Knowledge of and willingness to perform Hands-Only cardiopulmonary resuscitation among college students in Malaysia

Sumitra Ropini Karuthan, MBBS\textsuperscript{a}, Putri Jasmine Filza binti Firdaus, MBBS\textsuperscript{a}, Aloha Dee-Afryna George Angampun, MBBS\textsuperscript{a}, Xuan Jia Chai, MBBS\textsuperscript{a}, Chris Dom Sagan, MBBS\textsuperscript{a}, Monishak Ramachandran, MBBS\textsuperscript{a}, Sharmmathevan Perumal, MBBS\textsuperscript{a}, Mahendra Karuthan, MD\textsuperscript{a}, Rishya Manikam, MEmMed\textsuperscript{b}, Karuthan Chinna, PhD\textsuperscript{c},\textsuperscript{*}

Abstract

Worldwide, millions of people die of sudden cardiac arrest every year. This is partly due to limited and sometimes ineffective bystander cardiopulmonary resuscitation (CPR). The need for mouth-to-mouth contact, fear of causing harm, litigation, and the complexity of delivering CPR are the main deterrents. In view of this, the basic life support algorithm has been simplified and lay rescuers are encouraged to perform Hands-Only CPR.

The objective of this study is to assess knowledge on and willingness to perform Hands-Only CPR among Malaysian college students and to determine the relationship between the two.

In an online self-administered survey, college students responded to a questionnaire on demographics, exposure to CPR, knowledge on Hands-Only CPR, and their willingness to perform Hands-Only CPR in 5 different scenarios (family members or relatives, strangers, trauma victims, children, and elderly people).

Data for 393 participants were analyzed. For knowledge, the mean score was 8.6 ± 3.2 and the median score was 9. In the sample, 27% of the respondents did not attend any CPR training before, citing that they were unsure where to attend the course. The knowledge score among those who attended CPR training (M = 3.6, S = 2.9) was significantly higher compared to those who did not (M = 6.7, S = 3.0). Out of the 393 participants, 67.7%, 55%, 37.4%, 45%, and 49.1% were willing to perform Hands-Only CPR on family members or relatives, strangers, trauma victims, children, and elderly people, respectively. There were significant associations (P < .001) between knowledge and willing to perform Hands-Only CPR on family members or relatives (OR = 1.32, 95% CI 1.43, 1.43), strangers (OR = 1.31, 95% CI 1.21, 1.42), trauma victims (OR = 1.21, 95% CI 1.12, 1.31), children (OR = 1.28, 95% CI 1.19, 1.39), and elderly people (OR = 1.36 95% CI 1.25, 1.48).

Based on this study, knowledge on Hands-Only CPR among local college students is not encouraging. Not many know where to attend such courses. There was significant association between knowledge and willingness to perform Hands-Only CPR.

Abbreviations: AHA = American Heart Association, BLS = basic life support, CPR = cardiopulmonary resuscitation, EMS = emergency medical service.

Keywords: Hands-Only CPR, knowledge, willingness
1. Introduction

Out-of-hospital cardiac arrest is a medical condition in which the heart stops functioning, which can be due to many factors such as heart disease, drowning, trauma, and drug overdose. Out-of-hospital cardiac arrest is a major public health concern with millions of people dying of sudden cardiac arrest every year, despite important advances in prevention. This worrying healthcare problem is often associated with poor survival rates of 7.6% and has not improved over a 30-year period.[11] Recent studies have shown that out-of-hospital cardiac arrest patients, when given chest compressions without ventilation (CPR) in a medical procedure involving repeated compression of a patient’s chest, performed in an attempt to restore the blood circulation and breathing of a person who has suffered cardiac arrest before the arrival of emergency medical service (EMS), were associated with a 30-day survival rate, that was more than double compared to patients with no CPR prior to EMS arrival.[12] Many adults in cardiac arrest can survive with intact neurologic function if the bystanders provide immediate CPR. However, it is only performed in less than 30% of cases.[13] As such, increasing public knowledge and understanding of the practical applications of CPR is an essential strategy to increase CPR success for cardiac arrest cases.

The incidence of out-of-hospital cardiac arrest is one of the leading causes of death and disability in many countries, including Malaysia. Based on a study by Nurulmal and Karim,[14] the survival rate of out-of-hospital cardiac arrest at Kuala Lumpur Medical Emergency Coordinator Centre in Malaysia was 22.5% of 213 cases, in 2011. This shows an alarmingly high prevalence of out-of-hospital cardiac arrest in Malaysia.

Numerous studies have shown that both the layperson and even healthcare providers provide reluctance to perform out-of-hospital CPR due to the need for mouth-to-mouth contact. This could be due to fear of harming the patient, fear of litigation, the complexity of rescue breaths, and the unwillingness to have physical contact.[1-7] Additionally, their reluctance could be due to their insufficient knowledge, skills, or confidence.[8] In 2010, the American Heart Association (AHA) published new guidelines for CPR and emergency cardiovascular care to emphasize the importance of chest compressions and early defibrillation.[9] Seeing as many responders may be unwilling to perform mouth-to-mouth resuscitation, the latest guidelines recommend that the sequence be changed from Airway-Breathing-Circulation (A-B-C) to circulation-Airway-Breathing (C-A-B), in which resuscitation begins with chest compressions before the lay responder opens the airway to give mouth-to-mouth breaths.[10] Consequently, the basic life support (BLS) algorithm was simplified to Hands-Only CPR (a method of CPR without mouth-to-mouth breaths. It is recommended for use by people who see a teen or adult suddenly collapse in an “out-of-hospital” setting) in order to encourage more bystanders to take appropriate steps during an event of a cardiac arrest.[11]

Despite being around for several years, awareness on Hands-Only CPR is still relatively low. Based on a recent study conducted in Australia in 2017, 68% of the respondents had undergone some form of CPR training and only half of those surveyed have heard of hands-only CPR. However, when compared to standard CPR, a larger percentage of respondents were willing to deliver hands-only CPR for strangers (67% vs 86%).[12]

Lately, there has been an influx of number of studies investigating CPR knowledge, attitude, skills and training of college and university students, and their participation in CPR or BLS in many countries.[13,14] The findings suggest that students were familiar with the importance of CPR training and regardless of their low level of knowledge, they were willing to participate.[14] It was concluded that the students’ willingness, knowledge, and self-efficacy improved after training.[15] Although not mandatory, several countries have implemented CPR training in school with some participants as young as 12 years of age.[16] Thus, promoting and providing CPR training to the youth is highly recommended.[17]

However, given the abovementioned literature, most of the data obtained on this topic were from studies conducted in countries other than Malaysia, with little information or investigations done in the local context. The present study was undertaken to identify current knowledge and willingness to perform Hands-Only CPR among Malaysian college students. The target population in this study was tertiary education students attending private and public colleges in Malaysia. The findings of this study would provide information for future planning and training.

2. Materials and methods

2.1. Study population

The population in this study was tertiary education students in Malaysia. In Malaysia, a student requires either A-levels and the equivalent or O-levels and the equivalent to enrol in a degree level and pre-university level programs. Presently, the estimated number of college students in Malaysia is 1,250,000.[18] For a population size as big as this, based on Krejcie and Morgan[19] sample-size table, the sample size targeted for this study was 400. In our capacity, it was not possible to do a random sampling. Data collection was done online using a questionnaire designed in Google Forms.

2.2. Instrument

The questions in the questionnaire were adapted from previous studies and modified to suit our local population. The content of the questionnaire was validated by an expert in the field of emergency medicine. There were 5 sections in the questionnaire:

1. A: Participant’s Information Sheet and Consent Form,
2. B: Demographics,
3. C: Exposure to CPR,
4. D: Knowledge of Hands-Only CPR and
5. E: Willingness to Perform Hands-Only CPR.

The participant’s information sheet contained the introduction and purpose of the study. Consent forms were provided to ensure participation was voluntary and to assure confidentiality of information provided (see Table, Supplemental Digital Content (Appendix, http://links.lww.com/MD/D512), which shows the questions asked in sections B, C, D, and E).

Demographic characteristics asked included age, gender, and ethnicity. Additional questions were asked on the respondents’ highest completed education level and their current institution. Also, respondents were asked whether they or their first-degree family members had any history of heart disease.

In the section on Exposure to CPR, the respondents were asked questions such as “Have you done CPR on another person before?” and “Have you attended CPR training before?”. Those who had attended CPR training sessions were asked to state where, when, and what type of course they have attended. Those who had not attended CPR training sessions were asked for the reason(s) for not attending one.

In the section on Knowledge on Hands-Only CPR, the respondents were tested on their knowledge in CPR. This section
included questions such as “Can Hands-Only CPR be performed outside a hospital setting?”, “Where is the right location to perform chest compression?,” and “What is the correct sequence to perform CPR? (according to AHA guidelines 2015).” In total, this section had 8 questions (1 question had 6 sub-questions within). For each question, a score of 1 was given for the correct answer, whereas the incorrect answer or “not sure” response was given a score of 0. The scores for the 13 questions were added and the total, ranging from 0 to 13, was considered as a measure of the knowledge score on Hands-Only CPR.

The section on “Willingness to Perform Hands-Only CPR” contained 5 different scenario-based questions. For example, “In an emergency situation, would you perform Hands-Only CPR on ‘X’?”, where “X” referred to a stranger, a victim of trauma (person who suffered from physical injury), a child, an elderly person, or a family member/relative. In each scenario, the respondents were given the option of answering “Yes” or a few options of “No” that included their reason for reluctance. Some examples were “No, because of poor knowledge/technique” or “No, because I am afraid of disease transmission.”

2.3. Data collection

A pilot study was conducted by distributing 30 hardcopies of the questionnaire to local college students. Based on the feedback from the pilot study, the questionnaire was revised and improved. After making necessary changes, a second pilot study was conducted online using Google Forms among 44 respondents. The finalized questionnaire in Google Forms was administered to college students in Malaysia via social media platforms. Social media platforms used were mainly Facebook, WhatsApp, and Instagram.

2.4. Statistical analysis

The data were analyzed using IBM SPSS (version 20.0, IBM Corp., New York, NY). Qualitative variables were described as frequencies and percentages, whereas quantitative variables were described as means and standard deviations. The independent sample t tests was used to determine the association between attendance of CPR training and knowledge on Hands-Only CPR. Logistic regression analyses were used to test the associations between knowledge on Hands-Only CPR and willingness to perform Hands-Only CPR. For all tests, the significance level (P value) was set at .05.

2.5. Ethical approval

This study was approved by University of Malaya Research Ethics.

3. Results

In this study, a total 445 responses were received. Out of this, 393 respondents met the inclusion criteria. The demographic characteristics of the respondents are summarized in the Table 1.

3.1. Exposure to CPR training

Out of the 393 respondents, 286 (73.0%) have attended CPR training, of which 249 (87.1%) have attended a CPR training within the last 5 years (Table 2). The most common (68.9%) type of CPR course attended was chest compression and mouth-to-mouth resuscitation. Among those who have not attended CPR training, 78 (72.9%) stated that they were not sure where to attend a CPR training. One third of the respondents indicated that they have performed some form of CPR before.

### Table 1

**Demographic characteristics of the respondents.**

| Variables                        | Frequency (n) | Percentage (%) |
|----------------------------------|---------------|----------------|
| Highest education certificate achieved |                |                |
|   SPM/O levels or the equivalent  | 353           | 89.8           |
|   A level/matrikulation/STPM/foundation | 40           | 10.2           |
| Age                              |               |                |
|   20 and below                    | 92            | 23.4           |
|   More than 20                    | 301           | 76.6           |
| Gender                           |               |                |
|   Male                            | 142           | 36.1           |
|   Female                          | 251           | 63.9           |
| Ethnicity                        |               |                |
|   Malay                           | 157           | 39.9           |
|   Chinese                         | 63            | 16.0           |
|   Indian                          | 81            | 20.6           |
|   Others                          | 92            | 23.4           |

| Variable                                      | Frequency (n) | Percentage (%) |
|-----------------------------------------------|---------------|----------------|
| Cost                                          |               |                |
| No                                            | 288           | 73.0           |
| Yes                                           | 107           | 27.0           |
| Most recent CPR training attended              |               |                |
| Within the last 5 yr                          | 249           | 87.1           |
| More than 5 yr ago                            | 37            | 12.9           |
| Type of CPR course you attended               |               |                |
| Chest compression and mouth-to-mouth          | 197           | 68.9           |
| Hands-Only CPR                                | 31            | 10.8           |
| Both                                          | 58            | 20.3           |
| Reason for not having attended CPR course      |               |                |
| Lack of interest                              | 40            | 37.4           |
| No time                                       | 15            | 14.0           |
| Not sure where to attend the course           | 78            | 72.9           |
| Cost                                          | 14            | 13.1           |

CPR course attendance: A respondent was considered to have attended CPR course if they attended any form of CPR course. The highest education certificate achieved included questions such as “Can Hands-Only CPR be performed outside a hospital setting?”, “Where is the right location to perform chest compression?,” and “What is the correct sequence to perform CPR? (according to AHA guidelines 2015).” In total, this section had 8 questions (1 question had 6 sub-questions within). For each question, a score of 1 was given for the correct answer, whereas the incorrect answer or “not sure” response was given a score of 0. The scores for the 13 questions were added and the total, ranging from 0 to 13, was considered as a measure of the knowledge score on Hands-Only CPR.

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### Table 2

**History of CPR training.**

| Question                              | Frequency (n) | Percentage (%) |
|---------------------------------------|---------------|----------------|
| CPR course attendance                 |               |                |
| No                                    | 107           | 27.0           |
| Yes                                   | 288           | 73.0           |
| Most recent CPR training attended     |               |                |
| Within the last 5 yr                  | 249           | 87.1           |
| More than 5 yr ago                    | 37            | 12.9           |
| Type of CPR course you attended       |               |                |
| Chest compression and mouth-to-mouth  | 197           | 68.9           |
| Hands-Only CPR                        | 31            | 10.8           |
| Both                                  | 58            | 20.3           |
| Reason for not having attended CPR course |           |                |
| Lack of interest                      | 40            | 37.4           |
| No time                               | 15            | 14.0           |
| Not sure where to attend the course   | 78            | 72.9           |
| Cost                                  | 14            | 13.1           |

CPR = cardiopulmonary resuscitation.
significant difference in mean knowledge scores by the type of CPR training attended. The mean knowledge score among the students pursuing health-related courses (9.1 ± 2.5) was significantly higher compared to those pursuing non-health-related courses (6.5 ± 3.0).

### Table 3

**Assessment of knowledge on Hands-Only CPR.**

| Question (bold: correct answer) | Frequency (n) | Percentage (%) |
|----------------------------------|---------------|----------------|
| Can Hands-Only CPR be performed outside a hospital setting? | | |
| Yes | 315 | 80.2 |
| No | 17 | 4.3 |
| Not sure | 61 | 15.5 |
| Can bystander Hands-Only CPR be performed without mouth-to-mouth resuscitation? | | |
| Yes | 228 | 58.0 |
| No | 38 | 9.7 |
| Not sure | 127 | 32.3 |
| Can a person perform Hands-Only CPR without certification? | | |
| Yes | 208 | 52.9 |
| No | 58 | 14.8 |
| Not sure | 127 | 32.3 |
| What is the correct sequence to perform CPR? (according to American Heart Association guidelines 2015) | | |
| Circulation > Airway > Breathing | 104 | 26.5 |
| Airway > Breathing > Circulation | 233 | 59.3 |
| Not sure | 56 | 14.2 |
| When should one perform Hands-Only CPR? (scored from 0 to 6 based on correct answers – refer to appendix) | | |
| 0 | 51 | 13 |
| 1 | 2 | 0.5 |
| 2 | - | - |
| 3 | 11 | 2.8 |
| 4 | 131 | 33.3 |
| 5 | 124 | 31.6 |
| 6 | 74 | 18.8 |
| Where is the right location (refer to appendix) to perform chest compression? | | |
| A | 277 | 70.5 |
| B | 3 | 0.8 |
| C | 72 | 18.3 |
| D | 22 | 5.6 |
| How fast should one perform chest compression? | | |
| 150 compressions per min | 26 | 6.6 |
| 100 compressions per min | 181 | 46.1 |
| 50 compressions per min | 47 | 12.0 |
| As fast as possible | 15 | 3.8 |
| Not sure | 124 | 31.6 |
| What is the correct depth of compression that should be performed during chest compression? | | |
| Such that the rib cage moves down 1 to 2 cm | 89 | 22.6 |
| Such that the rib cage moves down 5 to 6 cm | 169 | 43.0 |
| Such that the rib cage moves down 6 to 10 cm | 2 | 0.5 |
| As deep as possible | 8 | 2.0 |
| Not sure | 125 | 31.8 |

**CPR** = cardiopulmonary resuscitation.

### Table 4

**Knowledge of Hands-Only CPR by history of CPR training.**

| Question | Mean, S | P value |
|----------|---------|---------|
| CPR course attendance | | |
| No | 8.6±2.8 | <.001 |
| Yes | 6.1±2.9 | |
| Most recent CPR training attended | | |
| Within the last 5 yr | 8.8±2.7 | <.001 |
| More than 5 yr ago | 6.9±2.8 | |
| Type of CPR course you attended | | |
| Chest compression and mouth-to-mouth | 8.4±3.0 | .214 |
| Hands-Only CPR | 8.5±2.3 | |
| Both | 9.2±2.5 | |

**CPR** = cardiopulmonary resuscitation.

### 3.3. Willingness to perform Hands-Only CPR

In this study, the respondents were asked on their willingness to perform Hands-Only CPR in 5 different scenarios: strangers, victims of trauma, children, elderly people, and family members or relatives. Majority (67.7%) of the respondents were willing to perform CPR on their family members or relatives (Table 5). More than half (55%) were willing to save a child by doing Hands-Only CPR, and 49.1% were willing to perform it on an elderly person. Only 37.4% were willing to perform Hands-Only CPR on a trauma victim. Poor knowledge on techniques was cited as the main reason for unwillingness to perform Hands-Only CPR in all 5 scenarios. Willingness to perform Hands-Only CPR did not differ between the male and female college students in all 5 scenarios.
Hands-Only CPR in all 5 scenarios was significantly higher among the students pursuing health-related courses compared to those who pursued non-health-related courses.

3.4. Knowledge on Hands-Only CPR and willingness to perform Hands-Only CPR

The association between knowledge on Hands-Only CPR and willingness to perform Hands-Only CPR in the 5 different scenarios was tested using binary logistic regression analyses (Table 6). There were statistically significant associations between knowledge on Hands-Only CPR and willingness to perform Hands-Only CPR on all 5 scenarios. The higher was the knowledge on Hands-Only CPR, the higher was the odds of willingness to perform Hands-Only CPR in each scenario. Similarly, respondents who have had CPR training were more willing to perform Hands-Only CPR in all 5 scenarios (Table 7).

4. Discussion

This study was conducted among college students in Malaysia to determine their knowledge on Hands-Only CPR and their willingness to perform Hands-Only CPR. In terms of fundamental knowledge, it was found that only 70% of the respondents

**Table 5**

| No. | Factors                                                                 | Frequency (n) | Percentage (%) |
|-----|-------------------------------------------------------------------------|---------------|----------------|
| 1.  | In an emergency situation, would you perform Hands-Only CPR on a stranger? |               |                |
|     | Yes                                                                     | 216           | 55.0           |
|     | No, because of poor knowledge/technique                                 | 140           | 35.6           |
|     | No, because I am afraid of hurting the victim                           | 19            | 4.8            |
|     | No, because I am afraid of disease transmission                         | 12            | 3.1            |
|     | No, because I am afraid of legal issues                                 | 5             | 1.3            |
|     | No, because of social/religious reasons                                 | 1             | 0.3            |
| 2.  | In an emergency situation, would you perform Hands-Only CPR on a victim of trauma? |               |                |
|     | Yes                                                                     | 147           | 37.4           |
|     | No, because of poor knowledge/technique                                 | 159           | 40.5           |
|     | No, because I am afraid of hurting the victim                           | 63            | 16.0           |
|     | No, because I am afraid of disease transmission                         | 19            | 4.8            |
|     | No, because I am afraid of legal issues                                 | 4             | 1.0            |
|     | No, because of social/religious reasons                                 | 1             | 0.3            |
| 3.  | In an emergency situation, would you perform Hands-Only CPR on a child? |               |                |
|     | Yes                                                                     | 177           | 45.0           |
|     | No, because of poor knowledge/technique                                 | 164           | 41.7           |
|     | No, because I am afraid of hurting the victim                           | 37            | 9.4            |
|     | No, because I am afraid of disease transmission                         | 15            | 3.8            |
|     | No, because I am afraid of legal issues                                 | 0             | 0              |
|     | No, because of social/religious reasons                                 | 0             | 0              |
| 4.  | In an emergency situation, would you perform Hands-Only CPR on an elderly person? |               |                |
|     | Yes                                                                     | 193           | 49.1           |
|     | No, because of poor knowledge/technique                                 | 149           | 37.9           |
|     | No, because I am afraid of hurting the victim                           | 38            | 9.7            |
|     | No, because I am afraid of disease transmission                         | 9             | 2.3            |
|     | No, because I am afraid of legal issues                                 | 1             | 0.3            |
|     | No, because of social/religious reasons                                 | 3             | 0.8            |
| 5.  | In an emergency situation, would you perform Hands-Only CPR on a relative/family member? |               |                |
|     | Yes                                                                     | 266           | 67.7           |
|     | No, because of poor knowledge/technique                                 | 107           | 27.2           |
|     | No, because I am afraid of hurting the victim                           | 11            | 2.9            |
|     | No, because I am afraid of disease transmission                         | 5             | 1.3            |
|     | No, because I am afraid of legal issues                                 | 4             | 1.0            |
|     | No, because of social/religious reasons                                 | 0             | 0              |

**Table 6**

| Scenario | OR (95% CI) | P value |
|----------|-------------|---------|
| 1. Stranger | 1.325 (1.222, 1.436) | <.001 |
| 2. Trauma victim | 1.235 (1.138, 1.339) | <.001 |
| 3. Child | 1.309 (1.204, 1.422) | <.001 |
| 4. Elderly person | 1.391 (1.273, 1.520) | <.001 |
| 5. Family | 1.355 (1.248, 1.471) | <.001 |

**Table 7**

| Scenario | OR (95% CI) | P value |
|----------|-------------|---------|
| 1. Stranger | 7.579 (4.491, 12.792) | <.001 |
| 2. Trauma victim | 4.063 (2.326, 7.095) | <.001 |
| 3. Child | 5.717 (3.306, 9.888) | <.001 |
| 4. Elderly person | 8.471 (4.788, 14.985) | <.001 |
| 5. Family | 5.938 (3.668, 9.611) | <.001 |

CPR = cardiopulmonary resuscitation, OR = odds ratio.
knew the correct emergency number in Malaysia. The national emergency number had been standardized since the year 2007, whereby Malaysians only need to call the number 999 if there were casualties or medical emergencies. Before this, the EMS in Malaysia did not have a universal access number, resulting in the lack of interagencies communication and at times, overlapping of resources with more resources available at the site of incident than was actually needed. However, there was previous literature that stated that the effectiveness of the new system is yet to be seen. The results of our study in terms of the medical emergency number differ from a research undertaken in Queensland, Australia, where 88.3% of those surveyed knew the emergency telephone number.

In the past decades, the AHA updated the guidelines of CPR and emergency cardiovascular care every 5 years based on scientific evidence and experts’ opinions. The AHA guidelines are the most commonly used teaching materials for CPR training worldwide. The findings in this study showed that college students in Malaysia had an inadequate knowledge on Hands-Only CPR. A similar study conducted among college students in Hong Kong also showed poor knowledge on Hands-Only CPR. Like in Hong Kong, most of the Malaysian college students were unaware of the changes in the AHA 2010 guidelines. In the guideline, the CPR sequence was updated to C-A-B from A-B-C. This is because C-A-B is superior to A-B-C with an earlier start of CPR and a shorter time to completion of the first 30:2 resuscitation cycle. Most respondents (59.3%) in our study answered that the order of CPR is A-B-C and only 26.5% of the respondents answered C-A-B.

Majority (80.2%) of the respondents in this study agreed that CPR can be performed outside hospital. A similar study conducted among nursing students in India showed that only 67% knew that CPR can be performed outside hospital. The difference in result can be due to multiple factors that include previous CPR training, exposure, and media. Among the respondents in this study, only 58% were aware of Hands-Only CPR. This level of awareness is comparable to a recent study conducted among adults in Victoria, Australia, where only 50% were aware of Hands-Only CPR. The awareness of Hands-Only CPR is still low and more awareness efforts must be taken.

Only 70.5% of the respondents in this study answered the location of chest compression correctly. However, this level of awareness was much better compared to a study conducted in Tamil Nadu, India, on awareness of BLS among students, doctors, and nurses of medical, dental, homeopathy, and nursing colleges where 74% did not know that the right location of chest compression was the mid chest. This shows that the awareness of BLS is very poor even among students pursuing health-related courses and practicing doctors. Studies have shown that people with previous CPR training were more willing to perform Hands-Only CPR. Bobrow et al. showed that the rate of bystander CPR (CPR that is performed by a layperson who is not part of the organized emergency-response system in a community) increased from 19.6% in 2005 to 75.9% after a large public education campaign in Hands-Only CPR. Another prospective trial by Bobrow et al. among 336 adults without prior CPR training found that layperson exposed to an ultra-brief Hands-Only CPR training video of only 60 seconds were more likely to attempt CPR and demonstrated superior CPR skills than untrained laypersons. This study showed that those who had CPR training in the last 5 years were more willing to perform Hands-Only CPR, similar to the findings by Hung et al.

One of the main limitations of this study was that it was confined to college students only. Ideally, it should be opened to the general population to determine the understanding on Hands-Only CPR among the general public. Another limitation is that, as in all questionnaire surveys, how honestly the respondents answered the questions cannot be determined.

In conclusion, knowledge on CPR among local college students is low. Higher knowledge is associated with previous training and those with better knowledge are more willing to perform Hands-Only CPR. Therefore, our recommendation based on this study is that more training should be provided to college students so that in case of emergency, they will be ready to perform what is necessary.

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Author contributions

Conceptualization: Sumitra Ropini Karuthan, Karuthan Chinna, Putri Jasmine Filza binti Firdaus, Chris Dom Sagan, Aloha Dee-Afryna George, Sharmmathevan Perumal, Monishak Ramachandran, Xuan Jia Chai, Rishya Manikam.

Data curation: Sumitra Ropini Karuthan, Putri Jasmine Filza binti Firdaus, Chris Dom Sagan, Aloha Dee-Afryna George, Sharmmathevan Perumal, Monishak Ramachandran, Xuan Jia Chai.

Formal analysis: Karuthan Chinna.

Methodology: Karuthan Chinna, Rishya Manikam.

Supervision: Rishya Manikam.

Writing – original draft: Sumitra Ropini Karuthan, Putri Jasmine Filza binti Firdaus, Chris Dom Sagan, Aloha Dee-Afryna George, Sharmmathevan Perumal, Monishak Ramachandran, Xuan Jia Chai.

Writing – review and editing: Karuthan Chinna, Rishya Manikam.

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