

EFFORTS TO IMPROVE KNOWLEDGE AND SKILLS OF SPLINT DRESSING WITH SIMULATION AND TRAINING METHODS IN ADOLESCENTS OF MANDALA BHAKTI HEALTH VOCATIONAL SCHOOL SURAKARTA

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ABSTRACT

A fracture is a condition where a bone is cracked or broken due to trauma or physical impact. The strength and angle of physical exertion, the condition of the bone itself, and the soft tissue around the bone will determine whether the fracture is complete or incomplete. The impact of a fracture can cause bone deformity or disability and even death in the victim if help is not immediately provided, where splinting is one of the first aid measures that must be given to patients who experience a fracture. This community service activity aims to help increase the knowledge and skills of teenagers, especially PMR members, in providing first aid when they find a victim who has suffered a fracture. The method used in this activity uses power point media when providing education, then continues with demonstrations and direct simulations for participants on how to apply splints to patients who have fractures. The results of the activity showed the enthusiasm of the participants in carrying out the splint dressing demonstration as well as an increase in participants' knowledge and skills in carrying out the splint dressing, namely during the pre-test, 25% of their knowledge and skills were good, increasing to 81.25% after the education and post-test were carried out. So it can be concluded that providing health education and demonstrations regarding dressing splints really helps teenagers in increasing their knowledge and skills in dressing splints.

Keywords: Skills, Splinting, Training

1. INTRODUCTION

The World Health Organization (WHO) published The Global Report on Road Safety 2018 stating that in 2016 fracture incidents were reported at 30.7 per 100,000 people injured due to crush injuries amounting to (39.5%) and traffic accidents amounting to. (34.1%), around 1.35 million people died due to traffic accidents. African countries have the highest rate, namely 26.6 per 100,000 people, followed by Southeast Asia, 20.7 per 100,000 people. (World Health Organization, 2018).

Rikesdas 2018 states that the type of trauma that can cause fractures in Indonesia is the highest traffic accident when riding a motorbike at (72.7%) the proportion of injuries that result in disruption of daily activities is (9.2%), dominated by the age group 15 -24 years of age (12.2%), often occurs in

males (11%) and often occurs in urban areas (9.4%), many injuries occur in school children (13%), the most common body part Affected were the lower limbs (67.9%)(Kemenkses RI, 2018).

In Central Java, the proportion of injuries that can cause fractures due to traffic accidents is (2.3%), traffic accidents in the category of riding a motorbike are (73.8%), often occurring in the 15-24 year age group (4, 9%), dominated by men, and often occurs in urban areas (2.9%). Based on data on the number of accidents in the city of Surakarta in 2021, there was an increase in the number of accidents recorded at 896 cases with 53 deaths and 947 minor injuries compared to 2020 which recorded 817 cases with 50 deaths and 852 minor injuries.(Badan Pusat Statistik Provinsi Jawa Tengah, 2022).

A fracture is a disruption of the normal continuity of a bone. If a fracture occurs, the surrounding soft tissue is often disturbed. Radiographs or x-rays can show the presence of bone injuries, but are unable to show torn muscles or ligaments, severed nerves, or ruptured blood vessels which can complicate the client's recovery (Black and Hawks, 2014).

Many lay people provide the same treatment to victims in providing first aid. The impact of a low level of knowledge regarding first aid for fractures can result in wrong treatment, for example cervical fractures can have a high risk of causing death or can be given too late, treatment for femur fractures can cause bleeding, shock and can cause a high risk of death (Sumadi et al., 2020). A total of 51.67% of fractures occurred in the age range 18 to 46 years. Injuries resulting from accidents in the school environment generally occur in the musculoskeletal system. Several studies show that 84% of injuries occur in the calves and ankles (Ernasari et al., 2021).

Other impacts that occur can cause bone deformities or disability and even death. To prevent injury to the musculoskeletal system, training or health education regarding splint aid is needed (Warouw, 2018). A splint is an act of fixing or immobilizing an injured part of the body using a rigid or flexible object as a fixator/immobilizer. (Rahmawati, 2018).

Splinting assistance can be performed by any trained lay person. One example of lay people who are trained in schools are students who have received basic emergency education. Basic nursing education is provided through the Youth Red Cross (YRC) extracurricular (Listiana & Oktarina, 2019). The aim of training is to increase knowledge of performance skills and individual, group and organizational behavior (Santoso, 2010). So a non-medical member is needed who has the ability and knowledge about life support methods and first aid for fractures through videos and simulation training (Nurul et al., 2021) .

The simulation method is a way of presenting learning experiences using artificial situations to understand certain concepts, principles or skills. The aims of this method include, among others, training certain skills both professional and non-professional for everyday life, gaining an understanding of a concept or principle, training to solve problems, increasing learning activity, providing learning motivation, training cooperation in group situations, fostering creativity and practice tolerance (Depdiknas, 2008). The advantages of the simulation method include: it can be used as a provision in facing real situations in the future, develops creativity, fosters courage and self-confidence, enriches the knowledge, attitudes and skills needed, increases enthusiasm in the learning process (Suswitha & Arindari, 2020).

The aim of this community service is to provide insight and skills in providing splint assistance to patients who have fractures.

2. PROBLEMS AND QUESTION FORMULATIONS

The actual problem that occurs in the field is the low level of community skills, especially teenagers, regarding first aid for victims who have fractures, this is based on the results of interviews with 2 PMR members who stated that they had received education regarding splint dressing but had never received direct simulation and practice of splint dressing.

Based on the problems that occur in the field, the formulation of questions for community service activities is as follows:

- Can counseling increase the knowledge of activity participants community service (PKM)?
- Can counseling with training methods and splint dressing demonstrations improve participants' skills in first aid for victims who have suffered fractures?

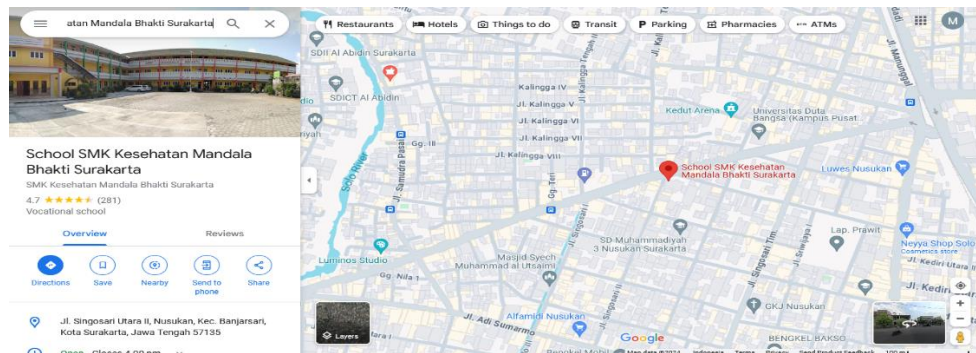


Figure 1. Location/Map of Community Service implementation

3. KAJIAN PUSTAKA

A fracture is a condition of discontinuity in bone structure caused by trauma or conditions that indicate a pathological condition. A fracture is a break in the continuity of bone or cartilage generally caused by force (Sagaran et al., 2018). Most fractures result from injury or hard impact, such as accidents, sports or falls. Fractures occur if the force against the bone is greater than the strength of the bone (Sudiharto, & Sartono, 2011).

The first aid that can be given to patients who experience a fracture is splinting. Splinting is the act of fixing/immobilizing an injured body part using a rigid or flexible object as a fixator/immobilizer. Wrapping a splint is first aid by returning a limb that feels quite comfortable and sending the victim without interference or pain (Rahmawati, 2018).

How to Put on a Splint ?

According to Atiek (2019) According to Atiek (2019) in the Clinical Skills Handbook from the Faculty of Medicine, Sebelas Maret University, Surakarta entitled "Basic Life Support and Trauma: Splinting and Splinting" the principles of splinting include:

- Make sure first that the A-B-C problems have been handled. If there is bleeding, control the bleeding first

- b. If the patient is conscious, tell them first what will be done (splinting can cause pain)
- c. Open the injured area and a splint will be performed. If there is jewelry that bothers you, open it
- d. If there is an open broken wound, cover the wound first with sterile gauze
- e. Do light pulling on the ends of the legs (feet) or the ends of the arms (hands). If crepitus is felt, do not continue pulling
- f. Perform the splint by:
 - 1) Always pass through one joint before breaking, and one joint after breaking (one proximal joint, one distal joint).
 - 2) Installation of rigid equipment (boards, etc.), at least on 2 sides, although if necessary, one side is also allowed
 - 3) On the curved part, support it with something soft (a small pillow, etc.)
 - 4) If there is no rigid device, immobilization can be done to the body, for example by bandaging it to the body, or bandaging it to the healthy leg.
- g. If there is a bone that sticks out, don't force it to go back in. If due to our pulling, the bone goes back in, report the officer to be taken over

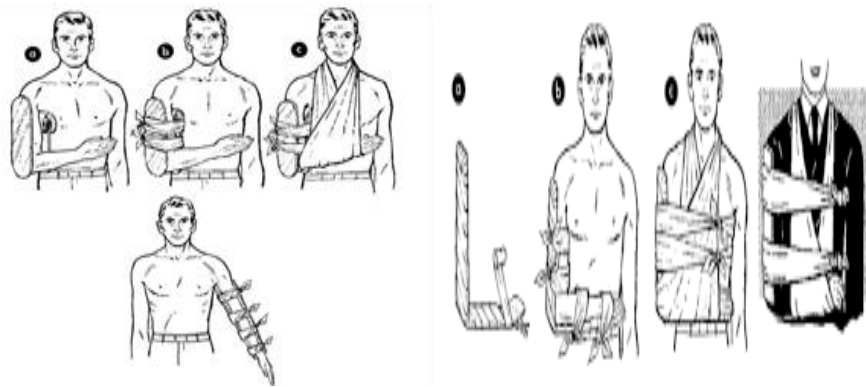


Figure 2. Splinting on the Upper Extremity

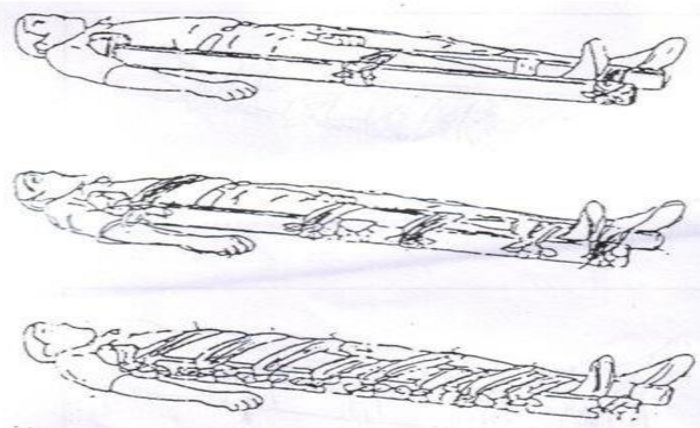


Figure 3. Splinting on the Lower Extremities

4. METHOD

This community service was carried out at the Mandala Bhakti Health Vocational School, Surakarta, with 16 students participating who were members of the Youth Red Cross (PMR). This activity was carried out on Thursday, April 4 2024 and consisted of three stages, namely preparation, implementation and evaluation.

The preparation stages consist of: (i) making a service proposal, (ii) licensing, (iii) preparing evaluation sheets, educational materials and media (leaflets), and (iv) sharing perceptions with the team. Next, the team took care of permits from the school and prepared evaluation sheets, materials and educational media. Finally, the team carried out a common perception regarding the tasks at the location.

The implementation stages consisted of providing education and continued with splint dressing simulation training for young PMR students which was carried out for one day. This activity process is carried out using a two-way communication method (face to face), where the team/educator invites participants to a forum to provide education and training to young PMR students. The educational topic provided is fracture management using splint dressing techniques. The team also provided leaflets on splint dressing techniques so that participants could re-read them when they returned home.

The evaluation stage consists of pre-test and post-test. The pre-test was carried out before providing splint dressing education and training, with the aim of assessing participants' knowledge and skills using an evaluation sheet. Next, the team reviewed the participants' knowledge and skills after the education and training was provided (post-test) with the same questions as the pre-test. The pre-test and post-test results were then analyzed to determine the comparison before and after providing education and splint dressing simulation.

5. RESULTS AND DISCUSSION

a. Result

This community service activity was carried out on May 12 2023 at 19.30-20 30.00 WIB. The aim of this community service activity is to increase public or family knowledge, provide education and socialize about the importance of managing fractures in patients using splints. This community service activity is carried out directly for teenage students who are members of the PMR SMK Mandala Bhakti Surakarta.

After that, education was given to participants using power point media and supported using leaflet media. After providing education and participants were given the opportunity to ask questions regarding the material provided and find problems based on their experiences, they then continued with a simulation of the splint dressing technique. To see the community service activities that have taken place, you can see the following picture.

In the program to increase the knowledge and skills of PMR adolescent students in providing first aid to fracture victims through education and training in splint dressing, it begins with a pre-test which is used as a reference to determine the extent of knowledge of PMR adolescents regarding the meaning, principles and techniques of splint dressing on victims who suffer from it. fracture.

The results of the pretest knowledge of PMR adolescents from 16 participants, 3 adolescents (19%) had good knowledge and the remaining 13 PMR adolescents (81%) had poor knowledge. The majority of answers were incorrect in questions in the principles and techniques of splinting categories for fracture patients. The post test was carried out after health education was provided through splint dressing material and videos followed by training simulations on splint dressing techniques. The post test results showed that 15 PMR teenagers had good knowledge (94%) and 1 PMR teenager had poor knowledge (6%) because they were still unable to answer correctly in the category of principles and techniques for splinting fracture patients. The results of the pre test and post test analysis can be seen in the following table 2.1.

Table 1. Participants' Pre-test and Post-test Results

Category	Pre test		Post test	
	n	(%)	n	(%)
1 Good Knowledge and Skills	3	19	15	94
2 Lack of Knowledge and Skills	13	81	1	6
Total	16	100	16	100

Source: Primary data 2024



Figure 4. Providing material about fractures and splint dressing techniques



Figure 5. Simulation and practice of bandaging and splinting techniques



Figure 6. Joint Documentation After Community Service Activities

b. Discussion

School is formal education that not only educates students in the academic field, but also develops students' independence, creativity and skills in non-academic fields (Sukmawati, 2015). Several schools in Indonesia, especially secondary schools, have several extracurricular activities, where these extracurricular activities can help students shape their character and develop their potential. One of the most popular extracurricular activities is the Youth Red Cross extracurricular.

According to Gunawan (2012), The Youth Red Cross is a forum or place to develop students in the development of Red Cross character, namely directing PMR members to know, understand and behave according to the basic principles of the Red Cross and Red Crescent movements, in character development-based coaching carried out with a life skills approach that includes social skills or social skills, namely an interactive coaching process whose aim is to maximize the knowledge, skills and attitudes of PMR members so that positive changes occur.

One of the roles and functions of PMR is peer support and peer educator, namely providing support, assistance, encouragement to peers to improve healthy living skills, work and serve the community and increase knowledge (Nurasiah & Damanhuri, 2018). Knowledge is an important aspect that a PMR member must have, because one of the roles and functions of the PMR is to work and help the community, so it is necessary to know first aid measures when providing assistance to the community.

PMR teenagers who were respondents in providing health education and training in splint dressing for fracture patients experienced an increase in knowledge. The pre-test knowledge percentage showed that 3 participants (19%) had good knowledge and the remaining 13 participants (81%) had poor knowledge. Meanwhile, the post test results showed that 15 participants had good knowledge (94%) and 1 participant had poor knowledge (6%) because they were still unable to answer correctly in the category of principles and techniques for splinting fracture patients.

This is supported by research conducted by Listiana, (2019) which shows the results that there is an increase in the knowledge and skills of dressing splints among PMR members of SMAN 4 Bengkulu city after being given education with a p value of 0.000. The same thing applies to research conducted by Ernasari, et al (2021) shows the results of increasing knowledge and skills in splint dressing in the video group of PMR members at Makasar City Vocational School after being given training with a p-value of 0.000.

Training is a method that demonstrates something in the form of an imitation in the form of a case that is similar to the real situation, describing a system or process by demonstrating using a statistical model or role model. (Depdiknas, 2013). Splint dressing training is a method used for injured victims which is done by fixating/immobilizing them using rigid or flexible objects as fixators/immobilizers. A splint is a way that can be done to stabilize or support the joint properly or protect trauma from the outside (Febrianti, 2019).

According to Nirmalasari & Winarti (2020), Good knowledge and training can influence skill improvement, where training and education is a short-term process to unite learning systems in theory and practice, so

that training and education become factors that can increase a person's sources of knowledge and skills. The implementation of these skills on a person must have a basis that has been obtained either in the form of information or in the form of training. The development of these skills must start from what a person has mastered, skills that he has not yet mastered. So training will be more effective in improving skills (Damansyah et al., 2022)

The author assumes in this community service activity that when the community receives education, both from youth and adult groups, it can have a positive impact on the environment, especially in handling victims who have fractures, teenagers and the community can know what they should and will do when they find a patient who has suffer from a fracture injury, because this condition can happen anywhere, anytime and to anyone, so they need to be aware of the initial treatment, namely by carrying out correct and appropriate dressings and splinting.

6. CONCLUSION

Providing health education as well as simulations and demonstrations regarding splinting for fracture patients can increase the knowledge and skills of PMR adolescents. Advice for health workers is to always provide education to the public regarding first aid in treating victims who have fractures so that people are able to use this splint dressing technique to provide initial aid before being referred to health services.

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