Knowledge and attitudes towards cardiopulmonary resuscitation among university students in Riyadh, Saudi Arabia

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ABSTRACT

Objective: To assess the knowledge and attitudes towards cardiopulmonary resuscitation (CPR) among the students of King Saud University.

Method: This study was a cross-sectional survey among King Saud University students, Riyadh, Kingdom of Saudi Arabia, which took place on December 17-20, 2006. The data was collected via self-administered questionnaires prepared in Arabic. The questionnaires were distributed to all 15 colleges of the University.

Results: Out of a study sample of 2250 students, 31% did not have prior CPR information. Of those with previous knowledge, 85% feel that it is inadequate. The most common sources of information were television and movies. The 12.7% of individuals encountered a situation that required the use of CPR. However, only 14% of them performed it. This was mostly due to lack of knowledge (48.2%). Eighty eight percent of students would like to learn how to perform CPR. Out of all King Saud University students, 45% believe that CPR training should be a graduation requirement.

Conclusion: It was found that the overall attitude towards CPR was positive. However, the knowledge on the topic was insufficient. Thus, more focus should be placed on the improvement of CPR skills. In addition, more studies are needed to assess knowledge and attitudes towards CPR in the community.

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Cardiopulmonary resuscitation (CPR) is a lifesaving technique which is useful in many emergencies. Cardiopulmonary resuscitation is essential in cases of suffocation, near-drowning, electrocution injuries, heart attacks, or any other situation in which a person’s breathing or heartbeat has stopped. This involves a combination of rescue breathing and chest compressions, which keep oxygenated blood flowing to the brain and other vital organs until more definitive medical treatment can restore a normal heart rhythm. When the heart stops, the absence of oxygenated blood can cause irreparable brain damage in only a few minutes. Death will occur within 10 minutes. Time is critical when helping a person in cardiopulmonary arrest. The earlier CPR is performed, the greater the chance of a successful resuscitation. Cardiopulmonary resuscitation is one link in what the American Heart Association calls the “chain of survival.” The chain of survival is a series of actions that, when performed in sequence, will double a cardiac arrest victims’ chance of survival. Modern CPR was developed in the late 1950’s and early 1960’s. The discoverers of mouth-to-mouth ventilation were Elam and Safar. Later, Kouwenhoven et al discovered the benefits of chest compressions. Finally, both techniques were combined to formulate CPR similar to the way it is practiced today.

According to the World Health Organization’s 2006 figures, heart disease is the number one killer in the Kingdom of Saudi Arabia. Each year, approximately 25,000 Saudis die from heart attack. Furthermore, up to 80% of all cardiac arrests occur at home, thus, one is likely to perform CPR on a family member. To date, the majority of studies concerning the knowledge and awareness of CPR have been carried out in the developed world. A 2004 study in New Zealand found that among 400 subjects, 74% had previously been taught CPR. Of those surveyed, 73% desired to know more about resuscitation (than they currently did). In addition, 70% thought that resuscitation should be a compulsory component of the New Zealand Driver’s License tests. Another 2006 United States study found that among 868 cardiac arrests, 54.1% of bystanders had been taught CPR at some time. In 21.2% of cases, the bystander immediately started CPR. Common reasons that the CPR-trained bystanders cited for not performing CPR were the following: 37.5% stated that they panicked, 9.1% perceived that they would not be able to do CPR correctly, and 1.1% thought that they would hurt the patient. Up to our knowledge, the existence of these studies in the Arabian Peninsula is rare, considering the important role of the students in the well being of the community. This study attempts to assess the knowledge and attitudes towards cardiopulmonary resuscitation among the students of King Saud University.

Method. The study was a cross-sectional survey among male and female King Saud University students, which took place on campus between the 17th and 20th of December, 2006. The students were selected based on the criteria including young age and likelihood to be exposed to situations where CPR is required. A pre-designed, systematic, anonymous 18-item questionnaire was prepared in Arabic (Appendix 1) and supported by a graphical presentation of CPR performance to collect the required data. Before filling the questionnaire, the purpose of the study was explained. Verbal consent was obtained from all students included in the study. The inclusion criteria were male and female King Saud University students enrolled in all the colleges within the university. There were no exclusion criteria. The questionnaires were distributed to the following colleges: Medicine, Dentistry, Pharmacy, Applied Medical Sciences, Nursing, Engineering, Architecture and Planning, Sciences, Computer Sciences, Administrative Sciences, Arts, Education, Languages, Food and Agriculture, and Community College. The questionnaires inquired about personal information, knowledge of CPR, sources of this knowledge, skills, interest in CPR, and reasons behind lack of it. It also included hypothetical questions and suggestions for proper means to increase community awareness of CPR. Two thousand seven hundred copies were randomly distributed among the colleges (2513) were collected giving a response rate of 93%. Due to incomplete or ambiguous answers (263) questionnaires were omitted from tabulation and analysis giving a final total of 2250 responses.

After completion of data collection, it was reviewed, organized, tabulated, and statistically analyzed using Statistical Package for Social Sciences. Chi-square P-value has been used when needed. P-value <0.05 was considered significant.

Results. Out of the 2250 students surveyed, 54.6% were males and 45.4% were females. The mean age was 21.3±1.9 years. Approximately all of them were Saudis (98%). Thirty-one percent of students did not have any previous information about CPR. Regarding the persons with previous knowledge, 85% of them feel that their information is not sufficient. In total, only 10% of those surveyed feel that their knowledge of CPR is adequate. The sources of their knowledge are seen in Table 1.
Table 1 - Sources of CPR knowledge among King Saud University students.

<table>
<thead>
<tr>
<th>Source</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Television</td>
<td>24</td>
</tr>
<tr>
<td>Movies</td>
<td>21</td>
</tr>
<tr>
<td>Books</td>
<td>16</td>
</tr>
<tr>
<td>University</td>
<td>14</td>
</tr>
<tr>
<td>School</td>
<td>9</td>
</tr>
<tr>
<td>Friends</td>
<td>7</td>
</tr>
<tr>
<td>Internet</td>
<td>4</td>
</tr>
<tr>
<td>Radio</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 2 - Students' knowledge regarding the expected survival rate when CPR is performed correctly

<table>
<thead>
<tr>
<th>Expected Survival Rate</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>One percent chance</td>
<td>5</td>
</tr>
<tr>
<td>Twenty-five percent chances</td>
<td>15</td>
</tr>
<tr>
<td>Seventy-five percent chances</td>
<td>55</td>
</tr>
<tr>
<td>Ninety percent chances</td>
<td>25</td>
</tr>
</tbody>
</table>

CPR - cardiopulmonary resuscitation

Discussion. Cardiopulmonary resuscitation is a crucial life-saving skill that should be taught to all members of the community. Fortunately, most of the students of King Saud University realize the importance of this skill. However, 85% still feel that their knowledge is inadequate. This is not that far from the 73% in New Zealand. This lack of knowledge resulted in the inability to perform CPR in about half of situations when it was required. In comparison, a US study showed that 9.1% of individuals did not perform CPR as they felt they would not be able to perform it correctly. This indicates the need to increase people's knowledge on the topic. Disturbingly, a significant percentage of individuals do not even know the number to call in case of a medical emergency. This indicates a shortcoming on the part of these individuals, or even by the responsible authorities. Twelve percent of those surveyed had previously been taught CPR, this falls short of the 74% of individuals in a New Zealand study. Furthermore, one third of CPR trainees did not know the correct ABC sequence indicating a problem that must be further evaluated.

One quarter of individuals are opposed to perform CPR on the opposite gender. Among the sources of CPR knowledge, television and movies were the most common. This is the reason behind why half of students recommend increasing media coverage to raise public awareness of CPR. Limitations of this study include the small sample size, and the fact that it was limited to one university. Larger sample sizes and inclusion of multiple universities both governmental as well as private would offer more information.

More studies are needed to evaluate CPR and first aid knowledge in the community. Further investigation is also needed to assess the strengths and weaknesses of CPR training programs, since one third of trainees did not know the sequence of ABC. By evaluating the respondent’s answers, many recommendations may be put forth to improve knowledge and attitudes towards CPR.
CPR among King Saud University students. The media may play a major role in this instance. Media outlets are the best way to reach this crucial demographic and emphasize the value of CPR, training center locations, as well as the duration of training. At the same time, they must not exaggerate the success rate of CPR as it was greatly over-estimated by the respondents. In addition, institutional involvement is a crucial element. Most students support CPR training as a university prerequisite for graduation. This is similar to the situation in New Zealand where 70% support CPR training a compulsory component of the driver’s license test.\(^8\) Another vital initiative would be the establishment of a CPR club in King Saud University that serves both the need of the students as well as the community. We look forward that these recommendations become a reality in the near future.

In conclusion, it was found that the overall attitude towards CPR was very positive. However, the knowledge on the topic was insufficient. Thus, more focus should be placed on the improvement of CPR skills. In addition, more studies are needed to assess knowledge and attitudes towards CPR in the community.

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References
Appendix I

المستوى:
الكلياً:
التخصص:

الجنس:

العنصر:

الذين يتقدمون إلى العلاج

الإنعاش القلبي الرئوي (Cardio-Pulmonary Resuscitation) هو أحد مهارات الإسعافات الأولية والذي يدعمها. إذن الله - في إقفا هذا عدد كبير من المسافرين. إن إجابتك لهذه الأسئلة بحرص ومصداقية يساهم بشكل كبير في نجاح هذه الدراسة.

1- هل لديك أي معلومات سابقة عن الإنعاش القلبي الرئوي (CPR)?
2- إذا كانت الإجابة نعم، حدد مصدر معلوماتك عن الإنعاش القلبي الرئوي؟
   □ برج إسعافات إمدادات الطوارئ □ قراءة (منشورات، كتب...إلخ)
   □ أفلام ومسلسلات □ من خلال الجامعة
   □ الإنترنت □ من خلال المدرسة
   □ معرفة وأصدقاء □ الراديو
   □ آخرين، حدث:

3- هل سبق وأن واجهت موقفًا يستدعى إجراء عملية الإنعاش لمدة شخص ما؟
   □ نعم □ لا
   □ ما هو السبب؟
   □ الركض □ عدم معرفة القيام بالإسعاف بشكل صحيح
   □ الخوف من المدى في الأمراض عن طريق الماء
   □ من فصل تكونه، حدث:

4- إذا كانت الإجابة نعم، هل قمت بإيقافه؟

5- هل تشعر بأن معلوماتك عن الإنعاش القلبي الرئوي كافية؟
6- في حالة طلب الإسعاف، هل تعرف الرقم الذي تتصل به؟ “النحل الأحمر”
   □ نعم، الرقم:
   □ لا
   □ الأخرى، حدث:

7- هل التحقت بدورات تدريبية عن الإنعاش القلبي الرئوي؟
   □ نعم □ لا
   □ إذا كانت الإجابة نعم، أي الدورة رقم؟

8- ما الذي يدفعك للالتحاق بدورات؟
   □ متطلبات عمل أو تخرج (إجباري)
   □ ولوج الفئة (اختياري)
   □ مرتبت بحاجة سابقة لعملك في عملية الإنعاش
   □ آخر، حدث:

9- منحة حصلت على هذه الدورة؟
   □ من حضور الدراسة □ مند 3 سنوات أو أكثر

10- متي حصلت على هذه الدورة؟
   □ منذ أقل من سنة □ فقط أربعة أفلام
   □ (فضلًا ألقب الصفحة)
11. كم تتوقع مدة الدورة التدريبية لمهارات الإنعاش القلبي الرئوي؟
- 10 دقائق
- 30 دقيقة
- شهرين
- أكثر

12. في حال تعرض شخص لسكتة قلبية، ماذا تفعل أولاً؟ "اختير واحدة فقط"
- تصل بالإسعاف
- تبدأ بإسعاف المصاب
- توجه بمساعد لرطب مستشفى
- لا تفعل شيئاً

13. كم يفترض الخطوات التقليدية (من 1 إلى 3) حسب ترتيبها الصحيح في عملية الإنعاش؟
- القيام بمساعد الأسردي
- الحفاظ على سلامتها الحرارية الهواء
- إنعاش القلب والانفوار الدموية

14. هل لديك الرغبة لتعلم مهارات الإنعاش القلبي الرئوي؟
- لا، ما سبب رفضك؟
- لا أرى أنه عديم الفائدة
- تدع ذلك للمختصين
- عدم وجود وقت كافي

15. ما هي فرصة إنقاذ مصاب في حال تم إنعاشه بشكل صحيح، بل ơn الله؟
- 1% □
- 25% □
- 50% □
- 75% □

16. إذا استمتعت الأمر، هل تمتع القيام بعملية الإنعاش لـ:
- لماذا؟ □
- أحب أقاربك؟ □
- أحب جماله؟ □
- أحب ناره؟ □
- أحب شيلك؟ □
- أحب رأسك؟ □
- أخرى؟ حدد: □

17. هل تؤيد أن تكون دورات التدريب لمهارات الإنعاش:
- إجبارية لجميع الطلاب (منطلب تخريج) □
- إجبارية لبعض التخصصات؟ □
- اختيارية؟ □
- لا أريد وجودها □

18. ما هي الوسيلة المثلى لزيادة وعي المجتمع بأهمية الإنعاش القلبي الرئوي؟ "اختير واحدة فقط"
- إعطاء الموضوع حظاً إعلاماً □
- زيادة الوعي عن الدورات الموجودة حالياً □
- وجود دورات مجانية □
- زيادة عدد الدورات □
- أخرى؟ حدد: □

KSU_CPR@hotmail.com
لاستفسار: شكراً لكم تداركم
Knowledge and Attitudes towards Cardiopulmonary Resuscitation among the Students of King Saud University

Age: ________________________    College: ________________________
Sex: ________________________    Major: ________________________
Nationality: ___________________    Level: ________________________

1) Do you have any information about cardiopulmonary resuscitation? (Yes / No)

2) (If yes) Indicate the source of your information about CPR:

- [ ] Reading (Pamphlets, Books, Etc)
- [ ] Movies or TV shows
- [ ] Television documentaries
- [ ] School
- [ ] University
- [ ] Internet
- [ ] Radio
- [ ] Relatives or friends
- [ ] Other: ________________________

3) Have you ever encountered a situation that required the use of CPR? (Yes / No)

4) (If yes) did you resuscitate the person? (Yes / No)

If No, why not:

- [ ] Nervousness
- [ ] No knowledge about CPR
- [ ] Fear of infection via mouth to mouth
- [ ] Other: ________________________

5) Do you feel that your knowledge of CPR is sufficient: (Yes / No)

6) Do you call the number in a medical emergency (Red Crescent)? [ ] Yes, Number:_______ [ ] No

7) Have you ever taken a CPR training course? (Yes / No)

*If the answer was no, proceed to question 11*

8) What encouraged you to take the course?

- [ ] Work or graduation requirement (Mandatory)
- [ ] Personal benefit (Optional)
- [ ] Previous experience proved the importance of CPR
- [ ] Other: ________________________

9) Where did you take the course? City:_____________ Location:_____________

10) When did you take the course?

- [ ] Less than 1 year ago
- [ ] 1-3 years ago
- [ ] More than 3 years ago

11) How long is the duration of a CPR training course?

- [ ] One day
- [ ] One week
- [ ] One month
- [ ] More
12) What do you do FIRST when you encounter a situation that requires CPR:

☐ Call for an ambulance
☐ Begin CPR
☐ Take the victim to the nearest hospital
☐ Nothing

13) Number the following steps of CPR in the correct sequence:

___Perform artificial breathing
___Maintain a patent airway
___Perform compressions

14) Do you want to learn CPR? (Yes / No)

If no, why not:

☐ You don't find it important
☐ Leave it to those specialized in CPR
☐ You don't have enough time
☐ Other: _______________________

15) What is the chance of saving a victim when CPR is performed correctly?

☐ 1%
☐ 25%
☐ 75%
☐ 90%

16) If the situation arises, would you abstain from performing CPR to:

☐ Relative

☐ Man

☐ Woman

☐ Child

☐ Other: __________

☐ I don't mind performing CPR to anyone.

17) Do you think CPR training courses should be:

☐ Mandatory for all students (graduation requirement)
☐ Mandatory for some majors
☐ Optional
☐ Don't support implementation of training courses

18) What is the BEST method-in your opinion- to increase public awareness of the importance of CPR?

☐ Increased publicity
☐ Inform people of the training courses currently available
☐ Free training courses
☐ Increase the number of courses
☐ Other: ________________________________________________