



The effect of health education with case study and demonstration methods for preventing and handling emergency hypothermic at nature lover extracurricular

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Abstract

Mountain climbing has a high risk of hypothermia, which threatens life safety. So intervention efforts are needed to improve the prevention and treatment of hypothermia. The purpose of this study was to explain the effects of health education with case studies and demonstration methods for preventing and handling emergency hypothermia at natural lover extracurricular. The study design was a quasi-experiment. The population in this study was extracurricular members. The sample used 70 respondents with a random sampling technique to choose the respondents. The independent variable of this research was health education with case studies and demonstration methods. The dependent variables consisted of knowledge, attitude, preventive action, and treatment of hypothermia. The research instrument used a questionnaire of knowledge, attitude, and preventive action and treatment of hypothermia. The analysis used Wilcoxon and Mann Whitney tests with the significant technique $\alpha < 0.05$. The results with Wilcoxon in the treatment group showed the case studies and demonstration methods increased knowledge ($p = 0,000$), attitudes ($p = 0,000$) and inactions ($p = 0,000$). Test results with Mann Whitney show that there is an average difference between the treatment group and the control group with the results of significance in knowledge ($p = 0,000$), attitudes ($p = 0,000$), actions ($p = 0,000$). Health education with case studies and demonstration methods can be used to improve knowledge, attitude, and preventative action and treatment of hypothermia for nature lovers.

Keywords: action, attitude, case study, demonstration, hypothermia, knowledge

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INTRODUCTION

Mountain climbing is one of the high trends among teenagers today, besides having a very high risk of threatening the safety of the climbers (Naldi, 2018). The risk that often occurs in mountaineers, one of which is hypothermia. Hypothermia occurs when body temperature is less than 36°C and is caused by decreased body metabolism (Qona'ah et al., 2020).

In Indonesia, from 2013 to 2015, 18 people died from hypothermia while climbing. Other data shows that some Nature Lover Students (MAPALA) died due to hypothermia, students who took basic education Lovers, died from hypothermia (Kustina, 2017). Based on interviews with extracurricular members of nature lovers, the members of nature lovers had understood about breathing examination but did not understand how to check the pulse. They also had never seen a demonstration in handling hypothermia. Health education with the topic of handling hypothermia that combines with the demonstration is needed to give. However, the effect of health education with case study

and demonstration methods on the ability to deal with the emergence of hypothermia in extracurricular nature lovers is unknown.

According to the Center for Conservation of Natural Resources (BBKSDA) from statistical data in 2017, it was found that visitors to Mount Baung climbed 11,507 climbers. In Tretes Nature Tourism Park (Mount Arjuna), there were 2,490 climbers. Ijen Banyuwangi Crater Area recorded 159,090 climbers. Altitudes above 3100 masl cause hypothermia danger. An imbalance between heat production and heat released will cause a risk of hypothermia (Lumbanraja, 2016). Low body temperature will cause vasoconstriction causing blood flow to stop because the path is closed. So that the oxygen supply carried by the bloodstream also stops causing hypoxia (Tarigan et al., 2019). If hypothermia is

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Table 1. Characteristics of respondents in the treatment and control group on nature lovers extracurricular

Characteristics of Respondents	Treatment group		Control group	
	n	%	n	%
Gender				
Male	19	54.3	20	57.1
Female	16	45.7	15	42.9
Total	35	100	35	100
Age of Respondents				
15-16 years old	17	48.6	14	40.0
17-18 years old	18	51.4	21	60.0
Total	35	100	35	100

Table 2. Knowledge of respondents in the treatment and control group on nature lovers extracurricular

Knowledge Category	Treatment group				Control group				
	Pretest		Post-test		Pretest		Post-test		
	n	%	n	%	n	%	n	%	
Good	2	5.7	25	71.4	1	2.9	1	2.9	
Enough	13	37.2	10	28.6	11	31.4	11	31.4	
Less	20	57.1	-	-	23	65.7	23	65.7	
Total	35	100	35	100	35	100	35	100	
Homogeneity Test				p = 0.621					
Wilcoxon Signed Ranks Test		p = 0.000				p = 0.206			
Mann Whitney U Test Pretest				p = 0.221					
Mann Whitney U Test Post test				p = 0,000					

treated quickly and appropriately, then death due to hypothermia will not occur (Prasetyo et al., 2018).

The case study and demonstration methods are carried out in small groups. Each group is given a case so that they can analyze and demonstrate together with the group, and at the end of the lesson, an evaluation will be given by demonstrating the handling of hypothermia properly. The case study method has the advantage of nature lovers members will easily face cases in the field and make it easier to deal with cases with theoretical concepts rather than just "common sense". In this method, it is hoped that extracurricular members can understand hypothermia actions and increase knowledge and attitudes about handling hypothermia in mountain climbers.

METHODS

This research uses a quantitative research design that used a quasi-experiment with pre-post test design. This research used a treatment group, whereas the control group is not given treatment. The population in this study were nature lovers extracurricular students in one of the high schools in Pasuruan, which numbered 70 students. The sample in this study was extracurricular high school nature lovers, with 35 respondents each group with simple total sampling technique. The independent variable in this study was health education with a case study method and demonstration. The dependent variables were knowledge, attitudes, and actions. The instrument in this study was a questionnaire of knowledge, attitudes, and actions.

Selected respondents were given an explanation of the research, objectives, and benefits for respondents. Respondents who are willing to be asked to fill out informed consent that was approved by parents. Respondents were divided into two groups, namely the

treatment and the control group based on their school. The researcher was accompanied by three facilitators who had the same knowledge as the researchers. Furthermore, a pre-test is given to the treatment and control group. Then the two groups get a case from the researcher for discussion. The treatment group received posters and demonstrations about the prevention and treatment of hypothermia prepared by researchers and facilitators. While the control group was not given any intervention. Interventions using the case study and demonstration methods were conducted 2x15 minutes at each meeting. Furthermore, both groups were given a post-test 3 days after a pre-test.

The Wilcoxon Signed-Rank Test analyzed the differences in knowledge, actions (dependent variable) during the pre-test and the post-test in the treatment and control groups. Mann Whitney Test analyzed differences in knowledge, attitudes, and actions (dependent variable) during the post-test in the treatment group and the control group. This research was conducted by research ethics through the Airlangga University Faculty of Nursing Health Research Ethics Commission with No. 1477-KEPK.

RESULTS

Based on **Table 1**, it can be seen that in both groups (treatment and control), the largest proportion of respondents were male (54.3%) in the treatment group and (57.1%) in the control group and 17-18 years old.

Based on **Table 2**, it can be seen that the pre-test in the treatment group mostly had a lack of knowledge level (57.1%). The result showed that the majority of respondents in the treatment group had an increase in knowledge (71.4%). Whereas the pre-test of the control group showed the most respondents had a lack of knowledge level (65.7%). The result of the post-test and

Table 3. The attitudes of the treatment and control group respondents to the extracurricular nature lovers

Attitude Category	Treatment group				Control group			
	Pretest		Posttest		Pretest		Posttest	
	n	%	n	%	n	%	n	%
Positive	10	28.6	31	88.6	15	42.9	22	62.9
Negative	25	71.4	4	11.4	20	57.1	13	37.1
Total	35	100	35	100	35	100	35	100
Homogeneity Test					p = 0.000			
Wilcoxon Signed Ranks Test	p = 0.000				p = 0.134			
Mann Whitney U Test Pretest					p = 0.236			
Mann Whitney U Test Posttest					p = 0.000			

Table 4. Actions on respondents in the treatment and control group on extracurricular nature lovers

Knowledge Category	Treatment group				Control group			
	Pretest		Posttest		Pretest		Posttest	
	n	%	n	%	n	%	n	%
Good	3	8.6	34	97.1	2	5.7	2	5.7
Enough	8	22.8	1	2.9	5	14.3	5	14.3
Less	24	68.6	-	-	28	80	28	80
Total	35	100	35	100	35	100	35	100
Homogeneity Test					p = 0.663			
Wilcoxon Signed Ranks Test	p = 0.000				p = 0.206			
Mann Whitney U Test Pretest					p = 0.134			
Mann Whitney U Test Post test					p = 0.000			

pre-test in the control group is the same. This revealed there was no increase in knowledge.

The results of statistical tests using the Wilcoxon Signed Ranks Test show the p-value = 0.000 ($\alpha < 0.05$), which means there is a difference in the level of knowledge between pre-test and post-test in the treatment group. While the results of statistical tests in the control group showed the p-value = 0.206 ($\alpha < 0.05$), which means there was no significant difference in the level of knowledge between the pre-test and post-test results. The distribution table shows the differences in the results of the post-test data of knowledge in the treatment and control groups amounting to (p) = 0.000, which means ($\alpha < 0.05$), so it can be concluded that there are significant differences after the intervention was given.

The data in **Table 3** shows the pre-test in the treatment group showed that most respondents had a negative attitude towards hypothermia prevention and treatment (71.4%). The results of the post-test showed that almost all respondents had a positive attitude (88.6%). Whereas the control group also showed the most negative results on the attitude of prevention and treatment of hypothermia (57.1%). After the post-test, most of the control groups also have an increase in a positive attitude (62.9%).

Statistical test results using the Wilcoxon Signed Rank Test in the treatment group show that p = 0.000 ($\alpha < 0.05$) means that there are significant differences in attitude between the pre-test and post-test results in the treatment group after the intervention was given. Statistical test results in the control group showed that there was no difference in the average attitude of the members of nature lovers during pre-test and post-test, namely p = 0.134 ($\alpha < 0.05$). So the Mann Whitney U test showed that p = 0.000 there was a significant difference

in the results of respondents' attitudes between the treatment group and the control group.

Based on **Table 4**, it can be seen that the respondents in the treatment group during the pre-test were mostly in the inadequate category. The post-test results showed almost all respondents had good actions (97.1%). On the contrary, the control group during the pre-test showed that almost all respondents had less action, whereas, in the post-test, almost all respondents in the control group did not show the results of increased action.

The results of statistical tests using the Wilcoxon Signed Ranks Test show the value (p) = 0.000 ($\alpha < 0.05$), which means there are differences in the level of prevention and treatment of hypothermia between the pre-test and post-test in the treatment group after the intervention was given. Statistical test results in the control group showed the value (p) = 0.058 ($\alpha < 0.05$), which means there was no significant change in the level of action on the prevention and treatment of hypothermia between the pre-test and post-test results. Mann Whitney U test results. There are differences in the results of the post-test data on the treatment and control groups of (p) = 0.000, which means there are significant differences after the intervention was given.

DISCUSSION

Health education with the case study method and demonstration of hypothermia prevention and treatment knowledge in the treatment group showed a significant increase in the results of the pre-test and post-test. Knowledge from all respondents in nature lover's extracurricular in the treatment group showed that almost all respondents experienced an increase in knowledge after being given an intervention. Whereas in the control group, there was no increase in knowledge,

and most respondents had sufficient levels of knowledge on the results of the pre-test and post-test.

This is in accordance with Albert Bandura's theory, which states that humans have the ability to think and regulate or direct themselves so that they are able to control the environment (Hjelle, 1981). Knowledge theory, according to Notoatmojo in 2010, knowledge is the sharing of symptoms encountered and obtained by humans through sensory observation (Notoatmojo, 2010). The provision of information through health education with case study and demonstration methods affects the person's sensing and makes an increase in the behavior of prevention and treatment of hypothermia in extracurricular members of nature lovers (Jayanti et al., 2019).

Health education with case study methods and demonstrations on the attitude of prevention and treatment of hypothermia showed an increase in attitudes in the treatment group. Post-test results showed that almost all respondents had an increase in a positive attitude. Whereas in the control group, most showed positive results after the post-test. Respondents who have increased attitudes in the treatment group and have a significant difference with the control group showed alternative hypothesis could be accepted, namely the influence of health education with case study methods and demonstrations on the attitude of prevention and treatment of hypothermia.

This research by providing health education with case study and demonstration methods can increase knowledge and in accordance with Albert Bandura's theory, which states that in interacting, individuals make observations of other individuals. Learning by observation is called modeling (Hjelle, 1981). In modeling, there is a similar process to the model, so that in observational learning, the individual can show behavior. The individual is able to exercise self-control that can direct and regulate himself (Lubis et al., 2019).

Health education with case study and demonstration methods for prevention and treatment of hypothermia in

the treatment group showed a significant increase in the results of pre-test and post-test. The actions of all respondents in the nature lover's extracurricular in the treatment group showed that almost all respondents experienced an increase in actions after being given an intervention. Whereas in the control group, there was no increase in actions, and most respondents had an adequate level of action on the results of the pre-test and post-test.

The results of this study are also in accordance with Albert Bandura's theory, which reveals that humans are able to think critically and regulate or direct themselves so that they can control the environment, in addition to humans also being shaped by their environment (Hjelle, 1981). Thus the behavior of individuals learned through interaction with the environment and the development of his personality depends on these interactions. So humans are able to act with critical thinking and can interact with their environment (Siyoto, 2015).

CONCLUSION

Health education with case study and demonstration methods has an effect on increasing hypothermia prevention and treatment knowledge. Health education with case study and demonstration methods influence the change in the attitude of prevention and treatment of hypothermia. Health education with case study and demonstration methods has an effect on increasing hypothermia prevention and treatment. For nature lover's trainers, the case study and demonstration methods can be used as alternative learning methods in the provision of materials and practice of prevention and treatment of hypothermia in nature lover's extracurriculars. For other researchers, they can develop related case study and demonstration methods so that in future studies, they can further enhance attitudes towards nature lovers extracurriculars.

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