

Management of musculoskeletal in accident victims through simulation of evaluation in the community

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ABSTRACT

Musculoskeletal injury is an injury to one part of the musculoskeletal system that can be acute or as a result of gradual overuse, which usually causes dysfunction of surrounding structures and the structures that are protected or supported, resulting in not being able to function appropriately in muscles, tendons, ligaments, joints or bones. The general purpose of this study was to determine the level of cedar musculoskeletal management skills in accident victims in the general public. This experimental study uses a Pre-Test-Post Test one Group design approach through testing research hypotheses. The population of this research is the cloud community, totalling 48 respondents—paired statistical test using nonparametric Wilcoxon test. Based on the results of the Wilcoxon analysis test, it can be concluded that 48 respondents who received training in the Management of musculoskeletal injuries in accident victims through evaluation simulations in the general public can conclude that the majority of ordinary people have good knowledge in terms of the ability to handle musculoskeletal injuries in accident victims through evaluation simulations. With a p-value of 0.001, there is a significant difference between before and after training with simulation. Education and training on musculoskeletal injury management actions for accident victims through evaluation simulations in the general public continue to improve the ability of these action skills.

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INTRODUCTION

Apley Solomon explained that fractures are divided according to the fracture line and the shape of the fracture. Trauma is an injury or trauma that can injure both physically and psychologically. Musculoskeletal soft tissue trauma can include vulnus (wounds), bleeding, bruising (contusions), strains or partial tears (sprains), breaks or tears (avulsions or ruptures), blood vessel disorders and nerve disorders. A fracture is a disruption of the regular continuity of a bone. If a fracture occurs, the surrounding soft tissue is often disturbed. X-ray radiological examination can show the location of the fracture but is not able to describe the condition of torn muscles or ligaments, severed nerves, or broken blood vessels [1,2,17]

A musculoskeletal injury is an injury that occurs in the musculoskeletal system which can be acute and can cause dysfunction of the structures around the trauma and the

structures they protect/support, and this can result in muscles, tendons, ligaments, joints or bones not being able to function appropriately [14,18]. According to Humantech, quoted from Bukhori, in the beginning, musculoskeletal injuries cause patients to experience pain, numbness, tingling, swelling, stiffness, tremors, disturbed sleep patterns and burning sensations, which in the end can result in the patient's inability to move and coordinate limb movements. This can result in reduced work efficiency and decreased productivity [3,5].

Training using simulation methods for musculoskeletal trauma patients is one method to provide knowledge and skills to respondents regarding the treatment of musculoskeletal trauma. The advantage of this simulation method is that the trainees' attention can focus on something considered necessary by the educator or trainer and try to practice the educational process directly so that the students can observe the important things carefully [15].

In order to equip ordinary people with the skills to carry out musculoskeletal injury management skills to help accident victims, training in musculoskeletal injury management skills is necessary. Based on this, the researcher intends to research the "management of musculoskeletal injuries in accident victims through evaluation simulations in the lay public".

METHOD

Research This type of research is a categorical comparative two measurements using a cross-sectional approach. Data collection in this research was carried out by providing questionnaires before training and conducting training on the Management of musculoskeletal injuries in accident victims through evaluation simulations on laypeople. Observations were carried out after training, and they aimed to analyze the independent and dependent variables. The sampling technique in this study used random sampling by randomly selecting 190 respondents from a population of 250 who met the inclusion criteria and then randomly selecting 48 respondents for the study—data analysis using the Willcoxon difference test.

RESULTS AND DISCUSSION

Results

Table 1. Frequency Distribution of Respondents Based on Age Group

No	Age	Frequency	Percentage (%)
1	16-20 Years	38	79.2
2	21 and above	10	20.8
	Amount	48	100

Based on Table 1 of 48 respondents, respondents aged 16 - 20 years are 38 people (79.2%), aged 21 years and over ten people (20.8%). So, from the table above, most respondents are between 16 to 20 years old.

Table 2. Frequency Distribution of Respondents Based on Gender of Respondents in the Intervention Group and Control Group

No	Gender	Frequency	Percentage (%)
1	Man	23	47.9
2	Woman	25	52.1
	Amount	48	100.0

Based on Table 2 of the 48 respondents, the respondents with male gender were 23 people (47.9%) while the females' gender were 25 people (51.2%), so it can be concluded that the number of male and female respondents is more women side.

Table 3. 3 Frequency Distribution of Respondents Based on Education Level

No	Education	Frequency	Percentage (%)
1	Elementary School	2	4.2
2	Junior High School	14	29.2
3	Senior High School	32	66.7
4	Bachelor	-	-
	Amount	48	100.0

Based on Table 3 of the 48 respondents, two respondents with elementary school education (4.2%), 14 people from junior high school (29.2%), and 32 people from high school (66.7%), it can be concluded that the majority of respondents are educated. High school or equivalent.

Table 4. Frequency Distribution of Respondents Based on Management Capability Level

Variable		Management Training Musculoskeletal Injuries			
		Pre		Post	
		n	%	n	%
Airway management capability level	Bad	10	20.8	-	0
	Not enough	33	68.8	-	0
	Enough	5	10.4	15	31.3
	Good	-	0	33	68.8

Based on Table 4 of 48 respondents, respondents with a sufficient level of ability were 15 people (31.3%), and those with a good level of ability were 33 people (68.8%). So, from the table above, it can be concluded that there was an increase in respondents after participating in the training simulation for handling musculoskeletal injuries in accident victims.

Table 5. Results of Willcoxon test analysis of management of musculoskeletal injuries in lay people

Variable	n	Median	Min-Max	<i>P</i>
Respondent's ability level before training	48	2	1-3	0.0001
Respondent's ability level after training	48	4	3-4	

Based on Table 5 of 48 respondents, the level of ability to manage musculoskeletal injuries before training has a median result of 2, a minimum of 1 and a maximum of 3, while the level of Management of musculoskeletal injuries after training has a median result of 4 and a minimum of 3 and a maximum of 4. The result of the P value is 0.001. This means a significant difference exists between before and after training in managing musculoskeletal injuries through simulation.

Discussion

This research is located in the Banjarmasin City area. Respondents, on average, are young and come from various regions in South Kalimantan. Before providing training material on the management of musculoskeletal injuries to accident victims with simulations to respondents, a pre-test was first carried out to measure the respondents' ability level. The implementation of respondent training was divided into four classes or groups, remembering to avoid crowds. Each group consisted of 10 to 12 respondents who were given material on managing musculoskeletal injuries using simulation or demonstration methods using the same method. This research showed that the number of respondents was 23 (47.9%) male and 25 (52.1%) female, so the number of male and female respondents was more female. The educational level of respondents was that two people graduated from elementary school (SD) (4.2%), 14 people from junior high school (29.2%), and 32 people from high school or equivalent (66.7%), so it can be concluded that the education level of all respondents was on average - The average person has a high school (High School) education or equivalent.

The results of this study show that of the 48 respondents, before training on musculoskeletal injury management material using simulation or demonstration methods, there were ten people (20.8%) with a poor level of ability and 33 people (68.8%) had a poor level of ability and the level of 5 people (10.4%) have sufficient ability. The level of ability of respondents after intervention was carried out regarding the Management of musculoskeletal injuries using simulation or demonstration methods, and there was a sufficient level of ability of 15 people (31.3%) and a good level of ability of 33 people (68.8%) Hypothesis test results using the nonparametric Wilcoxon test, level the ability to manage musculoskeletal injuries of respondents with a p-value = 0.001, which means that after training in managing musculoskeletal injuries using simulation or demonstration, there is a significant difference or increase in the level of ability to manage musculoskeletal injuries in the general public, especially students or students. This is supported by the theory, which states that health education is all activities to provide and improve knowledge, attitudes, and practices for individuals, groups or communities to maintain and improve their health [15]. Health education is a form of independent nursing intervention to

help clients, individuals, groups and communities overcome health problems through learning activities, and nurses act as educators [16]. The research results showed differences in knowledge before and after being given first aid health education, where the knowledge of PMR members who were in the excellent category increased from 63.6% to 95.5%.

In comparison, poor knowledge decreased from 36.4% to 4.5% after receiving first-aid health education. So, it can be concluded that there is an influence (p-value 0.03) of first aid health education on knowledge of fracture management among PMR members at SMA Negeri 6 Gowa [9]. There is a relationship between knowledge and the implementation of splinting for fracture patients, supported by data on respondents' knowledge, which is mainly in the excellent and sufficient categories, and this knowledge encourages respondents to carry out splinting Management on fracture patients well [10].

In research conducted by Hady J et al., the results showed a change in knowledge after the simulation, with the Wilcoxon test results obtaining a value of $p = 0.000$. Because the p value = 0.000. Because the p -value < 0.05 , it can be concluded that there is a difference in the level of knowledge before and after being given the basic life support simulation, which means that giving the BHD simulation influences students' knowledge. Simulation is a learning method that presents lessons using real situations or processes, with students actively interacting with situations in their environment. Students can apply the knowledge about emergencies they have learned previously to respond (make decisions or take action) to overcome emergency problems if they occur anywhere, especially in the school environment. In research conducted by Saputro, the results showed an influence of health education using simulation methods on knowledge and attitudes about first aid in accidents [6,12,20].

The less-than-optimal increase in students' knowledge and skills regarding emergencies and their handling through simulation methods indicates that students still need increased experience, mental and behavioural strengthening in role-playing, increased interest and learning practice. Health education with emergency simulation activities must be carried out frequently through teacher guidance and UKS [4]. Training simulation is an effort to increase student knowledge and motivation in addition to student attitudes and behaviour. After a training simulation, knowledge increased due to the treatment given to respondents as a BHD training simulation. In this case, the respondent was aware of a training simulation about BHD and then felt interested in the stimulus or object. In this case, the subject's attitude has begun to emerge. Respondents felt interested in taking part in the counselling and were enthusiastic about listening to the material presented in the training simulation [13]. Simulation can increase students' knowledge about transportation and evacuation of victims [7]. BHD simulation training can increase motivation and CPR skills to help cardiac arrest victims [8]. The first aid simulation method for survivors with airway obstruction problems can increase the knowledge and abilities of the lay public in handling airway obstruction problems [11].

Based on the researchers' assumptions, simulation training can effectively increase knowledge because participants can see firsthand an action to treat musculoskeletal

trauma. Participants not only listen or see pictures but directly see action demonstrations. Participants or respondents can also try directly the actions being trained. The obstacle during conducting this research is the risk of crowds occurring, making it easier for the Coronavirus to spread. However, this can be anticipated with health protocols, including before theoretical and simulation learning; each room is cleaned and sprayed with antiseptic after antiseptic fogging and left to stand for one hour. Respondents who enter each room must wear masks and wash their hands first with strict supervision, and during the implementation of social distancing, researchers are always supervised. When the pre-test and post-test were carried out, respondents continued to sit side by side cross-legged, maintaining distance, divided into four rooms. However, there are still respondents who ask questions and cheat on their friends, so further research needs to be done, including more time and samples [19].

CONCLUSION

Based on the results of this research, it was concluded that the characteristics of respondents, in general, were an average age of 16 to 20 years, gender was 23 men and 25 women, and the average person had a high school education or equivalent. The ability to manage musculoskeletal injuries among ordinary people in the Banjarmasin City area is low. After managing musculoskeletal injuries among ordinary people in Banjarmasin City, their level of knowledge and skills increases. There is a significant difference between before and after training in managing musculoskeletal injuries among laypeople. The lay public should have the ability to handle musculoskeletal injury cases because the lay public is the one who often encounters incidents with survivors with musculoskeletal injury problems and is also the first person to see an injury incident. Training and simulations regarding the Management of musculoskeletal injuries should be updated regularly for the lay public.

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