Knowledge and willingness of schoolteachers in Jordan to perform CPR: a cross-sectional study

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ABSTRACT

Objectives This study aimed to assess the cardiopulmonary resuscitation (CPR) knowledge and willingness of schoolteachers in Jordan.

Design This was a cross-sectional study conducted using an online questionnaire.

Setting For inclusion in this study, schoolteachers must be currently teaching at any level in schools across the country. Responses were collected from 1 April 2021 to 30 April 2021.

Participants All schoolteachers actively working in public or private schools were included in our study.

Primary and secondary outcome measures Continuous variables were summarised as means and SD, whereas categorical variables were reported as frequencies and percentages (%). A χ² test for independence, independent sample t-tests and analysis of variance were used appropriately. A p-value less than 0.05 was used to determine statistical significance.

Results A total of 385 questionnaires were eligible for analyses. Only 14.5% of the participants received CPR training and overall correct knowledge answers were 18.8% of the total score. Those participants with previous CPR training had higher mean knowledge scores (2.34 vs 1.15, p<0.001). Trained participants were also more likely to provide hands-only CPR to various patient groups than untrained participants (p<0.05). Participants were more willing to provide standard CPR to family members than hands-only CPR (p<0.001), but more willing to provide hands-only CPR to friends (p<0.001), students (75.1% vs 58.2%, p<0.001), neighbour (p<0.001), stranger (p=0.001) and patient from the opposite gender (p<0.001).

Conclusions Schoolteachers in Jordan possess limited knowledge of CPR. However, the study participants showed a positive attitude towards performing CPR. The study revealed that they were more inclined to provide hands-only CPR than standard CPR. Policymakers and public health officials can take advantage of these findings to incorporate CPR training programmes for schoolteachers, either as a part of their undergraduate studies or as continuing education programmes with an emphasis on hands-only CPR.

INTRODUCTION

Out-of-hospital cardiac arrests (OHCA) pose a significant public health issue, with a survival rate of only 2%–11%. This rate depends on early initiation of the ‘chain of survival’, including early recognition, early cardiopulmonary resuscitation (CPR), early defibrillation and postresuscitation care. Nearly more than half of OHCA cases are witnessed by bystanders, and increasing bystander CPR has been shown to double or triple the survival rate. Studies have found that CPR training increases the willingness of bystanders to perform CPR. It has been, also, reported that targeted CPR training that increases bystander CPR would substantially improve the survival rates after OHCA. Schoolteachers are a targeted population for CPR training. For instance, a study conducted in northern Belgium found that 25% of the participated schoolteachers witnessed cardiac arrest. Schoolteachers are often targeted for CPR training due to several reasons. As educated members of the community, they can easily be trained and become trainers themselves. Furthermore, they can teach students CPR and are often present in congested school environments where cardiac arrests may occur. This is why organisations like the ‘Kids Save Lives’ initiative, endorsed by the WHO,
have targeted schoolteachers for such training. The ‘Kids Save Lives’ initiative also highlighted the important role of schoolteachers as facilitators and trainers of basic life support (BLS). Several organisations, including The European Parliament, the American Heart Association and the International Liaison Committee on Resuscitation, advocate for involving schoolteachers in CPR training to enhance bystander CPR rates.

In developed countries, schoolteachers who received CPR training ranged from 49% in Hong Kong to as high as 81% in Northern Belgium. Regionally, participants who received CPR training were 33.1% in Turkey, 20.1% in Palestine, and 15.2% in Saudi Arabia. Previous studies in Jordan indicated a training rate of 21.5% among healthcare students, 29.2% among university students, and 29% among the public. However, none of these studies was conducted on schoolteachers who account for over 130,000 working on over 7000 schools across the country.

In Jordan, a recent study found that survival after OHCA is 2.9%, which is far below the global rate of about 10%. In this study, the authors found that 78% of OHCA patients did not receive CPR prior to hospital arrival. This may be due to the lack of CPR knowledge and skills by bystanders. Unlike many developed countries, schools in Jordan, generally, lack school nurses who can initiate the BLS until the arrival of emergency medical services (EMS). It should be noted here that the average response time of EMS calls in Jordan was 8.50 and 8.38 min in 2017 and 2018, respectively, which is longer than the standard cumulative response time of 8 min or less 90% of the time. In such a case, having CPR-trained teachers may contribute to a better chance of survival for those unfortunate victims of sudden cardiac arrest at schools. This study, therefore, aimed to assess the knowledge and willingness of schoolteachers in Jordan to perform CPR.

METHODS
Design and sampling
This was a cross-sectional descriptive study assessing the knowledge and willingness of schoolteachers towards CPR in Jordan.

Study setting
For inclusion in this study, schoolteachers must be currently teaching at any level in both public and private schools across the country. The required sample size was estimated using the Raosoft online software with a confidence level of 95% and an accuracy level of 5%, resulting in a minimum of 385 schoolteachers required for the study to be carried out. In Jordan, there are approximately 7127 schools, 2.2 million students and 130,080 schoolteachers, and we approached around 600 of these potential participants.

The questionnaire
A new questionnaire was developed specifically for this study based on the 2020 American Heart Association (AHA) guidelines and previous studies. The drafted questionnaire was reviewed and approved by a multidisciplinary expert panel (four professors in the field of nursing and paramedicine). To ensure readability and understanding of all terminologies, the questionnaire was pilot tested by 10 participants and was then minimally modified according to the received feedback from participants. The final version of the questionnaire was then approved by the expert panel, and is shared as ‘online supplemental material’.

The questionnaire included 29 items addressing four domains: demographics (five items), previous CPR training (five items), CPR knowledge (seven items) and willingness towards performing CPR (12 items). CPR knowledge was assessed using seven multiple-choice questions with only one correct answer. The knowledge score is the summation of correct answers with a range from ‘0’ to ‘7’. Participants were asked about their willingness to provide CPR using two techniques, standard CPR (mouth-to-mouth ventilation and chest compressions) and hands-only CPR (chest compression only), to a family member, friend, student, neighbour, stranger and opposite gender with potential answers of yes or no. CPR-trained individuals were primarily defined as teachers who had CPR certification or hands-on training with post-training summative assessment by professionals.

Data collection process
Google forms were used to develop and disseminate the online questionnaire. The online questionnaire link was shared with potential participants over social media, mainly through closed WhatsApp groups of Jordanian schoolteachers. Responses were collected from 1 April 2021 to 30 April 2021. On 14 April 2021, the questionnaire link was resharred with the groups as a reminder for potential participants. Internet protocol addresses were not collected from participants to ensure anonymity and to enhance a higher response rate.

Data analysis
Data management and analysis were conducted using the Statistical Package for the Social Sciences (SPSS), V.25 (Chicago, Illinois, USA). Continuous variables were summarised as means and SD, whereas categorical variables were reported as frequencies and percentages (%). The χ² test for independence, Fisher’s exact test and McNemar’s test were used, as appropriate, to assess differences between categorical variables. To compare the means between the study’s independent variables, independent sample t-tests and analysis of variance were used appropriately. Post hoc analyses using Bonferroni correction were used to identify between-group differences. In all tests, a p value less than 0.05 was used to determine statistical significance.

Ethical approval
This study was conducted in accordance with the Helsinki Declaration. All participants who agreed to participate...
in this study provided their consent attached to the questionnaire.

**Patient and public involvement**

No patients involved.

**RESULTS**

**Demographics**

A total of 385 questionnaires were complete and eligible for analyses (response rate 64.1%). Table 1 describes the demographics of the participating schoolteachers for the total sample and between those who received and did not receive CPR training. Most participants were female (64.2%) and aged between 20 and 30 (43.4%). The majority of participants had a work experience of more than 10 years (53.7%), had a bachelor’s degree or below (80.8%) and were working in suburban schools (62.9%). Only 56 (14.5%) of participants received CPR training. There was no significant difference in demographics between those who received and did not receive CPR training (table 1). The majority of participants (52.1%) considered ‘personal interest’ as the main factor that motivated them to attend CPR training courses followed by ‘helping people’ (35.6%). About half (49.8%) of participants indicated that ‘unknown training locations’ was the major barrier to not taking CPR training, followed by lack of availability, lack of time and lack of interest (15.8%, 15.2% and 12.5%, respectively).

**CPR knowledge among schoolteachers**

Table 2 shows the level of CPR knowledge among participants. The overall mean knowledge score was only 1.32 (±1.06) out of a maximum of seven, representing 18.9% of the correct answers. The question with the highest proportion (66.8%) of correct responses was ‘What is the emergency call number in Jordan?’ The question with the lowest proportion (2.1%) of correct answers was ‘What is the number of compressions per minute for hands-only CPR?’

Table 3 shows the relationship between demographics, CPR training and level of CPR knowledge among participants. The mean score did not significantly differ among the demographics of participants. However, the overall mean knowledge scores were significantly different between those who had previous CPR training and those who had not (2.34 vs 1.15, p<0.001, respectively). The mean knowledge scores were statistically different between participant groups who had no previous training, trained within the last 2 years or trained in more than 2 years (1.15 vs 2.7 vs 2.26, p<0.001, respectively). Post hoc analysis using Bonferroni correction, the mean score for those who trained within the last 2 years was not significantly different than those who trained in more than 2 years (p=0.59).

Furthermore, statistical differences were observed between and within participants who had no previous training, trained in school or trained in other locations.
(1.14 vs 1.85 vs 2.93, p<0.001, respectively). Post hoc analysis using Bonferroni correction, the mean score for those who trained in other location was significantly higher than those trained in school (p<0.001).

**Willingness to provide CPR**

Figure 1 compares the willingness of participants to provide standard CPR versus hands-only CPR to different types of patient groups. While almost all participants (98.7%) were willing to provide standard CPR to a family member, this percentage dropped constantly to as low as 28.3% for a patient from the opposite gender. However, when it comes to provide hands-only CPR, the range dropped from 79.5% for a family member to 59.2% for a patient from the opposite gender.

To compare participants’ willingness to provide full versus hands-only CPR, McNemar’s test was used. Compared with standard CPR, participants were significantly more willing to provide hands-only CPR to all patient groups (p<0.05), except for a family member. Participants are significantly more willing to provide standard CPR to a family member than hands-only CPR (98.7% vs 79.5, p<0.001). Whereas participants are more willing to provide hands-only CPR than standard CPR to the rest of the patient groups including friends (74% vs 62.6%, p<0.001), students (75.1% vs 58.2%, p<0.001), neighbour (67.1% vs 43.9%, p<0.001), stranger (63.9% vs 33.5%, p=0.001) and patient from the opposite gender (59.2% vs 28.3%, p<0.001).

Table 4 shows the difference in the willingness to provide two types of CPR for different types patients between trained and untrained participants. For standard CPR, higher proportions of trained participants were willing to provide CPR to a family member, friend and student compared with untrained participants. Interestingly, lower proportions of trained participants were willing to provide CPR to a neighbour, stranger or patient from other gender (16.1 vs 30.4%, p=0.02). Except for ‘opposite gender’, these differences, however, were not statistically significant.

When it comes to hands-only CPR, higher proportions of trained participants were willing to provide CPR to a friend (83.9 vs 72.3%, p=0.04), student (85.7% vs 73.3%, p=0.03), neighbour (80.4% vs 67.2%, p=0.03), stranger (76.8% vs 61.7%, p=0.02) and opposite gender (73.2% vs 56.8%, p=0.01) compared with untrained participants.

**DISCUSSION**

This study aimed to assess the knowledge and willingness of schoolteachers in Jordan towards CPR. Overall, the findings of this study indicate poor CPR knowledge and training among schoolteachers. The willingness to provide CPR differs by type of CPR (standard vs hands-only CPR) and type of patients, with the ‘unknown training locations’ being the major barrier to not taking CPR training. This is followed by lack of availability, lack of time and lack of interest (15.8%, 15.2% and 12.5%, respectively).

**CPR knowledge among schoolteachers**

The ability to perform effective CPR requires a good understanding of the procedures involved. Our study found that the schoolteachers in Jordan had limited knowledge of CPR, particularly in key performance components such as the correct compression rate and ratio of compressions to ventilations. However, a higher level of general knowledge was present, with two-thirds of the participants knowing the emergency call number and one-third being aware of the correct location for chest compressions. Although the latter are crucial for starting the chain of survival, it is important to have a deeper understanding of the compression rate and ventilation ratio for the best chance of survival for the victim. This
is consistent with previous research that found school-teachers have more general knowledge about CPR but less specific knowledge.19

Knowledge of CPR can be learnt from professional CPR training as well as from other ways such as media, educational background (eg, healthcare education), exposure or from self-learning. In our study, only 14.5% of participants received professional training, which explains the poor level of CPR-specific knowledge compared with the general knowledge that can be learnt from the aforementioned sources. A previous study in Jordan indicated that the main source of CPR knowledge is school, followed by universities and media.7 Other studies in Jordan and elsewhere reported higher proportions of trained participants compared with our study.19 7-19 15-21 Given that school-teachers in Jordan show the lowest percentage of CPR training, it is of great importance to focus on such a group of the community. This group of the educated fabric of the Jordanian community can easily be trained and potentially enhance the low survival rate of prehospital cardiac arrest in Jordan.23

The findings of our study indicate that8 ‘unknown training locations’ followed by ‘lack of availability’ were the top barriers for school-teachers from participating in CPR training. These results mirror previous studies in Jordan8 and elsewhere.9 18 20 26 27 To overcome the

### Table 3: Relationship between demographics, CPR training and level of CPR knowledge

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency (%)</th>
<th>Knowledge score</th>
<th>Mean</th>
<th>SD</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total n=385</td>
<td></td>
<td></td>
<td>1.32</td>
<td>1.06</td>
<td>–</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20–30</td>
<td>53 (13.8)</td>
<td></td>
<td>1.34</td>
<td>0.96</td>
<td>0.88*</td>
</tr>
<tr>
<td>31–40</td>
<td>167 (43.4)</td>
<td></td>
<td>1.35</td>
<td>1.18</td>
<td></td>
</tr>
<tr>
<td>41 and more</td>
<td>165 (42.9)</td>
<td></td>
<td>1.29</td>
<td>0.98</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.25†</td>
</tr>
<tr>
<td>Male</td>
<td>138 (35.8)</td>
<td></td>
<td>1.41</td>
<td>1.14</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>247 (64.2)</td>
<td></td>
<td>1.28</td>
<td>1.01</td>
<td></td>
</tr>
<tr>
<td>Educational level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.28†</td>
</tr>
<tr>
<td>Bachelor or below</td>
<td>311 (80.8)</td>
<td></td>
<td>1.35</td>
<td>1.09</td>
<td></td>
</tr>
<tr>
<td>Graduate level</td>
<td>74 (19.2)</td>
<td></td>
<td>1.20</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>Experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.51*</td>
</tr>
<tr>
<td>5 years or less</td>
<td>84 (21.8)</td>
<td></td>
<td>1.24</td>
<td>0.93</td>
<td></td>
</tr>
<tr>
<td>6–10</td>
<td>94 (24.4)</td>
<td></td>
<td>1.46</td>
<td>1.24</td>
<td></td>
</tr>
<tr>
<td>11–20</td>
<td>148 (38.4)</td>
<td></td>
<td>1.31</td>
<td>1.04</td>
<td></td>
</tr>
<tr>
<td>More than 20 years</td>
<td>59 (15.3)</td>
<td></td>
<td>1.25</td>
<td>1.01</td>
<td></td>
</tr>
<tr>
<td>School location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.70†</td>
</tr>
<tr>
<td>Suburban</td>
<td>242 (62.9)</td>
<td></td>
<td>1.31</td>
<td>1.08</td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>143 (37.1)</td>
<td></td>
<td>1.35</td>
<td>1.04</td>
<td></td>
</tr>
<tr>
<td>Previous CPR training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001†</td>
</tr>
<tr>
<td>Yes</td>
<td>56 (14.5)</td>
<td></td>
<td>2.34</td>
<td>1.53</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>329 (85.5)</td>
<td></td>
<td>1.15</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>Last CPR training</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001*</td>
</tr>
<tr>
<td>No previous training</td>
<td>329 (85.5)</td>
<td></td>
<td>1.15</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Within the last 2 years</td>
<td>10 (2.6)</td>
<td></td>
<td>2.70</td>
<td>1.64</td>
<td></td>
</tr>
<tr>
<td>More than 2 years</td>
<td>46 (11.9)</td>
<td></td>
<td>2.26</td>
<td>1.50</td>
<td></td>
</tr>
<tr>
<td>Training location</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;0.001†</td>
</tr>
<tr>
<td>No previous training</td>
<td>329 (85.5)</td>
<td></td>
<td>1.14</td>
<td>0.85</td>
<td></td>
</tr>
<tr>
<td>In school</td>
<td>27 (7.0)</td>
<td></td>
<td>1.85</td>
<td>1.11</td>
<td></td>
</tr>
<tr>
<td>Other location</td>
<td>29 (7.5)</td>
<td></td>
<td>2.93</td>
<td>1.60</td>
<td></td>
</tr>
</tbody>
</table>

*Analysis of variance.
†Independent sample t-test.
CPR, cardiopulmonary resuscitation.
barriers of ‘unknown location’ and ‘lack of availability,’ decision-makers and healthcare officials could increase the number of CPR training centres and raise awareness of existing centres among schoolteachers. Although some schools in Jordan already offer in-school CPR training, which is successful according to our findings, it could be implemented on a larger scale and in a more systematic manner for better coverage.

The level of knowledge was not influenced by the demographic characteristics of the study participants. This was supported by many previous studies. However, these results were contradicted by Mpotos et al, who found a significant difference in CPR knowledge scores between different age groups. The training of schoolteachers, therefore, may target the geographic locations of schools regardless of their demographic differences.

Our study found that trained schoolteachers had significantly higher knowledge scores than untrained participants, as supported by recent studies. However, some regional studies did not find a correlation between training and knowledge level. The timing of the last training was not a factor in knowledge level, which was confirmed by a study in Saudi Arabia. Participants who received training outside of school had higher knowledge scores than those trained in school, possibly due to the brief and lack enough practical training in school-based training courses. For example, training in Jordan’s schools is often limited to 1–2 hour workshops by the Jordanian Civil Defense. It is also possible that those who seek outside training are more motivated and therefore have higher knowledge levels.

**Willingness to perform CPR**

The majority of schoolteachers have a positive attitude towards providing standard CPR to a family member, friend or student, but are less willing to do so to a neighbour, stranger or someone of the opposite gender. This is consistent with a previous study of laypeople in Jordan, which found that people were more willing to provide CPR to their families, friends and neighbours. Although a large proportion of trained schoolteachers are willing to provide CPR to a family member, friend or student, these differences did not reach statistical significance. Surprisingly, a smaller proportion of trained schoolteachers are willing to provide CPR to a neighbour, stranger or someone of the opposite gender, with the latter reaching statistical significance. The reasons for these conflicting findings are unclear, but it may be due to the participants’ confidence in performing CPR effectively and potential legal

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**Table 4**  Willingness of trained and untrained participants to provide standard or hands-only CPR to different patient groups

<table>
<thead>
<tr>
<th>Types of patients</th>
<th>Standard CPR</th>
<th>Hands-only CPR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trained n (%)</td>
<td>Untrained n (%)</td>
</tr>
<tr>
<td>Family member</td>
<td>56 (100.0)</td>
<td>324 (98.5)</td>
</tr>
<tr>
<td>Friend</td>
<td>36 (64.3)</td>
<td>205 (62.3)</td>
</tr>
<tr>
<td>Student</td>
<td>36 (64.3)</td>
<td>188 (57.1)</td>
</tr>
<tr>
<td>Neighbour</td>
<td>21 (37.5)</td>
<td>148 (45)</td>
</tr>
<tr>
<td>Stranger</td>
<td>16 (28.6)</td>
<td>113 (34.3)</td>
</tr>
<tr>
<td>Opposite gender</td>
<td>9 (16.1)</td>
<td>100 (30.4)</td>
</tr>
</tbody>
</table>

Cronbach’s alpha, 0.808 (n=385).

*χ² test was used.

CPR, cardiopulmonary resuscitation.
issues. A previous study of laypeople in Jordan found that making mistakes and legal concerns were major barriers. Additionally, trained participants, unlike untrained ones, were aware that standard CPR involves mouth-to-mouth ventilation, making them reluctant to provide CPR due to cultural barriers in Jordan. This contradicts previous studies on standard CPR, which found that training increases willingness to provide CPR. 

The study participants’ willingness to provide hands-only CPR was different from standard CPR. Both trained and untrained participants showed a willingness to provide hands-only CPR to various patient groups with minimal differences between the groups. The higher proportion of trained participants willing to provide hands-only CPR to all patient groups was statistically significant except for family members. This result aligns with previous research on hands-only CPR. For instance, a previous study found that even with limited knowledge, participants were willing to perform hands-only CPR with trained individuals being more willing than untrained ones. Other studies also reported that laypeople were more willing to perform hands-only CPR compared with standard CPR.

Our study compared standard CPR and hands-only CPR and found that, apart from family members, schoolteachers are more inclined to provide hands-only CPR than standard CPR, with all differences being statistically significant. This is consistent with two studies done in Jordan on public and allied health students, which found that people are more willing to provide hands-only CPR than standard CPR for most patient groups. This is also supported by studies in Turkey, Belgium and Palestine. Interestingly, our findings show that schoolteachers are more willing to provide standard CPR to family members than hands-only CPR. This may be because people believe that standard CPR may have better outcomes than hands-only CPR.

While the willingness of schoolteachers to provide standard CPR dropped significantly between groups, the change was relatively brief on hands-only CPR. This is in line with previous studies that suggest the low risk of infection is one reason for the higher willingness for hands-only CPR compared with standard CPR. Additionally, the simplicity of hands-only CPR likely makes participants more confident in providing CPR to a wider range of patients, as seen in our study. A prior study showed that even when participants lacked knowledge of hands-only CPR, they were still willing to perform it on strangers in the event of cardiac arrest. Future studies using experimental designs could be conducted to assess the knowledge and skills gained from the hands-only CPR training as well as assessing the retention of knowledge on different time periods.

In conclusion, cardiac arrest is a major public health concern with low survival rates, particularly in less-developed countries, partially due to inadequate bystander CPR. Our study findings reveal a low levels of CPR knowledge and training among schoolteachers in Jordan, making it imperative to make CPR training mandatory for them. Given its simplicity, hands-only CPR can be taught in shorter courses and effectively reach a large proportion of schoolteachers, which proved its effectiveness in previous studies on laypeople. Once trained, schoolteachers can pass on the knowledge to their students, leading to a wider spread of CPR awareness throughout families and communities. CPR training can be included as a mandatory class in undergraduate studies or as part of schoolteachers’ continuing education.

Limitations

This study has several limitations. The cross-sectional design and the type of questions used may have influenced participants’ responses. Enrolment of schoolteachers was mainly done through closed WhatsApp groups, which is a widely used social media platform in Jordan. However, some schoolteachers may not use social media or were not accessible during the data collection period, potentially affecting the representativeness of the study sample. Response and reporting bias may have also occurred due to the online nature of the surveys. Additionally, the study did not distinguish between those with hands-only CPR training and standard CPR training knowledge, as those trained on hands-only CPR may not be familiar with the proper compression rate and ratio to ventilation. Finally, the survey lacks open-ended questions. While these types of questions may limit response rate, they may improve the comprehensiveness of understanding that could have been achieved on this topic. Future studies, therefore, could use a mixed-method approach to in-depth understand the barriers for CPR training among schoolteachers.

CONCLUSION

This is the first imperial assessment of CPR knowledge and willingness among schoolteachers in Jordan. The general CPR knowledge of schoolteachers in Jordan is among the lowest at local, regional and global levels. However, despite limited knowledge, the study participants demonstrated a favourable attitude towards providing CPR to all types of patients. The study found that schoolteachers were more willing to provide hands-only CPR than standard CPR to various patient groups.

These findings underscore the need to enhance the CPR knowledge and readiness of schoolteachers. Policymakers and public health officials can leverage these findings to create a national strategy that includes training programmes for this crucial segment of the community, either as part of their undergraduate studies or as continuing education programmes that prioritise hands-only CPR.

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Acknowledgements We would like to express our sincere gratitude to all schoolteachers who generously gave their time and shared their experiences with us.

Contributors MTA: conceptualisation, data curation, validation, formal analysis, funding acquisition, methodology, project administration, resources, writing
original draft. ZIA: conceptualisation, data collection, data curation, validation, formal analysis, methodology, resources, writing original draft. AA: methodology, formal analysis, validation, writing—review and editing. A00: formal analysis, methodology, validation, writing—review and editing. EAK: methodology, formal analysis, writing—review and editing. ZA and SAA: writing—review and editing. YA: data collection, data curation. MTA is responsible for the overall content as the guarantor. The final manuscript has been approved by all authors. We can confirm that the manuscript is not currently under consideration elsewhere.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval This study involves human participants. This study was approved by the Institutional Review Board at Jordan University of Science and Technology (JUST) (IRB NO: A0-20190315). Participants gave informed consent to participate in the study before taking part.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request.

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REFERENCES
Knowledge and Willingness of Schoolteachers in Jordan to Perform CPR: A Cross-Sectional Study

Questionnaire

Demographics section

- Age groups:
  1. 20-25
  2. 26-30
  3. 31-40
  4. 41 or more

- Sex:
  1. Male
  2. Female

- Education Level:
  1. Bachelor’s Degree or below
  2. Graduate level

- Experience Years:
  1. 5 year or Less
  2. 6-10 years
  3. 11-20 years
  4. More than 20 years

- School Location:
  1. Subaurban
  2. Aurban

Experience about CPR

- Did you witness a cardiac arrest situation?
  1. Yes
  2. No

- Did that situation happen in the school?
1. Yes
2. No
3. I didn’t witness

- Did you yourself perform CPR?
  1. Yes
  2. No

- Did you have previous CPR training?
  1. Yes
  2. No

- The date of the last training course you had:
  1. No previous training
  2. Within the last two years
  3. More than two years

- Training Location, if any:
  1. No previous training
  2. Non-governmental Institutions (e.g. Red Cross and Red Crescent)
  3. Hospital
  4. Private center
  5. In school
  6. University
  7. Self-effort or self-study
  8. Civil Defense training

- Barriers to CPR training:
  1. Lack of interest
  2. Lack of time
  3. Lack of availability
  4. Unknown training locations
  5. Cost
  6. Nothing
Knowledge section

- You were alone and sighted an adult lying on the floor, what would be the most important step to do?
  1. Check consciousness
  2. Check breathing
  3. Check pulse
  4. Start compressions immediately
  5. Call for help or an emergency number

- What is the compression-to-breathing ratio for an adult patient?
  1. 30 compressions:2 breaths
  2. 30 compressions:5 breaths
  3. 5 compressions:1 breath
  4. I don’t know

- Compression location on the victim’s chest?
  1. On the middle of the chest, on the sternum bone
  2. Upper chest
  3. The left side of the chest
  4. I don’t know

- What is the number of compressions per minute for hands-only CPR?
  1. 60-80
  2. 80-100
  3. 100-120
  4.

- While checking a patient’s pulse, you should never exceed:
  1. 10 seconds
  2. 5 seconds
  3. 15 seconds
  4. I don’t know
• Do you know the AED device?
  1. Yes
  2. No

• What is the emergency call number in Jordan?
  1. 911
  2. 199
  3. 112
  4. I don’t know

Attitude Section

• Are you willing to provide chest compression and mouth-to-mouth breathing to someone from your family?
  1. Yes
  2. No

• Are you willing to provide chest compression and mouth-to-mouth breathing to someone from your friends?
  1. Yes
  2. No

• Are you willing to provide chest compression and mouth-to-mouth breathing to your student?
  1. Yes
  2. No

• Are you willing to provide chest compression and mouth-to-mouth breathing to someone from your neighbours?
  1. Yes
  2. No

• Are you willing to provide chest compression and mouth-to-mouth breathing to strangers?
  1. Yes
  2. No
- Are you willing to provide chest compression and mouth-to-mouth breathing to someone from the opposite sex?
  1. Yes
  2. No
- Have you ever heard about hands-only CPR (providing continuous hard and fast compressions to the chest without providing ventilation)?
  1. Yes
  2. No
- Are you willing to provide compression-only CPR to someone from your family?
  1. Yes
  2. No
- Are you willing to provide compression-only CPR to someone from your friends?
  1. Yes
  2. No
- Are you willing to provide compression-only CPR to your student?
  1. Yes
  2. No
- Are you willing to provide compression-only CPR to someone from your neighbours?
  1. Yes
  2. No
- Are you willing to provide compression-only CPR to strangers?
  1. Yes
  2. No
- Are you willing to provide compression-only CPR to someone from the other gender?
1. Yes
2. No