

APPLICATION OF THE THEORY OF PLANNED BEHAVIOR TO IDENTIFY NURSING STUDENT'S INTENTION TO BE A BYSTANDER CARDIOPULMONARY RESUSCITATION

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ABSTRACT

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Theory of Planned Behavior (TPB) is a social psychology theory which explained that someone's tendency to behave is affected by their intention. This theory is often used to predict behavioral intention in health workers by measuring some aspects such as attitude, subjective norm, and self-efficacy. As a prospective health worker who equipped with knowledge and skills about Cardiopulmonary Resuscitation (CPR) during the education phase, we expect that nursing students will have a good intention to become bystander CPR in Out of Hospital Cardiac Arrest (OHCA). The aim of this study was to apply TPB in identifying factors that influence nursing student's intention to perform bystander CPR. This was a quantitative study with a cross-sectional approach. The research population was an undergraduate nursing student in Malang. As many as 108 respondents were carried out by using the proportional sampling technique. Data were collected once using a questionnaire that included: attitude, subjective norm, self-efficacy, and intention to be a bystander CPR. Chi-square test revealed that the relationship between independent variables and intention to be a bystander CPR were: attitude $p=0,00$, self-efficacy $p=0,00$ and subjective norm $p=0,00$. The result of multivariate analysis with logistic regression showed that: attitude $p=0,004$ (OR=5,279), subjective norm $p=0,001$ (OR=5,824) and self-efficacy $p=0,001$ (OR=5,709). This study concluded that there was a significant relationship between attitude, subjective norm, and self-efficacy with intention, where the subjective norm was the most dominant factor associated with intention of nursing student to be a bystander CPR.

BACKGROUND

Theory of Planned Behavior (TPB) was originated from the Theory of Reasoned Action (TRA) which designed by Fishbein and Ajzen in 1980 (Ryan & Carr, 2010). This is an intrapersonal theory which focuses on someone's intention to conduct behavior (Hackman & Knowlden, 2014). TPB is arranged based on the assumption that individuals can behave wisely, taking into account all information implicitly or explicitly by considering the consequences of the behavior carried out (Ajzen, 2013). This theory suggests that the possibility of someone to do or not do a specific behavior is strongly influenced by their

intentions (McEachan et al., 2012). Intention defined as a condition of readiness and desire to take a certain action which influenced by attitudes, subjective norm, and the individual's perception of the control that can be done by originating in beliefs about those controls which are often called perceived behavioral control or self-efficacy (Ajzen, 2013).

Currently, the incidence of Out of Hospital Cardiac Arrest (OHCA) continues to increase. In the year 2015 reported that the death rate due to OHCA reached up to 350.000 cases (AHA, 2015) and reach 60.000 cases over the past three years in the Asia Pacific region (Hock, 2014). The victim's ability to survive continues to decrease every minute

(Chair et al., 2014). Therefore responsive and integrated emergency cardiac service in the community setting is strongly needed (Wati, Wihastuti & Nasution, 2017). Cardiopulmonary Resuscitation (CPR) is a life-saving procedure performed on people who experience cardiac arrest to replace the heart and lungs function in pumping blood and oxygen for a while (AHA, 2015). Today's phenomenon shows that the implementation of emergency medical services in Indonesia is still not going well. The difficulty of the call center to be contacted, limited human resources and infrastructure, also the lack of public knowledge about the way to access this service is allegedly to be the main cause of the sub-optimal service, so there is no guarantee that ambulances and health workers will arrive at the scene on time (Boyle, Wallis & Suryanto, 2016). So one of the attempts that can we do to improve the survival rate of the victim is by improving the number of bystander CPR (Wati, Wihastuti & Nasution, 2017). Whereas bystander CPR is defined as a people who witnessed the scene, have the ability, and also willingness to perform CPR outside of the hospital (AHA, 2013).

CPR is one of the key competencies taught and must be mastered by health students, including nursing students. Therefore to enhance the number of bystander CPR we can involve their participation to be bystander CPR (Wati, Wihastuti & Nasution, 2017). As a student who's been equipped with knowledge and skills about CPR, nursing students are expected to have a good willingness to behave as a bystander CPR (Mattox, 2012). But some prior research has shown that having a good knowledge and skills about CPR does not mean that someone has a willingness to be a bystander CPR (Panchal et al, 2015). Previous data show that from so many OHCA incidents, only 33.3% of cases received help from bystander CPR (Sasson et al., 2013). Ozbilgin et al (2015) in their research revealed that from 40,3% of respondents who received training on CPR, 41,5% had good knowledge about CPR, and 18,6% ever encountered OHCA incidents, but only 2,4% of them were willing to take CPR action. 78% of them expressed doubts and were afraid of making mistakes when carried out CPR.

TPB has been widely used in various studies to predict health behavior. Hoffman et al (2013) on his analysis of 78 social-cognitive studies concluded that TPB became the most appropriate theory to explain intention in predicting the likelihood of behavior in health workers. This theory was also used by Panchal et al (2015) in developing a model framework to predict the behavioral intention of bystander

CPR. Based on the background and phenomenon above, researchers are interested in applying TPB to identify factors that influencing nursing student's intention to become bystander CPR in handling OHCA.

METHODS

This was a quantitative research with a cross-sectional approach which conducted between April - May 2017. The population of this research was students from various nursing institutions in Malang. Of the 6 institutions that have an undergraduate nursing program, 5 of them are willing to be involved in research activities, with the number of students who have received material about emergency nursing were 391 people. The inclusion criteria were: willing to be a research respondent and have passed an emergency nursing course. Exclusion criteria: Students who are on leave (Wati, Wihastuti & Nasution, 2017). Samples were taken using the proportional sampling technique by considering the number of members of each sub-population. The total sample of this study were 108 students who meet the inclusion and exclusion criteria: 38 students from Universitas Brawijaya, 32 students from Universitas Tribhuwana Tunggaladewi, 16 students from STIKES Maharani, 6 students from STIKES Kenedes, and 16 Students from STIKES Widyagama Husada. Data were collected once, to examine attitude toward CPR, subjective norm, self-efficacy, and intention to become bystander CPR, a questionnaire was used. The Univariate analysis is used to describe the characteristics of each variable. Bivariate analysis using Chi-Square test aimed to identify the relationship between independent variables with an intention to be a bystander CPR and Logistic Regression in Multivariate analysis was performed to know the most influential predictor factor of nursing student's intention to become bystander CPR based on the TPB. To reduce the risks that may be experienced by respondents due to research and as ethical protection for researchers, this study has fulfilled various ethical considerations and passed an ethical clearance process.

RESULTS

The results of this research in Table 1 above showed that most of the students had a good attitude (52,8%) and good self-efficacy (56,5%) but had less subjective norm (51,9%) and less intention (51,9%) of being a bystander CPR. Bivariate analysis using Chi-square test in Table 2 revealed that attitude had a significant relationship with behavioral intention,

Table 1. Frequency Distribution of Respondents Based on the Classification of Attitude, Subjective Norm, Self-Efficacy, and Intention to be a Bystander CPR.

Variables	Frequency	Percentage
Attitude:		
Good	57	52,8
Less	51	47,2
Subjective Norm:		
Good	52	48,1
Less	56	51,9
Self-Efficacy:		
Good	61	56,5
Less	47	43,5
Intention:		
Good	52	48,1
Less	56	51,9

Table 2. Relationship between Attitude, Subjective Norm, and Self-Efficacy with Intention of Nursing Student to be a Bystander CPR.

Independent Variable	Dependent Variable				OR (CI 95%)	p-Value
	Intention					
	Good		Less			
	n	%	n	%		
Attitude:						
Good	39	68,42	18	31,58	6,333 (2,729-14,696)	0,000
Less	13	25,50	38	74,50		
Total	52	48,15	56	51,85		
Subjective Norm:						
Good	38	73,08	14	26,92	8,143 (3,442-19,262)	0,000
Less	14	25	42	75		
Total	52	48,15	56	51,85		
Self-Efficacy:						
Good	39	63,93	22	36,07	4,636 (2,031-10,586)	0,000
Less	13	27,66	34	72,34		
Total	52	48,15	56	51,85		

Table 3. Final Results of a Multivariate Analysis using Logistic Regression of Factors Affecting Behavioral Intention of Nursing Student to be a Bystander CPR.

Variable	Coefficient (B)	p-Value	OR(CI 95%)
Attitude	1,664	0,004	5,279(1,724-16,165)
Subjective Norm	1,762	0,001	5,824(2,013-16,851)
Self-Efficacy	1,742	0,001	5,709(1,979-16,470)
Constanta	-3,170	0,000	0,042

where respondents with a good attitude tended 6.333 times more likely to have good intentions as a bystander CPR (p=0,000), OR (CI 95%)=6,333(2,729-14,696). Subjective norm had a significant relationship with behavioral intention (p=0,000), where re-

spondents with a good subjective norm had a tendency 8.143 times more likely to have good intentions as a bystander CPR (OR (CI 95%)=8.143(3,442-19,262) and self-efficacy also had a significant relationship with behavioral intention (p=0,000) with OR

(CI 95%)=4,636(2,031-10,586) which mean a nursing student who had a good self-efficacy had a tendency 4,636 times more likely to have a good intention to be a bystander CPR in handling OHCA. Both attitude, subjective norm, and self-efficacy had p-value <0,25 which means all these factors could be included in the multivariate modeling. Multivariate analysis with logistic regression in Table 3 showed that from all of the factors examined in this research, it turned out that subjective norm was the most influential factor in predicting intentions ($p=0,001$), OR (CI 95%)=5,824(2,013-16,851) with a variable coefficient (B) = 1.762 which indicated that there was a positive relationship between the two variables, where the better the subjective norm, the better behavioral intentions.

DISCUSSION

The attitude of nursing students regarding bystander CPR in this study was interpreted as a student's perspectives and assessments related to carrying out CPR actions to save someone's life who experienced OHCA. The results showed that most of the student had a good attitude about being a bystander CPR (52,8%). These results support previous research conducted by Lu et al (2016) which concluded that health students tend to have a positive attitude about bystander CPR. TPB explains that attitude toward a behavior is a result of behavioral beliefs which is beliefs about the consequences of someone's action (Arafat & Ibrahim, 2018). The formation of attitude requires a fairly long process and time. Nurse education curriculum states that nursing students must have a socially sensitive attitude and care for the community and the environment (AIPNI, 2015). Therefore in the learning process, educators must instill humanistic values, caring, altruism, and develop helping behavior to help clients fulfill their basic needs optimally. Attitude is a component of the affective domain (Jeffreys, 2012). When someone believes that CPR is a good action to save people's lives, that belief will increase the tendency to form a good attitude towards bystander CPR. The results showed that there was a significant relationship between attitude and intention ($p=0,000$) with the percentage of students who had good attitudes accompanied with good intentions was 68.42% and students who have less attitude accompanied with less intention was 74,5%. These results support TPB which mentions that behavioral beliefs will lead a person's attitude towards a behavior, where a positive attitude will appear when someone believes that the action or

behavior to be carried out has a positive impact and vice versa. Attitude is an important part of the human soul that influencing someone in making a decision and to behave because it will guide the appraisals of the situation, assessment of goals, and evaluation of choice option (Chair et al., 2014). Its also in line with the statement from Talbot et al (2015) and Smith (2015) in their study which revealed that attitudes have a strong and positive correlation with intention. The better attitude of nursing students regarding bystander CPR, the stronger their intention to become a bystander CPR.

The subjective norm in the TPB is defined as a product from beliefs about other's expectations in us to carry out some behavior which is called normative beliefs (Arafat & Ibrahim, 2018). Subjective norm is interpreted as someone's perceptions or assumptions of other people's expectations about something that should be done or not by ourselves when we encountered OHCA (Panchal et al., 2015). This norm is very subjective and influenced by beliefs held by each individual (Ham, Jeger & Ivkovic, 2015). Most of the nursing students in this study had less subjective norms about being bystander CPR. This was different from a previous study which mentions that health worker tends to have good subjective norms about CPR because they are demanded by colleagues, senior, junior, and society to carry out their role ideally as a health worker in every action (Kumari et al, 2014). Subjective norms influenced by normative beliefs and motivation to comply which are defined as motivation to achieve the expectations of those around us both parents, friends, and people who have an important position in someone's life. The less subjective norm of nursing students to act as bystander CPR can be caused by the low influence of the environment around the individual that encourages them to conduct CPR in OHCA. Having a good knowledge and skill about CPR doesn't guarantee that someone will have a good subjective norm to be a bystander CPR. Feeling fear of being blamed if something unexpected happens and there is no legal protection, often results in someone not having enough courage to do CPR outside of the hospital (Lu et al., 2016). Bivariate analysis showed that subjective norm had a significant relationship with intention ($p=0,000$). These results support research that was held by McDermott et al (2015) and Cooke et al (2016) but contrary to a study which conducted by Lapkin et al (2015). These differences are very likely to occur because each individual has different subjective norm influenced by the environment in which individuals socialize, both the neighborhood, social environment,

and educational environment because to be accepted in some environment, a person tends to adapt and modify their behavior by following the expectations of the community in their environment. So to create a good subjective norm on nursing students about certain behaviors, it requires effort from the surrounding environment that supports them to perform this action.

TPB revealed that someone's intention is also influenced by perceived behavioral control, which the result of control beliefs or beliefs about factors that can influence the occurrence of a behavior (Arafat & Ibrahim, 2018). The concept of perceived behavioral control originates from Bandura's Self-efficacy theory in 1977 which emphasizes that motivation, appearance, feelings of frustration, and expectations will affect behavior (Yzer, 2012). Perceived behavioral control consists of controllability and self-efficacy. Controllability reflects the control capabilities that are owned, while self-efficacy reflects the perceived difficulties and confidence in their ability to perform some behavior. Those are two distinct sub-components but interrelated. In his integrative model Fishbein and Capella (2006) also Mimiaga et al (2009) conclude that perceived behavioral control is similar to self-efficacy. It can be measured by items of self-efficacy in a previous study (Ajzen, 2002). Where in this study researchers used self-efficacy as a variable used in identifying intention. Self-efficacy as a bystander CPR is defined as a belief held by a person related to their ability to perform CPR well when encountering cardiac arrest cases outside of the hospital (Panchal et al, 2015). The results of this research indicate that the majority of respondents had a good self-efficacy to be a bystander CPR (56.5%). The bivariate analysis also showed that self-efficacy had a significant relationship with the intention to be a bystander CPR ($p=0,000$). The process of forming self-efficacy is influenced by failure and success events experienced by ourselves or others. This results in line with research conducted by Gonzi et al (2015) which stated that health workers tend to have high self-efficacy to perform CPR compared to other people in general. This could be because nursing students are prospective health workers who have been taught about knowledge and skills on how to do CPR during their education, so they tend to get used to facing such conditions. The significant relationship between self-efficacy and intention in this research supported by previous research from Seaton et al (2010) but different with research that was held by Talbot et al (2015) and Lapkin et al (2015) which revealed that self-efficacy had a weak relationship

with intention because self-efficacy tends to have a direct relationship with the behavior displayed not with the intention to display behavior. Besides the experience of failure and success, self-efficacy also influenced by many things such as someone's achievements, physiological conditions, emotional and verbal persuasion obtained, which this study did not investigate further about these factors. So the difference in results of this study with another research is very likely to occur.

This study revealed that most of the respondent had less intention to be a bystander CPR (51,9%). It means that most of the nursing student who involved in this study had a low tendentious to perform CPR outside of the hospital. Logistic regression in the multivariate analysis showed that from all the factors examined in this study, it turned out that subjective norm was the most dominant predictor factor on student intentions to act as bystander CPR in handling OHCA (OR=5,824, CI 95%=2,013-16,851). These results were supported by the results of the previous analysis which stated that from all respondents who had less subjective norms, most of them also had less behavioral intention, where there were significant differences in proportions between the two data groups. These results were supported by research conducted by McDermot et al (2015), and Cooke et al (2016) in their research on the analysis of factors that influence behavioral intention which showed that subjective norm was the strongest factor to predict behavioral intentions. These conditions indicate that the point of views, opinions, and judgments of others about something, will affect someone's intention to carry out a specific behavior. This study also found a positive influence between subjective norms and intentions, where the better subjective norm associated with bystander CPR, the better intention owned by nursing students to be a bystander CPR.

CONCLUSION

TPB was an applicable theory to predict health behavior in nursing students to become bystander CPR. This study revealed that attitudes, subjective norm, and self-efficacy had a significant relationship with the intention to conduct CPR in handling OHCA, where the subjective norm was the most dominant factor in influencing these intentions. Therefore it is necessary to create a good atmosphere and learning environment which support the growth of positive subjective norm about bystander CPR in the hope of being able to increase the intention of

nursing students to perform bystander CPR. We recommend researching with a qualitative design to explore various phenomena and factors related to nursing students' intention to become bystander CPR for future research.

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