Original article:

The effect of “Mosque Lifesaver Training” on lay persons’ knowledge and willingness to perform basic life support in Indonesia

Ahmad Jamaluddin,^{1,2} Sheli Azalea,^{1,3,4} Rizki Andita Noviar,^{1,7} Dian Eka Putra Suwanto,¹
Nyityasmono Tri Nugroho,^{1,5,6}

Abstract:

Background: Cardiac arrest mostly happens in out hospital setting. Bystander CPR improves survival after out-of-hospital cardiac arrest. In 2018 BSMI Jakarta Raya started the Mosque lifesaver training as basic life support training for laypersons’ in Indonesia, optimizing mosques as the center of community activities. The aim of this study is to evaluate the effect of “mosque lifesaver training” for the laypersons’ knowledge and willingness to perform basic life support. **Methods:** There are 247 people from twelve mosques that participated in this research. The participants were given fifteen multiple-choice pre-posttest questioners in basic life support knowledge, one full day two-direction training, one-by-one practicing in small group for adult and pediatric CPR (Cardio-Pulmonary Resuscitation), and CPR skill test. Data was collected and statistically analyzed with SPSS 24 Software by IBM. **Results and discussion:** From 247 participants, 32 were excluded due to lack of data. For rest of 215 participants, 32.1% was housewife, mean value of age was 39.1 ± 0.9 SD years, educational background was bachelor in 44.7% participants. Mean value of pre-test and post-test were 28.70 ± 16.8 SD and 55.73 ± 19.30 SD, respectively. The post-test result has significant correlation of profession ($p=0.003$), but no significant correlation of age ($p=0.08$) and educational background (0.51). Marginal homogeneity test for pre and post test data brought $p<0.001$ significance. Before the training, only 57.2% participants had willingness to perform cardiopulmonary resuscitation. After the training, 91.2% participants have willingness to perform cardiopulmonary resuscitation if witness sudden cardiac arrest of unknown people. **Conclusion:** Participants who enrolled the training were predominantly by housewife, productive age with bachelor educational background. Mosque lifesaver training show significant improvement in laypersons’ knowledge and willingness to perform basic life support.

Keywords: basic life support, layperson, mosque, training, Indonesia

International Journal of Human and Health Sciences Vol. 05 No. 02 April'21 Page : 202-206
DOI: <http://dx.doi.org/10.31344/ijhhs.v5i2.260>

Background

Cardiac arrest mostly happens in out hospital setting. For out-of-hospital cardiac arrest victims, the key determinants of survival are the timely performance of bystander cardiopulmonary resuscitation (CPR) and defibrillation for those

in ventricular fibrillation or pulseless ventricular tachycardia. Only a minority of cardiac arrest victims receive potentially lifesaving bystander CPR, thus indicating room for improvement from a systems and educational point of view¹. Without immediate initiation of CPR, most

1. BSMI-Jakarta Raya, Jakarta, Indonesia;
2. Faculty of Health Sciences, Muhammadiyah University of Prof. Hamka, Jakarta, Indonesia;
3. Public Health Center Subdistrict Pasar Rebo, Jakarta, Indonesia;
4. Kesdaam Jaya Hospital;
5. Vascular and Endovascular Surgery Division CiptoMangunkusumo National Hospital-Faculty of Medicine Universitas Indonesia, Jakarta, Indonesia;
6. Clinic for Vascular and Endovascular Surgery-University Hospital of Muenster, Germany;
7. National Brain Center Hospital, Jakarta, Indonesia

Correspondence to: E-mail : yasmonn@gmail.com

victims of cardiac arrest will die. Bystander CPR can significantly improve survival rates from cardiac arrest, but evidence indicates that only 15% to 30% of victims of out-hospital arrest receive CPR before Emergency Medical System (EMS) arrival.^{2,3}

Commonly cited reasons for reluctance to perform lifesaving maneuvers include concern for injuring the victim,^{4,6} fear of performing CPR incorrectly,^{5,7-10} physical limitations, fear of liability,¹¹ fear of infection,⁹ or victim characteristics.¹²⁻¹⁵ Opportunities exist to overcome many of these barriers through education and encouragement to perform when the bystander is faced with a victim in cardiac arrest.¹

Defining the optimal means of delivering resuscitation education to address these critical determinants of survival may help to improve outcomes from cardiac arrest. Although the factors influencing willingness to perform CPR are myriad, many obstacles can be overcome with education. Although the precise number of trained volunteers needed to optimize the chance that a specific victim will receive CPR is not known, it is reasonable to assume that maximizing the number of people trained in a community and providing instructions and encouragement at the time an event occurs will improve the odds that a bystander will engage in resuscitation efforts.¹ Individuals with CPR training are more likely to deliver the lifesaving intervention to cardiac arrest victims. Furthermore, those with training perform higher quality CPR to victims of cardiac arrest and increase survival rates.²

Indonesia has the largest Muslim population in the world. In Islam, A Mosque or masjid is not only a place to worship God, but also the center of community. To maximize the number of people with CPR training in a community, in 2018 BSMI Jakarta Raya started the Mosque lifesaver training as basic life support training for laypersons' in Indonesia. The aim of this study is to evaluate the effect of "mosque lifesaver training" for the laypersons' knowledge and willingness to perform basic life support.

Methods

BSMI Jakarta Raya collaborated with mosque

organizer conducted one day Mosque Lifesaver Training for the participants of twelve mosques in Indonesia. The training consisted of two sections which were lecture section and practical section. The training was one day and two directions training. The lecture and practical section basically taught about the CPR (Cardiopulmonary Resuscitation) for adult and pediatric. For the practical section, every participant in small group tried to practice the CPR technique based on the checklist. The trainer was a doctor who has passed from training for trainer which was conducted by BSMI. The training curriculum was based on the '2015 AHA Guidelines of Basic Life Support' in every training, there were pre-test and post-test for lecture section and skill-test for practical section. The pre-test and post-test for lecture section were consisted of fifteen same multiple-choice questions. The skill test for practical section was examined based on the checklist for each skill. At the end of the training, there were participants who were pass and failed based on the score in post-test and skill test. Cross-sectional survey was conducted based on the pre-test, post-test, and questionnaire for every participant. Demographic data which collected before the training was provided. The training participants were chosen by local mosque organizer. The total participants were 247 laypersons.

Statistical Analysis

The data was statistically analyzed using SPSS 24 Software by IBM. Marginal homogeneity, person chi square, and Fisher, and McNemar test was used for data analysis. Statistics are called significant if the *p* value is less than 0.05.

Results

As amount of 247 participants during 2018 were trained and unfortunately 32 of them could not be evaluated due to lack of data and for the rest of 215 participants could be figured in Table 1. Most of participants were in productive age. Participants were from several professions and education backgrounds. The table shows there were participants who only graduated from elementary. Almost all participants had never trained about Basic Life Support (BLS) before (97.7%)

Table 1. Demographic characteristics of mosque lifesaver training

Characteristics	n total = 215 n (%), M $\pm$ SD
Age	39.1 $\pm$ 0.9
Profession	
Housewife	69 (32.1)
Employee	37 (17.2)
Students	42 (19.5)
Entrepreneur	23 (10.7)
Teacher	35 (16.3)
Mosque Employee	3 (1.4)
Retired	6 (2.8)
Education	
Elementary	2 (0.9)
Junior High School	12 (5.6)
Senior High School	71 (33)
Diploma	24 (11.2)
Bachelor	96 (44.7)
Master	10 (4.7)
Previous BLS Training	
Yes	5 (2.3)
No	210 (97.7)

The laypersons' knowledge before and after mosque lifesaver training was assessed by pre-test and post-test. Level of knowledge divided by the test score into 3 categories which are low (0-50), moderate (51-80), and high (81-100). The relationship of mosque lifesaver training on laypersons' knowledge shows in Table 3. Most of the participants knowledge before the training was low (89.9%) and no participants had high knowledge level before the training. The number of participants who had high knowledge level increased to 15 participants (7%) after the training. Marginal Homogeneity test showed the relationship of the knowledge level and mosque lifesaver training ($p < .000$).

Table 2. Effect of mosque lifesaver training on laypersons' knowledge

		Post-training knowledge			Total	p
		High	Moderate	Low		
Pre-training knowledge	High	0	0	0	0	<.000
	Moderate	4	16	2	22	
	Low	11	107	75	193	
Total		15	123	77	215	

Effect of demographic analysis on pre- and post-training knowledge shows in Table 3. There are no effect of demographic characteristics (age, profession, education, and previous BLS training) on pre-training knowledge ($p > 0.05$). Meanwhile, profession background has effect on post-training knowledge ($p = 0.003$). Although, the others demographic characteristics (age, education, and

previous BLS training) have no effect on post-training knowledge.

Table 3. Relationship of demographic characteristic and laypersons' knowledge before and after training

Characteristics	p	
	Before training	After Training
Age	0.22	0.08
Profession	0.65	0.003
Education	0.87	0.51
Previous BLS Training	0.42	0.163

The willingness to perform basic life support assessed by questionnaire. The relationship of the training on willingness to perform basic life support shows on Table 4. Before training, there were 92 participants who didn't want to perform basic life support. After training, the number lowered to 19 participants who didn't want to perform basic life support. Mc Nemar test shows the relationship of the training and willingness to perform basic life support ($p < .000$).

Table 4. Effect of Mosque Lifesaver Training on laypersons' willingness to perform basic life support

		Willingness to Perform BLS after training		Total	p
		Yes	No		
Willingness to perform BLS before training	Yes	117	6	123	<.000
	No	79	13	92	
		196	19	215	

Most of the reasons why participants didn't want to perform BLS before training was lack of knowledge (Table 5). Some of them was panic, worry about infection, lack of confidence, worry to be sued and blamed, and didn't want to perform BLS to another gender. After the training, most of the participants reason was the fear of contagious infection. Some of the reasons were lack of confidence, fear to be blamed if the victim getting worse, and the body posture.

Table 5. Reasons the laypersons' refuse to perform BLS before and after training

Reasons	n (%)	
	Before training	After Training
Panic	10	0
Gender difference	2	0
Lack of knowledge	53	0
Risk of contagious infection	15	8
Lack of confidence	1	6
Fear to be blamed	11	2
Posture	0	1

Discussion and Conclusion

Demographic characteristics show despite having various educational experience, previous training and age, single-day basic life support training has significant impact in improving knowledge in lay rescuers in Indonesia. Therefore, this single-day basic life support training method provides an opportunity to be developed as a standard teaching method to be applied in Indonesia.

Identifying and exploring learners' barriers to helping can be useful to instill confidence and develop helping strategies to use in the future.¹⁶

Most of the reasons why participants didn't want to perform BLS before training was lack of knowledge. Some of them was panic, worry about infection, lack of confidence, worry to be sued and blamed, and didn't want to perform BLS to another gender. Because panic can significantly impair a bystander's ability to perform in an emergency, it may be reasonable for CPR training to address the possibility of panic and encourage learners to consider how they will overcome it.¹

After the training, most of the participants reason was the fear of contagious infection. Some of the reasons were lack of confidence, fear to be blamed if the victim getting worse, and the body posture.

Fear of harming the victim or fear of personal harm (i.e. infection or injury) may reduce willingness to undertake basic life support training or to perform CPR. However, infection resulting from CPR performance is extremely rare and limited to a few case reports. Despite the low risk of infections, it is reasonable to teach rescuers about the use of barrier devices emphasizing that CPR

should not be delayed for their use. Rescuers who are not willing to perform mouth-to-mouth ventilations may be willing to perform Hands-Only (chest compression-only) CPR. Educating the public about the low risks to the rescuer and victim may increase willingness to perform CPR.¹ The number of participants who didn't want to perform basic life support decreases significantly after the training. Actual bystanders and surveys of the general public report that people more recently trained in CPR techniques expressed greater willingness to attempt resuscitation than those without recent training.¹⁷ Organized community programs that prepare the lay public to provide bystander CPR and early defibrillation offer the best opportunity for successful resuscitation in the initial minutes after OHCA and represent the community link in the OHCA Chain of Survival.¹⁸ CPR training as organized community programs (e.g. in mosques) is important to increase knowledge to perform CPR, thus increase the survival of cardiac arrest victims.

Acknowledgement:

The authors would like to thank the participants of the Mosque Lifesaver Training and the trainer who give contribution of this study.

Conflict of Interest

All authors confirmed that there is no conflict of interest for this publication.

Author's Contribution

Idea owner of this study: AJ

Study design: NN, SA

Data gathering: RN, DS

Writing and submitting manuscript: NN, RN, SA

Editing and approval of final draft: AJ, NN

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