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Research Article

The Theory of Planned Behavior to Identify Out-of-Hospital Cardiac Arrest (OHCA) Bystanders' Intentions

Intensi *Bystander Out of Hospital Cardiac Arrest* Berdasarkan *Theory of Planned Behaviour*

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ABSTRACT

The theory of planned behavior states that intention is the best predictor of behavior. The intention to perform a behavior is determined by a person's attitude, subjective norms, and perceived behavioral control. As volunteers in the health sector, volunteers of the Indonesian Red Cross (PMI) have been equipped with knowledge and skills regarding the role of an OHCA bystander. Besides, the intentions of PMI volunteers greatly affect a person's tendency to be willing or unwilling to become an OHCA bystander. This study aims to apply the theory of planned behavior in identifying the factors that influence the intentions of PMI volunteers in acting as OHCA bystanders and the dominant factors that affect intentions. This study used an observational research type with a cross-sectional approach. The respondents in this study were 105 PMI volunteer members in Tuban Regency, which were conducted using the purposive sampling technique. In determining the most dominant factor that influenced intention, ordinal logistic regression analysis was used in which it was shown that the variable used in the last modeling analysis stage was the subjective norm (OR= 6.19). Based on the results of the analysis, it can be concluded that subjective norms are the most predictor factor that influences intentions.

Keywords: *Bystanders of Out-of-Hospital Cardiac Arrest (OHCA), intention, theory of planned behavior, volunteers of Indonesian Red Cross*

ABSTRAK

Theory of Planned Behaviour menyebutkan bahwa intensi merupakan prediktor terbaik dari perilaku. Intensi ditentukan oleh sikap seseorang, norma subjektif yang diyakini, dan persepsi kontrol perilaku yang dirasakan. Sebagai relawan dalam bidang kesehatan, relawan PMI telah dibekali dengan pengetahuan dan keterampilan mengenai peran sebagai *bystander* OHCA. Selain pengetahuan dan keterampilan tentang *bystander* OHCA, intensi relawan PMI sangat mempengaruhi kecenderungan seseorang untuk bersedia atau tidak bersedia menjadi *bystander* OHCA. Penelitian ini bertujuan untuk menerapkan *theory of planned behaviour* dalam mengidentifikasi faktor yang mempengaruhi intensi relawan PMI dalam berperan sebagai *bystander* OHCA dan factor dominan yang mempengaruhi intensi. Jenis penelitian menggunakan observasional dengan pendekatan *cross sectional*. Responden yang turut serta sebanyak 105 anggota relawan PMI di Kabupaten Tuban yang dilakukan dengan teknik *purposive sampling*. Analisis regresi logistic ordinal digunakan untuk mengetahui factor yang paling dominan dalam mempengaruhi intensi menunjukkan bahwa dari semua variabel, variabel yang lolos sampai analisis pemodelan terakhir yaitu variabel norma subyektif (OR= 6,19). Berdasarkan hasil Analisa tersebut dapat ditarik kesimpulan bahwa norma subjektif merupakan factor predictor yang paling mempengaruhi intensi.

Kata Kunci: *Bystander Out of Hospital Cardiac Arrest (OHCA),* intensi*, theory of planned behavior,* relawan PMI

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INTRODUCTION

Out of Hospital Cardiac Arrest (OHCA) causes more than 350,000 deaths each year in the United States (1). The high incidence of OHCA every year makes researchers aware that integrated services are urgently needed for cardiac emergencies outside the hospital. The role of the community to become a bystander that is carried out immediately can increase the survival rate of OHCA victims by two to three times (2). Despite the many efforts that have been made, the number of OHCA bystanders is still relatively small. Indonesian Red Cross (PMI) volunteers who have been equipped with knowledge about first aid for cardiac arrest victims outside the hospital have an important role as OHCA bystanders. Previous research has shown that not all people who have the knowledge and skills about the cardiac arrest are willing to play a role as bystanders (3). Behavior that is formed from the intention to act as a bystander is a factor that is no less important in influencing a person's tendency to perform a cardiac arrest.

The theory of planned behavior proposed explains that the best predictor of behavior is intention. Intention to perform a behavior is determined by attitude toward behavior, subjective norm, and perceived behavior control. These three factors are also influenced by personal factors, social factors, and information factors (4). This theory is quite applicable to be used in predicting trends in health behavior in the community and health workers (5).

Based on the survey results conducted by several volunteer members of the PMI in Tuban Regency, if they find OHCA victims, they have a desire to help OHCA victims. However, they have fears such as fear of being blamed by others or feeling that they are not capable enough to help. Therefore, it is necessary to make efforts to grow the intention to act as an OHCA bystander. Based on this background, researchers are interested in applying the theory of planned behavior in identifying the factors that influence the intentions of PMI volunteers in acting as OHCA bystanders and the dominant factors that affect the intentions of OHCA bystanders in Tuban Regency.

METHOD

This study used observational research with a cross-sectional approach. The population in this study was 231 PMI volunteer members in Tuban Regency. The sample in this study was 105 PMI volunteer members. A purposive sampling technique was used with inclusion criteria including PMI volunteer members (PMR and KSR PMI) aged 16-35 years, have received material and attended training on first aid in cardiac arrest or the role of an OHCA bystander. Besides, exclusion criteria were PMI volunteer members who have not been active in PMI activities for the past three months and were involved as respondents in testing the validity and reliability of the instrument. To measure attitudes, subjective norms, and perceptions of perceived behavioral control, an instrument used was from Ulfah (2018) which has been modified by the researchers. Data collection used online questionnaires carried out once from 19th to 24th of April 2021. Univariate analysis was used to determine the frequency distribution of respondents based on attitudes, subjective norms, and perceptions of perceived behavioral control. Bivariate analysis with Spearman Rank test was used to determine the relationship between variables used. Besides, multivariate analysis was conducted using the ordinal logistic regression test. This research has been declared ethically feasible by the Health Research Ethics Commission, Faculty of Medicine Universitas Brawijaya with No. 149/EC/KEPK-S2/06/2021.

RESULT

Based on Table 1, it is shown that as many as 70 people (66.67%) of PMI volunteer members had positive attitudes and 35 volunteer members (33.33%) had negative attitudes as bystanders of OHCA. The results of data regarding subjective norms showed that almost half of PMI volunteer members had confidence and the motivation obtained from others in the surrounding environment that was in the moderate category with a total of 50 PMI volunteer members (47.62%). 35 PMI volunteer members (33 .33%) had low subjective norms, and 20 PMI volunteer members (20%) had high subjective norms to act as OHCA bystanders.

Data for perceived behavioral control showed that most of the PMI volunteer members (62.86%) involved in the study had a moderate level of perceived behavioral control to act as OHCA by standers. The results of the univariate analysis on intentions showed that of all respondents involved in research activities, 55 people (52.38%) were categorized as moderate or moderate behavioral intentions to act as OHCA bystanders.

Table 1. Frequency distribution of respondents based on attitudes, subjective norms, and perceived behavioral control

Respondent Frequency Variable	Frequency (n)	Percentage (%)
Attitude		
Positive Attitude	70	66.67
Negative Attitude	35	33.33
Total	105	100
Subjective Norm		
High (57-80)	20	19.04
Moderate (31-56)	50	47.62
Low (5-30)	35	33.33
Total	105	100
Perceived Behaviour Control		
High (67-96)	16	15.24
Moderate (37-66)	66	62.86
Low (6-36)	23	21.90
Total	105	100
Intention		
High (44-64)	14	13.33
Moderate (24-43)	55	52.38
Low (4-23)	36	34.29
Total	105	100

Bivariate analysis using the Spearman Rank test in Table 2 shows that attitude had a significant relationship with intention (p=0.000), the subjective norm had a significant

Table 2. Bivariate analysis result

Independent variables	Dependent variables	P-value
Attitude	Intention	0.000*
Subjective Norm	Intention	0.000*
Behavior Control Perception	Intention	0.010*

Table 3. Results of ordinal logistic regression analysis

	Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Intention (1)	-3.528	0.504	49.021	1	0.000	-4.516	-2.540
Intention (2)	-0.510	0.347	2.156	1	0.142	-1.190	0.171
Attitude (1)	-0.870	0.515	2.853	1	0.091	-1.880	-0.140
Attitude (2)	0[a]			0			
Subjective Norm (1)	-1.823	0.694	6.899	1	0009*	-3.183	-0.463
Subjective Norm (2)	-1.423	0.474	9.010	1	0.003*	-2.352	-0.494
Subjective Norm (3)	0[a]			0			

Resource: Primary data (2021)

relationship with intention (p=0.000), and perceived behavioral control also had a significant relationship with intention (p=0.010).

Furthermore, to determine the most dominant factor influencing the intention of bystanders of OHCA, the researchers used the ordinal logistic regression test. This analysis model was chosen because the response variable has more than two categories and has an ordinal scale. The ordinal logistic regression analysis has several stages, where the results of the last stage are shown in Table 3.

Moreover, the partial test used variables that had a significant value in the independence test. The calculation of the odds ratio was only used for significant independent variables in the model. Based on the output results, the odds ratio value for the subjective norm variable is exp (-1.823)=0.162. The palindromic invariance can be used to facilitate interpretation, resulting in an odds ratio of exp (1.823)=6.19 which indicates that there is an increasing tendency which is 6.19 times greater to obtain better intentions for volunteers who have high subjective norms compared to volunteers who have low or moderate subjective norms. Based on these results, the most dominant factor in influencing the intention is the subjective norm factor.

DISCUSSION

Attitude in this study is defined as the feeling of the volunteer's tendency to behave in handling OHCA victims based on beliefs and evaluation of the results of the actions taken by PMI volunteers related to the role of OHCA bystanders. Based on the results of the research that has been done, most of the 70 members (66.67%) had positive attitudes about their role as OHCA bystanders. These results are following previous research conducted by Regard *et al*., conducted in the community, the red cross, and private employees that explain that respondents who had received material and attended training on the role of an OHCA bystander tend to have a more positive attitude (6). A positive attitude can help others and avoid unnecessary deaths in OHCA victims (7).

The results of the bivariate analysis using the Spearman's rho statistical test showed a significant relationship between the attitude variable and the intention of the respondents with a p-value <0.05 (p=0.000). These results support the theory of planned behavior which states that a positive attitude will appear when someone believes that the action or behavior that will be carried out has a positive impact and vice versa. This supports previous research which explains that attitudes are strongly and positively related to respondents' intentions in carrying out a behavior (6,8-11).

Subjective norms in this study are a person's belief on social pressure or regarding the expectations of people around him who are considered having influence and becoming a motivator to show certain behaviors. The social pressure can come from the closest people and other people who have an important position for him. The results of the research that have been carried out showed that almost half of respondents, as many as 50 PMI volunteer members (47%) had moderate subjective norms. The subjective norm defined by the theory of planned behavior is the influence felt by people from their social environment . The behaviors in this study were identifying signs and symptoms of cardiac arrest, calling for help, performing CPR, and using an AED if available, motivated by the potential of social rewards or refusal to perform or not perform these behaviors.

The results showed that there was a relationship between the subjective norms of PMI volunteers and the intention as OHCA bystanders with a p-value of less than 0.05 (p = 0.000). Subjective norm is the result of a person's view of his behavior (normative belief) in which he or she combines motivation and goals to adjust behavior to adapt to social norms prevailing in the environment. The results of this study are similar to previous studies showing that subjective norms are positively related to intentions (6,12,13). However, the research results are different from the research conducted by Permatasari (2016) which shows that subjective norms are not associated with intention (14). The difference in the results of the study is very likely to occur because of the subjective norms possessed by different people. This can be influenced by the individuals' social environment including the living environment, social environment, and educational environment.

The perceptions of perceived behavioral control in this study are PMI volunteer members' perceptions of conditions, situations, or circumstances that support or hinder them and how strong these things are to them in providing first aid to OHCA victims. The realization of behavior depends not only on the motivation to do but also on adequate control over the behavior. Perceptions of perceived behavioral control can indirectly influence behavior through intentions. The results of the analysis in this study indicated that most of the 66 PMI volunteer members (62.86%) had moderate perceived behavioral control perceptions. This shows that most of the respondents do not have a more dominant factor between the supporting and inhibiting factors in acting as OHCA bystanders.

The results of the bivariate analysis revealed that there was

a significant relationship between the perceived behavioral control of PMI volunteer members and the intentions to act as an OHCA bystander (p=0.010). The theory of planned behavior explains that belief in supporting or inhibiting factors affects a person's intention to perform a behavior. The more individuals perceive many contributing factors and fewer inhibiting factors as OHCA bystanders, the greater their intention to identify signs and symptoms of cardiac arrest, call for help, perform CPR, and use an AED if available. The results are similar to some previous studies. Research conducted by Farisy & Siswantara shows that the perception of perceived behavioral control is positively related to intentions or intentions possessed (15). However, the results differ from the research conducted by Sandi *et al*., which shows that there is no relationship between perceptions of perceived behavioral control and intentions (16). Differences in research results may be caused by differences in the number of supporting factors and inhibiting factors that can differ according to each respondent.

Multivariate analysis in this study used ordinal regression analysis where the perception of perceived behavioral control was eliminated in the first stage because it showed that the p-value was less than 0.05 or not significant. This result is contrary to the research conducted by Lin *et al*., which shows that perceived behavioral control is the best predictor factor for predicting intention (17,18). This may happen because if someone feels ready and able to become an OHCA bystander, the possibility of that person's intention will also be high.

Of all the variables, the variable used in the last stage of modeling analysis was the subjective norm. Subjective norm is the most dominant predictor factor in influencing the intention as an OHCA bystander. This can be seen from the significance value based on the results of the ordinal logistic regression analysis that has been carried out. The results of this study are also supported by previous research from Cooke *et al*., regarding the analysis of factors that influence intentions in which they state that subjective norms are the strongest predictor factor for predicting intentions (19). These conditions indicate that the opinions and judgments of others on behavior will affect the intentions of someone who is in that environment. This relates to a person's considerations and thoughts about the views and opinions of others if he or she does or does not identify signs and symptoms of cardiac arrest, call for help, perform CPR, and use an AED if available when encountering OHCA cases. It is because to be accepted by the community, a person tends to modify his behavior following the expectations of the people around him. Therefore, efforts to foster positive subjective norms in PMI volunteers need to be done, with the hope that it will foster good intentions as bystanders of OHCA.

The theory of planned behavior can be applied to predict the factors that influence the intentions of PMI volunteers to act as OHCA bystanders. There is a significant relationship between attitudes, subjective norms, and perceptions of perceived behavioral control with OHCA bystanders' intentions. These three variables are effective predictor factors used to predict intentions, in which subjective norms are the most dominant predictor factor that influences the intentions of PMI volunteer members in the Tuban Regency.

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