouth-to-mouth breathing.5 According to a survey amongst Flemish teachers, although many of them mentioned previous CPR training, only a minority of mostly young primary school teachers felt competent in CPR and were willing to teach it to their students.9 In the current study, it was observed that there was no significant difference between male and female teachers in dealing with a case requiring CPR. This indicates that the level of awareness was more or less the same.

More than 50% of the teachers thought that it was mandatory to undergo CPR training in our study. According to the study performed by Al Enizi et al.,7 54% of the teachers supported mandatory training for their teacher’s certifications. Similar studies abroad have assessed teachers’ willingness to take CPR courses. CPR training was introduced into schools in the United Kingdom, and it was very well received.13 In some states in the United States, CPR is becoming mandatory not just for students but for teachers as well. In most states where it is required, teachers undergo training as part of teacher certification or re-certification.14 Chaudhary A et al. demonstrated improvement in the knowledge and skill of CPR following Basic Life Support training.15 The impact of previous experience on the retention of knowledge is well demonstrated.16

Mandatory inclusion of this training in the school curriculum, as seen in other countries, would result in significantly improving survival rates from out-of-hospital cardiorespiratory arrest.17,18 In our study, 68% of the teachers agreed to add CPR into the curriculum in order to increase the students’ awareness and knowledge of CPR. This course should be part of Biology and Science classes, especially in high schools.

The establishment of cardiopulmonary resuscitation training centres at schools is mandatory. Support from the Saudi Heart Association is essential to ensure that the training is as widespread as possible.

The limitations of our study include the small sample size and the fact that it was conducted in the capital city of the kingdom where the level of education is highest. In addition, our study covers only governmental schools. A larger sample size that involves both all-girl and all-boy schools, various urban and rural schools across the kingdom and private schools would reflect the problem more accurately.

Conclusion

This study has revealed a critical issue that most school teachers lack adequate knowledge of CPR. We recommend that CPR/BLS training and refreshing courses should be mandatory to all teachers at schools. In addition to enrolling in training courses, teachers must be aware of the availability of first aid kits at schools and the contact numbers of the Saudi Red Crescent.

Authors’ contribution

All authors took part equally in writing, revising and final approval of the manuscript.

Conflict of interest

The authors have no conflict of interest to declare.

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