



**Basic Life Support knowledge and Willingness to Learn Among the UAE  
General Population: A Cross-Sectional Study**

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**Abstract**

**Context:** Cardiac arrest is a major cause of mortality worldwide. Recognizing cardiac arrest cases early on and providing basic life support is a crucial factor affecting the victims' survival.

**Objective:** This study aims to evaluate the knowledge of basic life support and the willingness to learn it among the United Arab Emirates general population.

**Method and Design:** A cross-sectional study was conducted through a self-designed questionnaire distributed in public places around the United Arab Emirates. Basic life support knowledge was tested through 10 multiple-choice questions. The questions included knowledge regarding clearing airways, practical aspects of cardiopulmonary resuscitation and using an Automated External Defibrillator. Questions were scored out of 10. Scores above five were considered as having adequate knowledge, while scores of 5 and below were considered as having inadequate knowledge. Two questions were added to test the willingness to learn basic life support. Data was analysed using Statistical Package for the Social Sciences. The correlations between scores and several factors (such as location of residence, age, occupation, educational level, marital status, and having children) were tested using the Chi Square Test.

**Results:** Out of 396 participants, (18%) had adequate knowledge (score >5). Furthermore, several factors were significantly associated with scores above 5 ( $p < 0.05$ ) including having a medical-related occupation, having children, and previous participation in a basic life support course. (87%) were ready to join basic life support courses if presented with an opportunity. Willingness to learn basic life support was significantly higher in female gender as well as single marital status ( $p < 0.05$ ).

**Conclusion:** The results showed that most of the general population in the United Arab Emirates have a poor level of knowledge of basic life support. However, a large percentage of the population is ready to learn. This indicates that the United Arab Emirates population is in dire need of basic life support educational programs and awareness campaigns for better outcomes.

**Keywords:** basic life support, cardiac arrest, Automated External Defibrillator, cardiopulmonary resuscitation, cardiac arrest.

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## Abbreviations

AED Automated External Defibrillator

AHA American Heart Association

BLS Basic Life Support

CPR Cardiopulmonary resuscitation

SPSS Statistical Package for the Social Sciences

UAE United Arab Emirates

## Introduction

Basic Life Support (BLS) refers to the immediate management provided to victims of life-threatening illnesses and injuries, usually by any bystander before professional medical intervention is provided.

(1) The likelihood of survival from sudden cardiac arrest is dependent on early activation of emergency medical services, initiation of cardiopulmonary resuscitation (CPR) by a lay rescuer and the use of publicly accessed automated external defibrillator defibrillators (AED). (2)

The main elements in BLS training includes early recognition of cardiac arrests, heart attacks, and foreign body airway obstructions, immediate provision of CPR, along with the use of AED which can significantly reduce morbidity and mortality. (2) (3)

Public awareness is a matter of great importance in many countries around the world, particularly topics related to life-saving knowledge and skills. (4) The prevalence of BLS training was found to be (42.02%) globally and (18.39%) in the Middle east. (5) In the United Arab Emirates (UAE), CPR is performed on merely half of the witnessed cardiac arrest cases (6), indicating a low prevalence of BLS knowledge. (7) As a result, the aim of this study was to assess BLS knowledge and willingness to learn among the UAE population.

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Studies done in the UAE have revealed that only 10% of the public knew how to practice CPR to manage unconscious patients (14) and as low as (1%) survival rates from cardiac arrests. (7) Evidence suggests that survival rates are proportional to the rates of bystander initiated CPR, which are connected to the percentage of the population who are BLS trained. (5) However only (39.2%) of adults receive CPR by bystanders according to the American Heart Association (AHA) Guidelines. (2) Improving the accessibility of Basic life-saving programs and resuscitation care to the general public can remarkably increase survival and recovery from cardiac arrests.

While there is an increasing number of research on the prevalence of BLS in the UAE and Gulf countries, there are few published reports assessing the general population's willingness to learn BLS. Therefore, the aim of this study was to assess the level of BLS knowledge among the UAE residents and to quantify the level of participation in BLS courses in addition to the willingness to learn about it (7)(8).

## **Methods and Material**

A descriptive cross-sectional study was carried out among the general population of the UAE from January 2019 to May 2019, to assess their knowledge and attitude towards BLS. The study was carried out by distributing physical surveys in public malls, parks, and beaches accessible to the general population around the UAE.

### **Study population**

The main target population included adult UAE residents available at the time and place of data collection.

### **Inclusion and exclusion criteria**

Inclusion criteria involved English or Arabic speaking UAE residents above the age of 18 years. Participants that did not match the criteria were excluded

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### **Sample size and sampling technique**

Using the following formula  $n = \frac{(Z)^2 p(1-p)}{(E)^2}$ , assuming a 5% sampling error (E), prevalence of 40% (p), and (Z) as a standard value of 1.96 based on confidence level at 95%, our sample size was calculated to be 370. The sample population was chosen through a convenience sampling method.

### **Data collection**

The study questionnaire was adopted from a similar study conducted in Jeddah (2), which adhered to the latest guidelines of AHA and Emergency Cardiovascular Care. It was initially written in the English language, and then translated into the Arabic language by an independent translator. The self-administered multiple-choice questionnaire consisted of three sections.

The first section focused on socio-demographic information, including age, gender, marital status, number of children, education level, occupation, and Emirate of residence.

The second section included the participants' previous experiences, attitude towards BLS and their willingness to learn. The third section was aiming to test participants' knowledge regarding BLS skill so they were asked on when and how to perform CPR, the location and rate for giving chest compressions, the number of rescue breaths administration, and the operating steps of an AED. Questions were scored out of 10, participants who scored above 5 were considered to have adequate knowledge 'see appendix for the Questionnaire'.

### **Ethical consideration**

The research was conducted after obtaining an ethical approval from the University of Sharjah Research Ethics Committee. The aim of the questionnaire was explained to all participants, alongside ensuring privacy, and obtaining a written consent. All responses were anonymous and were securely stored with the research investigators.

## Data processing and analysis

After data collection, the data was entered manually to an Excel Sheet, then exported to SPSS version 26. Participants with missing data were excluded from the data analysis. A descriptive analysis was done to find the frequency, mean, and percentages of the variables including age, gender, marital status, number of children, education level, occupation, and Emirate of residence. A Chi Square Test was used to test how different variables were correlated with level of knowledge and readiness to learn. A statistical significance was set to be a P-value < 0.05 with a confidence interval of (95%).

## Results

In our study, we engaged 396 participants from various public spaces, including shopping malls, and instructed them to complete our questionnaire. The age groups were approximately equal in size, with the vast majority of our participants (34.1%) belonged to the 18-24 age group. Most of the participants were male (51.3%), (51%) were married and the majority of them did not have children (58%). Most of our participants (42.42%) owned a post-grad degree and (88.1%) worked outside the medical field. Table 1 further explains these percentages in detail.

<b>Demographics</b>	<b>Total n (%)</b>
<b>Age Groups</b>	
18 – 24 years	135 (34.1%)
25 – 34 years	126 (31.8%)
35 years and above	134 (33.8%)
<b>Gender</b>	
Male	203 (51.3%)
Female	192 (48.5%)
<b>Marital Status</b>	
Married	202 (51%)
Unmarried	194 (49%)
<b>Children</b>	
No children	229 (58%)

Have children	166 (42%)
<b>Education Level</b>	
Postgraduate	168 (42.42%)
Undergraduate	137 (34.6%)
High school	87 (21.97%)
<b>Residence</b>	
Abu Dhabi	108 (27.3%)
Dubai	101 (25.5%)
Sharjah	160 (40.4%)
Others	25 (6.3%)
<b>Occupation</b>	
Non-Medical	342 (88.1%)
Medical	46 (11.9%)

**Table 1.** Demographic Details of The Participants.

### Understanding Participant Perspectives Towards BLS

Most of the participants had not personally witnessed a sudden cardiac arrest or death (77.3%), among those who had, the occurrences were predominantly observed within their families. While the majority of the largest cohort had not directly witnessed cardiac arrests, a significant percentage (64.1%) demonstrated familiarity with the BLS term. Only (39%) of the participants had taken a BLS class before, and the major reason for attending the course was noted to be due to mandatory requirements (63.5%), while the main reason for not attending the BLS course was due to lack of awareness regarding available training programs in their vicinity. Most of the participants (42.75%) stated that their readiness in emergency services is poor to fair. However, (87.2%) of participants expressed a keen willingness to acquire BLS skills if afforded the opportunity and (63.6%) of them expressed a willingness to pay an amount below 100 dirhams. Table 2 explores the current knowledge and the willingness of participants in joining a BLS course.

<b>Participants' experiences</b>	<b>Total n (%)</b>
<b>Loved one experienced heart attack?</b>	
Yes	142 (36.1%)
No	251 (63.9%)
<b>Witnessed sudden death or heart attack?</b>	
Yes	89 (22.6%)
No	304 (77.4%)
<b>Heard about BLS before</b>	
Yes	253 (64.05%)
No	142 (35.95%)
<b>Sources of BLS knowledge</b>	
Social media	71 (29.58%)
School/university	91 (37.92%)
Others (including: family members)	78 (32.5%)
<b>Attending BLS course before</b>	
Yes	99 (38.98%)
No	155 (61.02%)
<b>Reasons for joining the course</b>	
Mandatory	61 (63.54%)
Interested	38 (39.58%)
Get certificate	11 (11.46%)
<b>Reasons for not joining the course</b>	
Not knowing of course existence	84 (57.5%)
Lack of free time	44 (30.1%)
Lack of interest	18 (12.3%)
<b>Would you participate in a BLS course if offered the opportunity?</b>	
Yes	136 (87.18%)
No	20 (12.82%)
<b>How much money are you willing to pay for a BLS course?</b>	
Below 100 Dhs	140 (63.64%)
More than 100 Dhs	80 (36.36%)
<b>Readiness to act in life threatening situation</b>	
Poor and fair	168 (42.75%)
Good	137 (34.86%)
Very good and excellent	88 (22.39%)

**Table 2.** Participant Perspectives' Towards BLS.



### Analysis of Participants Responses to the BLS Knowledge Assessment Questionnaire

Participants were queried about their response to witnessing a collapsed individual, the distribution of answers varied. Notably, the most prevalent response, chosen by (44.94%) of participants, was to call an ambulance while (15.4%) prioritized checking the safety of the scene as their initial action. When evaluating breathing, (57.8%) of participants would observe the chest and (43%) would listen over the nose and mouth for the breathing sounds. Approximately (45%) of participants expressed their intention to perform the head tilt and chin lift maneuver to open the airways. We questioned our participants with two scenarios, each offering similar choices. In the first scenario, involving a collapsed man with both preserved breathing and a present pulse, (41.6%) planned to place the individual in the recovery position. In the second scenario, where the person was breathing but lacked a pulse, (45.4%) would initiate chest compressions and (54.7%) correctly identified the optimal compression site to be in the center. Notably, only (19.4%) and (18.18%) would perform chest compressions at a rate of 100 to 120 compressions per minute and give 2 breaths per cycle, respectively. However, approximately (49%) of participants were uncertain about the correct rate or the appropriate number of breaths to administer and they marked both questions as “I don’t know”. Significantly, (74.24%) of our participants lacked awareness regarding Automated External Defibrillators (AED). Among those who were aware, only (7.82%) correctly identified the proper sequence for utilizing an AED: powering on the AED, attaching electrode pads, analyzing the rhythm, clearing the individual, and delivering a shock if indicated. Overall, our analysis showed that only (17.9%) of the participants had an acceptable level of knowledge of BLS, while (82.1% ± 3.77%) of the UAE population lacked adequate knowledge of BLS.

BLS Skill	Percentage
<b>Initial response in encountering collapsed patient</b>	
Begin by Chest compressions	3.78%
Conduct mouth to mouth ventilation	1.76%
Conduct chest compressions and mouth ventilation	5.8%
Scene Safety (Right decision)	15.4%
Call ambulance	44.9%
Ask someone to call for help	12.8%
Call for help by phone	7%
Just watch	0.5%
Other, including: Check blood pulse Put in recovery position Try to get them to consciousness	1.76%

No answer	6%
<b>Where to look when assessing a person's breathing?</b>	
Chest	57.8%
Eyes	9.84%
Nose	12.37%
I don't know	15.9%
No answer	4%
<b>When assessing a person's breathing, where and what do you listen for?</b>	
Mouth and nose for breath sounds	42.92%
Chest for heartbeat	26.6%
Chest for breathing sounds	15.4%
I don't know	11.6%
No answer	3.78%
<b>What action would you use to open the person's airway?</b>	
Head tilt chin right	5.5%
Head tilt chin down	9.34%
Head tilt chin lift	45.45%
I don't know	37.12%
No answer	2.5%
<b>Scenario 1: If the person IS BREATHING and has PULSE what would you do?</b>	
Rescue breath	8.3%
Recovery position	41.6%
Chest compression	15.4%
I don't know	32%
No answer	3%
<b>Scenario 2: If the person IS NOT BREATHING and has NO PULSE what would you do?</b>	
Rescue breath	15.15%
Recovery position	6.3%
Chest compression	45.45%
I don't know	29.29%
No answer	3.78%
<b>Site of chest compressions</b>	
Right side of chest	4.29%
Left side of chest	15.9%
Center of the chest	54.7%
I don't know	22.2%
No answer	2.78%
<b>Rate of chest compressions</b>	
50 - 70 per minute	27.5%

100 - 120 per minute	19.4%
200 - 250 per minute	1.26%
I don't know	48.7%
No answer	3%
<b>Number of breaths per cycle</b>	
1	7.5%
2	18.18%
3	21.9%
I don't know	49.7%
No answer	2.52%
<b>Are you aware of what AED is?</b>	
Yes	22.7%
No	74.24%
No answer	3%
<b>Proper steps of operating AED machine</b>	
Power on the AED, attach electrode pads, shock the individual if indicated, and analyze the rhythm	2.52%
Power on the AED, attach electrode pads, analyze the rhythm, clear the individual, and deliver shock if indicated	7.82%
Attach electrode pads, check pulse, shock individual if indicated, and analyze rhythm	0.75%
Check pulse, attach electrode pads, analyze rhythm, shock patient if indicated	4%
I don't know	6.8%
Not applicable	74.2%
No answer	3.78%

**Table 3.** Participants' Response to BLS Skills Questions

### Exploring Factors Affecting Level of Knowledge

Factors affecting the knowledge of BLS in the UAE population were tested using the Chi Square test. Having children was found to have a statistically significant relationship with knowledge of BLS ( $p$ -value  $< 0.019$ ), with only (12.7%) of participants with children passing the test compared to (21.8%) of those without children. Additionally, a significant relationship was measured between medical occupation and attending BLS course previously and higher knowledge of BLS ( $p < 0.000$ ). Educational level was associated with borderline significance with higher knowledge score ( $p$ -value = 0.502). The study found no significant relationship between age ( $p$ -value = 0.295), gender ( $p$ -value = 0.898), marital

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status (p-value = 0.103), Emirate of residence (p-value=0.328), witnessing heart attack (p-value = 0.788) or loved one had heart attack (p-value = 0.858) and level of knowledge of BLS.

### **Exploring Factors Affecting Willingness to Learn**

Factors affecting the willingness to learn BLS were tested using the Chi Square test and Fisher's exact test. Single individuals and females exhibit a higher likelihood of willingness to learn BLS compared to males and married counterparts (p-value = 0.016) and (p-value = 0.039), respectively. Age, educational level and having children were associated with borderline significance (p-value = 0.055), (p-value = 0.057) and (p-value = 0.051), respectively, with eagerness to learn BLS. The study found no significant relationship between Emirate of residence (p-value= 0.575), occupation (p-value = 0.310), witnessing heart attack (p-value = 0.785) or loved one had heart attack (p-value = 0.595) and willingness to learn BLS.

### **Discussion**

Between 2016 and 2020, (3.6%) of Denmark's adult population only enrolled in certified BLS courses (9). Other studies also reported a low percentage of their sampled population who received CPR training previously with a range between (3.6%) to (25%) maximally (10) (11) (12) while developed countries like the United States and Poland showed a higher percentage of participation reaching (75%) to (83%) (13) (14) (15). Our study yielded an unexpected high percentage as (39%) of our participants reported prior enrollment in a BLS course. This notable percentage may be attributed to the focus of our question, which specifically targeted individuals with prior awareness of BLS, excluding those unfamiliar with the concept, who constituted (36%) of our sampled population. Additionally, it could be possibly explained by the increased availability of BLS courses leading to this high percentage. Despite the percentage, a substantial portion of participants, constituting (42.7%), perceived their readiness to act in life threatening situations as either poor or fair while only (22.4%) expressed very good or excellent readiness. We explored the motivations of our participants behind their enrollment in a BLS course, their primary drive was the mandatory requirement, with (63.5%) reporting this as their reason for participation. Subsequently, (39.6%) expressed interest in the course, and (11.5%) aimed to obtain certification. In contrast, among non-enrollees and why they had not join a BLS course before, a

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predominant barrier was their unawareness regarding CPR programs in their nearby community (57.5%), time limitations accounted for (30.1%) of responses and only a minority reported lack of interest in joining such courses (12.3%), an approximate percentages reported in a similar study (12).

Positively, a promising (87.2%) of our participants showed interest and readiness in being involved in future BLS courses if offered an opportunity, a percentage exceeding that of comparable studies in China, Indonesia and Saudi Arabia (16) (17) (18).

Notably, (63.6%) were ready to pay below 100 dirhams, indicating a general preference for cost-effective courses. This underscores the significance of considering cost as a motivating factor for participation, as only (36.4%) were willing to pay higher amounts.

Despite the high percentage of people who enrolled in BLS course previously, only 71 out of 396 participants (17.9%) showed an acceptable level of knowledge and had passed the test, by scoring 6 or more points out of 10 in the BLS knowledge section, which is lower than the percentage reported in similar studies from different countries (19) (20) (21). Importantly, this percentage does not necessarily imply previous course participation or expertise. (38%) of participants obtained their information via schools or colleges, (30%) received it from social media whereas (32.5%) mentioned their friends and families as a knowledge source similar to the sources reported in a Jordanian study (22). This emphasizes the need of understanding the various influences on participants' awareness.

By examining the significant associations between passing the test and different variables, we found that individuals with children exhibited a surprisingly lower level of BLS knowledge in our sample, possibly attributed to the less availability of free time among those with childcare responsibilities. Participants with a medical occupation demonstrated a higher level of BLS knowledge, a finding consistent with the inherent requirements of their profession, including mandatory courses and active involvement in clinical settings. Surprisingly, there have been conflicting findings regarding BLS knowledge among individuals in the medical field. Various studies have reported suboptimal levels of proficiency in BLS skills across healthcare personnel, with some indicating poor knowledge in this critical area (23) (24).

Furthermore, participants who had taken previous courses displayed a notable higher level of BLS knowledge compared to those who had not been, in alignment with similar studies (25) (26). This

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inference aligns with the logical expectation that individuals with prior BLS courses would have received comprehensive training in BLS, underscoring the significance and beneficial effectiveness of BLS courses. Shifting the focus to the willingness to learn, females demonstrated a higher inclination to learn BLS than males, and similarly, single individuals expressed greater willingness to acquire BLS knowledge compared to their married counterparts. This discrepancy could be attributed to the increased time constraints and additional commitments typically associated with married life, suggesting a potential influence on the willingness to engage in BLS learning.

The relationship between gender and age and BLS knowledge in our current study was insignificant despite being found significantly related in other studies (27). Marital status, too, failed to demonstrate any significant relationship with BLS knowledge similar to (28) as well as the Emirate of residence. Likewise, having a loved one who experienced a heart attack or witnessing a sudden death or heart attack were both unrelated to the participants' BLS knowledge. When it comes to the relationship between educational level and BLS knowledge, the p-value was close to being significant hence increasing sample size in future studies might show a clear significance.

Our study is not without limitations. While our sample size aligns with that of similar research in neighboring countries, it's important to note that increasing the sample size could improve the accuracy and generalizability of our results. Some of our findings showed borderline significance, suggesting that a larger sample might yield statistically significant outcomes. Additionally, the female percentage in our study exceeded the statistical representation in the UAE. This imbalance should be considered when interpreting gender-related results. The majority of our participants were from Sharjah, a factor attributed to the convenience of our sampling. While this approach facilitated practical data collection, it may impact the broader applicability of our findings to other regions within the UAE. Another consideration is that our study was conducted in 2019/2020, hence the data, though relevant, is considered relatively old, unfortunately, the publication of our data was delayed due to disruptions caused by the COVID-19 pandemic. Recognizing these limitations is crucial for a comprehensive understanding of our study's scope and potential implications.

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## Conclusion and Future Research Directions

The UAE population lacks adequate knowledge about BLS, but demonstrates a high level of interest in taking BLS courses. Greater levels of adequate knowledge are observed in individuals who have attended BLS courses, indicating the effectiveness of these courses in narrowing the knowledge gap. This underscores the significance of enhancing BLS course participation within the general population. To enhance participation levels, we recommend ensuring that courses are financially feasible, easy to locate, and simple to register for. Moreover, introducing mandatory courses across a diverse range of occupations, extending beyond the medical field and targeting professions with direct access to populations can foster higher participation rates and ensuring that essential life-saving skills reach a broader segment of the community.

Future research is still needed regarding BLS in the UAE, and studies with larger populations can provide more accurate results. Although associated with higher rates of adequate knowledge, less than half of prior BLS course participants demonstrated adequate knowledge. Future efforts should focus on uncovering the factors affecting this gap in knowledge. Potential factors include the time elapsed since the last course, and the quality of training. Lastly, we recommend looking into the willingness of school-aged children in the UAE to learn BLS, as high-school students have been shown to perform correct CPR with appropriate training (29).

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## Appendix

### 1. *To which age group do you belong?*

- 1) *18-24 Years*
- 2) *25-34 Years*
- 3) *35-44 Years*
- 4) *45 and Above*

### 2. *What is your gender?*

- 1) *Male*
- 2) *Female*

### 3. *What is your marital status?*

- 1) *Single*
  - 2) *Married*
  - 3) *Divorced*
  - 4) *Other, please specify:*
- 

### 4. *Do you have children?*

- 1) *Yes, number: \_\_\_\_\_*
- 2) *No*

### 5. *What is your highest completed educational level?*

- 1) *High School*
- 2) *Undergraduate*
- 3) *Postgraduate*
- 4) *Other, please specify: \_\_\_\_\_*

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**6. What is your emirate of residence?**

- 1) Abu Dhabi
- 2) Dubai
- 3) Sharjah
- 4) Ajman
- 5) Ras Al-Khaimah
- 6) Um Al Quwain
- 7) Al Fujairah

**7. What is your occupation?**

- 1) Medical Field
- 2) Non-medical field, please specify: \_\_\_\_\_

**8. Did one of your loved ones, friends, or relatives experience a sudden heart attack before?**

- 1) Yes
- 2) No

**9. Have you ever witnessed a sudden death or heart attack?**

- 1) Yes
- 2) No (move to Q11)

**10. Who was the person that you witnessed the sudden death or attack on? (you can choose more than one option)**

- 1) Family Member
- 2) Friend
- 3) Stranger

**11. Have you heard about Basic life support (BLS) or cardiopulmonary resuscitation (CPR) before?**

- 1) Yes
  - 2) No (move to Q18)
-

**12. How did you hear about Basic life support (BLS) or cardiopulmonary resuscitation (CPR)?**

- 1) Family member
- 2) Friends
- 3) Social media
- 4) From school/University
- 5) Other, please specify: \_\_\_\_\_

**13. Have you had CPR or BLS course before?**

- 1) Yes, specify number of sessions attended: \_\_\_\_\_
- 2) No (Move to Q15)

**14. Why did you join a BLS or CPR course? (you can choose more than one option)**

**(Answer then move to Q17)**

- 1) It was mandatory to take
- 2) I was interested to take it
- 3) I wanted the certificate
- 4) Other reasons, specify:  
\_\_\_\_\_

**15. What is the reason for not having attended CPR training?**

- 1) I have no interest in CPR/BLS
- 2) There are no CPR training programs in my area
- 3) I don't know CPR training programs in my area
- 4) I do not have time to attend training sessions
- 5) Other, please specify:  
\_\_\_\_\_

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**16. If you had the chance, would you like to participate in a Basic life support (BLS) course or cardiopulmonary resuscitation (CPR) training program?**

- 1) *Yes*
- 2) *No (move to Q18)*

**17. How much money are you willing to pay to participate in a basic life support (BLS) course?**

- 1) *None*
- 2) *Below 100 DHS*
- 3) *100 - 499 DHS*
- 4) *500 - 1000 DHS*
- 5) *Above 1000 DHS*

**18. How would you describe your readiness to act in a life-threatening situation?**

- 1) *Poor*
- 2) *Fair*
- 3) *Good*
- 4) *Very good*
- 5) *Excellent*

**19. If you witness a collapsed patient, what will you do first?**

- 1) *I will begin to give chest compressions*
  - 2) *I will conduct mouth to mouth ventilation*
  - 3) *I will do both chest compressions and mouth ventilation*
  - 4) *Check scene safety*
  - 5) *I will call the ambulance*
  - 6) *I will ask somebody to call for help*
  - 7) *I will call for help by phone*
  - 8) *I will just watch*
  - 9) *Other, please specify:*
-

**20. When assessing a person's breathing, what do you look at?**

- 1) *Their chest*
- 2) *Their eyes*
- 3) *Their nose*
- 4) *I don't know*

**21. When assessing a person's breathing, where and what do you listen for?**

- 1) *Listen over the mouth/nose for breath sounds*
- 2) *Listen over the chest for breath sounds*
- 3) *Listen over the chest for a heartbeat*
- 4) *I don't know*

**22. What action would you use to open the person's airway?**

- 1) *Head tilt and chin lift*
- 2) *Head tilt and chin down*
- 3) *Head tilt and chin right*
- 4) *I don't know*

**23. If the person IS BREATHING and has PULSE what would you do?**

Put in recovery position (2)



I don't know (4)

Give rescue breath (1)



Start chest compressions (3)



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**24. If the person IS NOT BREATHING and has NO PULSE what would you do?**

- 1) Give rescue breaths
- 2) Put in recovery position
- 3) Start chest compressions
- 4) I don't know

**25. Where in the chest would you press if you were giving chest compressions?**

- 1) Centre of chest
- 2) Right side of chest
- 3) Left side of chest
- 4) I don't know

**26. At what rate would you give chest compressions?**

- 1) 50 – 70 per minute
- 2) 100 -120 per minute
- 3) 200 - 250 per minute
- 4) I don't know

**27. How many breaths would you give per cycle of resuscitation (CPR)?**

- 1) 1
- 2) 2
- 3) 3
- 4) I don't know

**28. Do you know what is an automated external defibrillator (AED) is?**

- 1) Yes
- 2) No (skip Q29)



**29. What is the proper steps for operating an AED (Automated external defibrillator) are:**

- 1) *Power on the AED, attach electrode pads, shock the individual if indicated, and analyze the rhythm*
- 2) *Power on the AED, attach electrode pads, analyze the rhythm, clear the individual, and deliver shock if indicated*
- 3) *Attach electrode pads, check pulse, shock individual if indicated, and analyze rhythm*
- 4) *Check pulse, attach electrode pads, analyze rhythm, shock patient if indicated*
- 5) *I don't know*

