Child Health Friendly School’ Capacity Building: Basic Live Support Training for Teachers

Ferika Indarwati1*, Romdzati1 Nazwa Nur Ashyfa1, Dewi Caesaria Fitriani2
1 Program Studi Ilmu Keperawatan, Fakultas Kedokteran dan Ilmu Kesehatan, Universitas Muhammadiyah Yogyakarta
2 Sekolah Tinggi Ilmu Kesehatan YKY

Abstract. Most of the children spend a lot of their time at school. Therefore, school is an important place for program implementation or strategies that can be used to improve a child's health and well-being. Nevertheless, most teachers who worked at schools in the Wonogiri district including in Madrasah Ibtidaiyah Muhammadiyah Tawangharjo do not have sufficient knowledge and skills related to child health. For example, knowledge related to basic life support for emergencies at school is also still limited. Therefore, this community service aims to improve teacher capacity and awareness of children's health and well-being. The basic life support training was held online through Zoom meetings twice: in February and May 2023. Ten teachers from MIM Tawangharjo joined the training. All participants were very enthusiastic to follow the training. The pre-test showed that teachers' knowledge score on basic life support was still very limited, with an average score of 3.5 out of 10 total scores. After training, teachers' knowledge improved significantly. It was shown by the improvement of teachers' knowledge scores on the post-test with an average score of 9 out of 10 total score. There was almost a 70% increase in teachers' knowledge related to basic life support for children after training. The head of the school and teachers welcomed this community service activity and they hope that this training and collaboration can regularly be done to improve teachers and the school's capacity to be a child-health-friendly school.

Keyword: Capacity Children Health School

1 Introduction

Madrasah Ibtidaiyah (MI) Muhammadiyah Ngrakung is located in Tawangharjo, Giriwoyo, Ngrakung Kulon, Tawangharjo, Wonogiri, Wonogiri Regency, Central Java 57675. Wonogiri Regency, with an area of 1,822.36 km2, is geographically located at a latitude of 7° 32' to 8° 15' and longitude of 110° 41' to 111° 18' with the following boundaries: To the north: it is bordered by Sukoharjo Regency and Karanganyar Regency. To the east: it is bordered by Karanganyar Regency and Ponorogo Regency (East Java). To the south: it is bordered by Pacitan Regency (East Java) and the Indonesian Ocean. To the west: it is bordered by the Special Region of Yogyakarta and Klaten Regency. Wonogiri Regency with an area of 1,822.3602 km2 is inhabited by a population of 1,095,829 people, consisting of 548,500 men and 547,329 women. This population is spread over 25 sub-districts, namely Pracimantoro District, Giritonto District, Giriwoyo District, Baturwano District, Tirtomoyo District, Nguntoronadi District, Baturetno District, Eromoko District, Wuryantoro District, Manyaran District, Selogiri District, Wonogiri District, Ngadirojo District, Sidoharjo District, Jatiroto, Kismantoro District, Purwantoro District, Bulukerto District, Slogohimo District, Jatisrono District, Jatipurno District, Girimarto District, Karangtengah District, Paranggupito District, and Puhpelem District (BPS, 2019).

* Corresponding author: ferika.indarwati@umy.ac.id
In the Giritontro sub-district, based on the characteristics of the population, school students occupy a fairly large proportion. From 2019 BPS data, the number of school-age students in the Giritontro sub-district is 14.68% of the total population living in the Giritontro sub-district. School-age children are in a very active phase. Various efforts have been made in the development of school-age children's health, including efforts to increase and improve children's health status, health service efforts, health facilities and health resources. The results of comprehensive health development activities in Wonogiri Regency during 2019 are illustrated in the 2019 Wonogiri Regency Health Profile. In general, it can be concluded that until this year various improvements in children's health status have been achieved as a result of health development efforts, in line with improvements in general conditions, improving the social and economic conditions of the Wonogiri people. This can be seen from the decrease in the Infant Mortality Rate, the Under-five Mortality Rate, the stunting rate and the decrease in the number of sufferers of diarrhoea, acute respiratory tract infections and other infectious diseases that often occur in children (Burhaein, 2017; BPPK, 2013).

School is a platform used by the Muhammadiyah organisation to improve the well-being of the Muslim community in Indonesia. School is not only used for academic purposes but also to ensure all students are healthy and can achieve their optimal growth, development and wellbeing. Madrasah Ibtidaiyah Muhammadiyah Tawangharjo is one example of a school that was built by the Muhammadiyah organisation in Wonogiri District. Child education and health is a prominent issue in Wonogiri that still needs attention from the Government (BPS, 2019).

Recently, an international initiative named Kids Save Lives has been launched, which promotes the inclusion of basic life support (BLS) training in the primary education curriculum, providing a rationale in 6 key points (Ecker, Schroeder, Bottiger, 2015; Kamcheva-Panova & Mihaïlova, 2019). Briefly, BLS education in the general population should not depend exclusively on voluntary training; it is known that school children can learn BLS; and the goal of establishing a sense of responsibility from an early age makes the school environment the ideal setting for teaching first aid (FA) (Fariduddina & Siau, 2021). The implementation of the Kids Save Lives statement, supported by the World Health Organisation, would contribute to considering FA and BLS, traditionally considered to belong in the scope of health care professionals, a general object of learning, such as riding a bike (Jae-Woo, 2016; Li et al., 2020). The inclusion of these contents in the primary school curriculum raises several questions, such as the age at which schoolchildren can start learning about BLS and who should be delivering training on the subject (Evely & Winarti, 2019).

In recent years, evidence has emerged that training in FA could start as early as the early childhood education stage (Arli & Yildirim, 2017). Positive outcomes of learning have been reported in children in the second cycle of pre-school education (kindergarten/preschool: ages 3–6 years) in remembering emergency phone numbers, assessing consciousness and breathing, placing the victim in the lateral recovery position, giving correct information to emergency calls and the use of the automated external defibrillator (AED) (Adib-Hajbaghery & Kamrava, 2019). In the case of cardiopulmonary resuscitation (RCP), it has been demonstrated that children aged 9 years can learn it and that 12-14 years old children achieve a quality of resuscitation (chest compressions) comparable to adults, in association with their physical growth (Lontoh & Killing, 2013; Nginarung, Mulyadi & Malara, 2017). Although historically it was assumed that FA and BLS should be taught by health professionals, recent studies have evinced that school teachers (with adequate training) may be the collective that is best suited to do it (Alkhutani et al., 2019; Bakalarski, 2020). In addition, teachers of young children should also have a significant role in this endeavour in different ways: on one hand, the numerous accidents that occur at school could be immediately managed by teachers if they were properly trained; and on the other, there is evidence that training of relatives can be a source
and a booster of BLS learning in children (Annas, 2016; Kurniawan et al., 2017; Mpotos et al., 2013).

Teacher knowledge related to child health is very important. Elementary school (SD) is a place to gain knowledge for children aged 6-12 years. At school age, children are involved in complex social and motor behaviours. Therefore, children are very active in various activities both inside and outside the classroom. From the results of interviews with the principal and teachers of MI Muhammadiyah Tawangharjo, there are several health problems experienced by school students. The first is related to clean and healthy living habits that still need to be improved such as washing hands, cutting nails and bathing. The second problem is the lack of visits by the Puskesmas to MIM so that access to knowledge or information on the health of teachers and students is minimal. Apart from that, teachers at MIM Tawangharjo are also still confused about first aid in the event of a health emergency for children while they are at school. Teachers also complained about the absence of health nurses in schools and the lack of UKS facilities at schools. The activity of children can cause accidents that require fast and correct handling. From the results of previous research related to basic life support for elementary school teachers, it was found that from the respondents studied only 32% of teachers had received basic life support training (Alhejaili et al., 2020). Counselling and training on basic life support is an important effort to improve the knowledge and skills of the general public in providing prehospital assistance (Erawati, 2015). Based on the background above, the authors are interested in doing community service in the form of counselling and basic life support training for teachers at MI Muhammadiyah Tawangharjo, Giritontro, and Wonogiri.

2 Methodology

The method used in implementing this community service program refers to the health education model for large groups (Budiman & Riyanto, 2013)). This method is usually carried out beforehand by examining health problems and preparing health education program plans using lectures or without followed by questions and answers, seminars, workshops, and so on. To strengthen this method, it is also necessary to assist with tools such as using a slide projector, film, sound system, and so on (Carsel, 2018). In this community service, the process of providing health education is carried out through several stages, as explained in the following presentation:

1) Assessment of health issues in MIM Tawangharjo

The study of health problems at MIM Tawangharjo was carried out using three methods, namely literature review, interviews, and observation (Carsel, 2018). The literature review included dissemination of literature related to health problems in school children in Wonogiri Regency, especially in Tawangharjo.

Emergency events are conditions where the victim experiences respiratory and/or cardiac arrest. Emergency events that require immediate help can occur anytime, anywhere, and affect anyone, including school students at MIM Tawangharjo. Emergency events that do not get immediate help can cause disability and even death. In the past year, the head of MIM revealed that there was a child who experienced shortness of breath and had difficulty breathing when in class because he had asthma. This makes the teacher panic because they don't know what to do. In addition, there were incidents of children having seizures during exams and it seemed that they were not breathing, the teachers panicked because they did not know how to make sure the child was still breathing or not and were afraid that the child would not be helped. In an emergency, death can occur, but the risk of death can be reduced by providing appropriate prehospital Basic Life Support (BHD) to children (Ojifinni, Motara, Laher, 2019). Basic Life Support (BLS) is a medical assistance given to patients who experience respiratory problems, cardiac arrest or airway obstruction. Basic life support is an
action taken to free the airway, assist breathing and maintain blood circulation without using tools. The knowledge and skills needed to perform basic life support in children are assessing blood circulation by checking the pulse, assessing and providing respiratory assistance, performing chest compressions, and clearing the airway (American Heart Association, 2015). From the results of research on the level of knowledge of MIM Tawangharjo teachers regarding the knowledge of life support outcomes in children, it was found that only about 10% knew about cardiac compression techniques and providing breathing assistance.

Based on the results of the literature review, observations and interviews, the service team agreed to plan a program that focuses on improving the ability of fathers and mothers to carry out basic life support for children.

2) Plan of Action

The preparation of this activity involved partners and representatives of MIM Tawangharjo teachers and parents of students so that the activities would be by the objectives and outcomes to be achieved by the school.

In general, the method used the provision practical and easy training to teachers using the online meeting platform: Zoom meetings would be broadcast live on YouTube so that teachers could replay broadcasts on YouTube if necessary to make it easier to remember and practice. The provision of training was carried out in 2 meetings which were held on Saturday where the teachers were more relaxed in class learning. The methods used in the training include lectures, discussions and demonstrations. During the training, pre-tests and post-tests were carried out and interspersed with quizzes with prizes or door prizes for participants who actively took quizzes or answered questions. Detailed planning for the implementation of activities was discussed with teachers to facilitate needs and bring benefits to teachers.

3) Training/Activity Process

Community service activities (pengmas) in the form of basic life support training for MIM Tawangharjo teachers were made into 2 material delivery sessions. The community service was carried out through an online Zoom meeting on Friday 24 February and 6 May 2023 attended by 10 participants, namely MIM Tawangharjo teachers. This activity was carried out online using the Zoom meeting facility. Online meeting is also considered an effective media for learning for teachers (Thaerkhani et al., 2020). The committee waited for the training participants to enter the Zoom meeting room within 30 minutes. While waiting for the participants to enter, the committee played a profile video of Universitas Muhammadiyah Yogyakarta. The training activities began at 13.00 WIB, with an opening led by the Master of Ceremony (MC). Before the material delivery activity, the MC distributed the registration and pre-test links to the participants. The pre-test filling time by the participants was approximately 10 minutes. The process of training activities was led by a moderator with each speaker session 30 minutes, with discussion at the end of all sessions. Submission of material using PowerPoint and video media. During the presentation, the speaker explained how to use PowerPoint and continued live practice with the participants. The delivery of the material took place well and calmly, the participants listened to the material presented and obeyed the rules by maintaining conduciveness during the delivery. After the presentation of the material, a discussion session was opened on the three topics that had been presented, the participants were quite enthusiastic in asking questions. A total of six participants submitted questions related to the topic of discussion. Participants who asked questions got door prizes from the organizing committee. After the discussion session, the MC distributed the post-test link to the participants.

3 Results and Discussion

Results and discussion of the community service training: BLS for MIM Tawangharjo teachers were presented as follows:
1) Results

Community service BLS training was carried out on Friday 24 February 2023 at 13.00 - 15.00 WIB using a Zoom meeting. As many as 10 MI Muhammadiyah Tawangharjo teachers took part in the activity. The MIM Tawangharjo principal gave a speech at the start of the event which was then followed by the presentation of material by resource persons from UMY: Ms. Ferika Indarwati and Ms. Romdzati. The event began with the recitation of the Qur'an by UMY nursing students and then continued with the participants taking the pre-test. From the results of the pre-test, it was found that the knowledge of the father/mother of the MIM Tawangharjo teacher about basic life support for infants/children was still lacking, as evidenced by the average pre-test score of 3.5 out of a total score of 10 (See Figure 1).

![Figure 1. Participants Pre-test Score](image)

After being given information and training through this community service seminar, the knowledge of the teachers regarding basic life support increased and this was proven by the results of the post-test where the participants' average score was 9 out of a total score of 10 (See Figure 2).

![Figure 2. Participants Post-test Score](image)

Participants were very enthusiastic about participating in this training activity (as shown in Figures 3 & 4), and participants actively participated in the question and answer session.
with the speakers. One participant was even willing to re-demonstrate the BHD Steps taught by the resource person. The school principal realizes that teachers still lack knowledge regarding child health and basic life support, even though this is very important because every day teachers meet and teach children at school. Therefore, the principal would appreciate it if this activity could continue, of course, with topics related to health which are important for children's health.

![Figure 3. Training Activities](image)

2) Discussion

School is a place used by Muhammadiyah to improve the welfare of Muslims. Not only does it function to educate students but also ensure that students are healthy and can achieve optimal growth and prosperity. MI Muhammadiyah Tawangharjo is one of the schools built by the Muhammadiyah association in Wonogiri Regency. Wonogiri is famous for its dry climate and the health status of children in this area still needs special attention from the
government. School is a place where children spend most of their time, almost 8 hours of students attending school. Therefore, schools are an excellent place for implementing programs or strategies that can be used to improve children's health and welfare. However, most schools in Wonogiri Regency have staff or teachers who still lack knowledge or skills related to child health. For example, the knowledge and skills of teachers regarding daily emergency first aid for children which can also occur at school are still very limited.

Basic life support for children, often called Paediatric Basic Life Support (BLS) is important for the survival and quality of life for children. The paediatric Chain of Survival based on the American Heart Association in 2015 includes preventive action, immediate cardiopulmonary resuscitation (CPR) by prioritizing heart massage (C-A-B technique or Circulation-Airway Breathing), activating emergency access or the emergency medical system (EMS), advanced life support, and carrying out post-cardiac arrest care (European RCGR, 2015).

The ultimate goal of CPR is the return of normal spontaneous circulation or called return of spontaneous circulation (ROSC) and the absence of post-cardiac arrest neurological disorders. CPR includes freeing the airway, carrying out breathing assistance and maintaining an adequate blood supply in the body (circulation). In an unconscious child, the tongue often falls back and can cause airway obstruction. Rescuers must open the airway with a head tilt and chin lift manoeuvres that can be done in both trauma and non-trauma patients. The jaw thrust technique is performed when there is suspicion of cervical trauma. To maintain an open airway, an oropharyngeal device (Guedel) and a nasopharyngeal tube can be placed. Guedel with a certain size is used for unconscious patients, if it is too small, the tongue will still fall backwards, while if it is too large it will clog the airway. Breathing assessment is carried out within 10 seconds with look, listen and feel techniques at the same time. The rescuer must see chest and abdominal breathing movements, hear the patient's breath sounds through the nose and mouth, and feel the breath of air coming out of the rescuer's cheek. If the child is breathing and there is no previous history of trauma, place the patient in a stable position to maintain the airway and reduce the risk of aspiration. If not breathing (gasping) maintain an airway and give 2 rescue breaths. In children <1 year old, use the mouth-to-mouth and nose technique, for children >1 year old, give mouth-to-mouth. Avoid excessive ventilation because it can cause a pneumothorax due to excessive pressure, can cause gastric regurgitation because during ventilation air can enter either the lungs or stomach, and can cause reduced cardiac output due to increased intrathoracic pressure so that blood returns to the heart (venous return). reduced, this can worsen the child's condition. Circulation assessment is performed within 10 seconds by palpating the brachial artery pulse (in infants) and the carotid and femoral arteries in children. If the pulse rate is less than 60 beats per minute (bpm) and the child shows signs of poor perfusion (pallor and cyanosis), chest compressions can be started. If the pulse is >60 bpm but the child is not breathing, continue rescue breaths without chest compressions. Breathing is given at 12-20 kpm (1 breath every 3 to 5 seconds) until the patient is breathing spontaneously (Kemenkes RI, 2016; Monsieurs et al., 2015; Thygeson et al., 2012).

From the results of the post-test, it was found that the knowledge of the MIM Tawangharjo teacher regarding basic life support for infants/children was still lacking, as evidenced by the average pre-test score of 3.5 out of a total score of 10. Participants were very enthusiastic about participating in this training activity, participants were actively asking
and answering questions from the speakers. One participant was even willing to re-demonstrate the BHD Steps taught by the resource person. The school principal realizes that teachers still lack knowledge regarding child health and basic life support, even though this is very important because every day teachers meet and teach children at school. Therefore, the principal would appreciate it if this activity could continue, of course, with topics related to health which are important for children's health. After being given information and training through this community service seminar, the knowledge of the teachers regarding basic life support increased and this was proven by the results of the post-test where the average score of the participants was 9 out of a total score of 10.

4 Conclusions

Based on the results of the training, it was found that there was an increase in the average pre-test and post-test scores given to participants, namely 5.55. Therefore, it can be seen that the participants who took part in the training experienced an increase in knowledge related to the topic of the training material provided. The skills of the father/mother teacher related to basic life support in children are very important to prevent more severe complications. Children spend most of their time at school, so the knowledge and skills of qualified teachers in the field of child health are very helpful in that children are healthy and can take lessons well. Education or Health Education has proven to be a strategy or approach that is quite effective in increasing the capacity of teachers regarding children's health.

Acknowledgement

We Thank the Community Service Institute (LPM), Universitas Muhammadiyah Yogyakarta for the dedication funds provided and MIM Tawangharjo for supporting the implementation of the community service program.

References

5 No 1.

