

The Effectiveness of Education about Cough Etiquette to Increase Knowledge and Attitude The Paramedic

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ABSTRACT - Nosocomial infection is a worldwide problem which always increase significantly. To minimize the risk of infection in hospitals, it is necessary to apply the standard precautions. One of which is cough etiquette. This study is aimed to find out the effectiveness of knowledge regarding cough etiquette modules to increase knowledge and attitude of cough etiquette on paramedics in hospitals. This study is a quasi-experiment with pre-test and post-test control group designs. To explore the knowledge of cough etiquette, this sample study used purposive sampling technique with 65 respondents in the treatment group and 62 respondents in the control group. The data were analyzed by using Wilcoxon and Independent Sample T Test. The data were collected using questionnaires. To explore the attitude of cough etiquette, this sample study used purposive sampling technique with 59 respondents in the treatment group and 40 respondents in the control group. The data were analyzed by using Wilcoxon and Independent Sample T Test. The data were collected using questionnaires. The result of this study shows that in the control group, the value of knowledge is $p = 0,001$ ($p < 0, 05$). In the treatment group, the value of knowledge is $p = 0,001$ ($p < 0, 05$). The result in the treatment group and in the control group shows that there is no significant difference between the control and treatment group.

The result of this study shows that the value of attitude in the control group is $p = 0,014$ ($p < 0,05$), there is a decrease in the post-test compared to the pre-test. In the treatment group, the value of attitude is $p = 0,195$, there is an increase in the post-test compared to the pre-test, but it is not significant. The results in the treatment group and in the control group show that there are no significant differences between the control group and the treatment group.

Keywords: Effectiveness, Education of Cough Etiquette, Knowledge, Attitude, Paramedics

1. INTRODUCTION

Nosocomial infection is a significant problem among the hospitals in the world. The prevalence of nosocomial infections in the developing countries is two to three times higher than in Europe or America. The incidence of nosocomial infections in the intensive care units are also higher than in the outside of intensive care units. (Kusbaryanto et al, 2016)

To minimize the risk of infections in the hospitals and other health care facilities, infection prevention and control needs to be established, by implementing activities that consist of planning, implementation, coaching, education and training, as well as monitoring and evaluation (Ministry of Health Republic of Indonesia, 2007). The concrete manifestation of these efforts is the implementation of standard precautions. It is expected to reduce the risk of pathogens transmission from known and unknown sources.

The basis of all the prevention of infection programs includes those are used in all patients and even in patients without status or so-called standard precaution (Harte, 2010). A form of standard precaution is the implementation of cough etiquette.

One of the elements in standard precaution is cough etiquette or hygiene respiration which aims to prevent the spread or transmission of microorganisms that causes respiratory tract infections at all levels of health services. (CDC, 2012).

Knowledge is the result of human sense, or the result of individual knowledge of an object through their senses. The process of getting knowledge is influenced by the intensity of attention and perception of the object. A lot of individuals' knowledge is obtained through hearing and vision. (Notoatmodjo, 2005).

Knowledge of cough etiquette, that is covering mouth and nose when coughing or sneezing, was suggested

as good strategies to prevent the infection. It is important to have knowledge of cough etiquette as an effort to avoid the effects of infection to be spread to all paramedics and patients (Seale, et al., 2012). On the other hand, Altigani (2016) stated that there are some people with low level comprehension about the important of cough etiquette and they underestimate the level of risk towards acquiring disease and health consequences if they get infected (serious illness, need for hospitalization, mortality risk). Therefore, it is important to increase their knowledge to change their mindset and behaviour..

Attitude is a form of evaluation or feeling reaction. Individuals' attitude towards an object is a feeling of supporting or favorable (feeling) and feeling not supporting or unfavorable (unfavorable) to the object. Attitudes consist of three components that support each other, namely cognitive (cognitive), affective component (affective) and conative component (conative). The cognitive component is a representation of what is believed by the owner of attitude as an individual, the affective component is a feeling that involves emotional problems and the conative component is an aspect of tendency to behave in a certain way according to the attitude of someone. (Azwar, 2011).

Attitudes towards infection control measures include hand-washing and the use of social distancing, isolation or cough etiquette. People reaction to cover their mouth and nose when coughing or sneezing is the most familiar one because they believe it could stop the respiratory pathogens be transmitted to other individuals. However, when using the hands to cover cough, respiratory pathogens still could be transmitted to other individuals if it is not followed by any contact precautions. (Zayas, et al., 2013)

2. MATERIALS AND METHOD

This research is aimed to analyze the effectiveness of knowledge and attitude regarding cough etiquette modules to increasing knowledge and attitude of cough etiquette on paramedics in hospitals. Thus, improving knowledge and attitude to cough etiquette would reduce spreading of microorganism in the hospital.

This study is a quasi-experiment with pre-test and post-test control group designs (Polit and Hungler, 1999). To explore the knowledge of cough etiquette, the sample of this study used purposive sampling technique with 65 respondents in the treatment group and 62 respondents in the control group. The data were analyzed by using Wilcoxon and Independent Sample T Test. The data were collected using questionnaires. To explore the attitude of cough etiquette, the sample of this study used purposive sampling technique with 59 respondents in the treatment group and 40 respondents in the control group. The data were analyzed by using Wilcoxon and Independent Sample T Test. The data were collected using questionnaires.

3. RESULTS AND DISCUSSION

The Knowledge of Cough Etiquette

Table 1. Age of Respondents

Variables	Control Group Frequency (Percentage)	Treatment Group Frequency (Percentage)
20-30 years	40 (64.5)	49 (75.38)
31-40 years	12 (19.35)	8 (12.31)
> 40 years	10 (16.13)	8 (12.31)
p	0,394**	

**Not Significant (p>0.05)

The measurement result in the Age of Respondents (Table 1) by Chi Square Test, p = 0.394, this data is homogeneous distribution.

Table 2. Respondents' Work Time

Variables	Control Group	Treatment Group
	Frequency (Percentage)	Frequency (Percentage)
< 1 year	5 (8.06)	5 (7.69)
1-5 years	32 (51.61)	44 (67.69)
➤ 5 years	25 (40.32)	16 (24.62)
P	0,149	

****Not Significant (p>0.05)**

The measurement result in the Respondents' Work Time (Table 2) by Chi Square Test, $p = 0.149$, this data is homogeneous distribution.

Table 3. The Differences of Knowledge of Cough Etiquette Between Control Group and Treatment Group

Variables	Control Group	Treatment Group	p
	n Mean SD	n Mean SD	
Knowledge of Cough Etiquette of Before Treatment	62 6.2 1.27	65 6.7 1.58	0.236**
Knowledge of Cough Etiquette After Treatment	62 7.4 1.25	65 8.3 1.46	
P	0.001*	0.001*	

***Significant (p<0.05)**

****Not Significant (p>0.05)**

The measurement result of knowledge in the control group, *mean* is 6,2 and SD is 1,27. In the treatment group, *mean* is 6,7 and SD is 1,58. The differences of knowledge of cough etiquette in the control group before and after treatment is $p = 0,001 (>0,05)$, the result is significant. The differences of knowledge of cough etiquette in the treatment group before and after treatment is $p = 0,001 (< 0,05)$, the result is significant. The differences of knowledge of cough etiquette in the control group and treatment group after treatment is $p = 0,236 (>0,05)$, the result is not significant.

The Attitude of Cough Etiquette

Table 1. Age of Respondents

Variables	Control group	Treatment Group
	Frequency (Percentage)	Frequency (Percentage)
< 20 years	0	1 (1.69)
20-30 years	26 (65)	43 (72.88)
31-40 years	7 (17.5)	9 (15.25)
➤ 40 years	7 (17.5)	6 (10.17)
P	0.659**	

**Not Significant ($p > 0.05$)

The measurement result in the Age of Respondents (Table 1) by Chi Square Test, $p = 0.659$, this data is homogeneous distribution.

Table 2. Respondents' Work Time

Variables	Control group	Treatment Group
	Frequency (Percentage)	Frequency (Percentage)
< 1 year	1 (2.5)	5 (8.47)
1-5 years	23 (57.5)	36 (61.02)
➤ 5 years	16 (4)	18 (30.5)
p	0.401	

**Not Significant ($p > 0.05$)

The measurement result in the Respondents' Work Time (Table 2) by Chi Square Test, $p = 0.401$, this data is homogeneous distribution.

Table 3. The Differences of Attitude of Cough Etiquette Between Control Group and Treatment Group

Variable	Control Group			Treatment Group			p
	n	Mean	SD	N	Mean	SD	
Attitude of Cough Etiquette Before Treatment	40	38.25	4.22	59	38.27	3.57	0.032*
Attitude of Cough Etiquette After Treatment	40	37.15	3.24	59	38.97	4.13	
P	0.014*			0.185**			

*Significant ($p < 0.05$),

**Not Significant ($p > 0.05$)

The measurement result of the knowledge of in the control group, *mean* is 38,25 and SD is 4,22. In the treatment group, *mean* is 38,27 and SD is 3,57. The differences of knowledge of cough etiquette in the control group before and after treatment is $p = 0,014 (<0,05)$, the result is significant. The differences of attitude of cough etiquette in the treatment group before and after treatment is $p = 0,185 (>0,05)$, the result is not significant. The differences of attitude of cough etiquette in the control group and treatment group after treatment is $p = 0,032 (<0,05)$, the result is significant.

Discussion

The result of statistical analysis of differences on knowledge of cough etiquette after education that has been given in the treatment group were significant. Based on the results, it is revealed that the treatment or education about cough etiquette is effective to improve the knowledge of cough etiquette. It is due to the acceptance of educational material that is served as a positive reinforcement and it became a stimulus to increase the knowledge about cough etiquette. (Wei and Yazdanifard, 2014).

There was a significant increase in the level of knowledge in the control group and the treatment group. The increase in the control group is likely due to the influence of research subjects maturation. The questionnaire in post-test has a good result because of the respondents between the control group and the treatment group are from the same location. In the control group and the treatment group, there were no significant differences in the post test results.

The result of statistical analysis of attitude cough etiquette, in the control group, there was a decrease in the post-test result of the attitude of cough etiquette, which possibly was due to the lack of respondents' concentration. While in the treatment group, the results of the increase were not significant. The results of the statistical analysis of differences in attitudes of cough etiquette after education in the control group and the treatment group were significant. Based on the result, it indicates that the treatment or education about cough etiquette is effective to improve the attitudes of cough etiquette. It is due to the acceptance of educational material that is served as a positive reinforcement and it became a stimulus to increase the knowledge about cough etiquette. (Wei and Yazdanifard, 2014).

The respondents were asked about their respiratory hygiene and cough etiquette knowledge. The result is there are 52 people (98.11%) who are aware of the protocol to wash hands and cough or sneeze on a napkin. But there are only 31 people (58.49%) who are aware to cough or sneeze over shoulder, just in case there are no available napkins around, and there are 30 people (56.60%) who keep the distance at least 3 feet away from others when coughing. (Ibrahim and Elshafie, 2016).

University students' cough etiquette (CE) was observed and compared to the standard of the Center for Disease Control and Prevention (CDC). Contrary to the CDC's recommendations, most the students cover their mouth with their hands, it is about 53.3%. While those who do not cover at all is about 23.5%. Less than one-quarter of the students use arm sleeve, elbow, or tissue as suggested by the CDC. Sex analysis revealed that compared to men, women are more likely to use hands to cover their mouth when coughing or sneezing. While men are twice as likely to sneeze or cough into the air. (Berry, 2014). Cough droplets are centerpiece in the chain of infection respiratory disease transmission. During the transmission process, infected individuals expels numerous droplets with different sizes into the air every time they cough. Infectious respiratory pathogens whether virus, bacteria or fungus, are dispersed towards the outside environment when droplets formed in the mucus layer lining the airways of an infected patient are exposed to the high-speed cough airflow. (Zayas et al, 2013).

Cough etiquette and respiratory hygiene are forms of control source encouraged to prevent the spread of respiratory infection. The use of surgical masks as control source has not been quantified in terms of reducing exposure to others. (Patel, 2016)

4. CONCLUSION

Education of cough etiquette is effective to increase knowledge and attitudes of cough etiquette.

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