



Analysis of Factors Affecting Self-Efficacy of Fresh Nursing Graduates in Performing Cardiopulmonary Resuscitation on Cardiac Arrest Patients in Malang City, Indonesia

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ABSTRACT

The survival of cardiac arrest patients highly depends on early recognition and quality resuscitation response. Fresh nursing graduates are often the first responder of cardiac arrest patients. Self-efficacy level not only reduces the anxiety of fresh nursing graduates but also improves their possibility of performing CPR. The study was an observational analysis with a cross-sectional approach. Sampling was conducted using the purposive sampling technique with inclusion criteria and analysis using the phi coefficient test and logistic regression. Data were collected using a questionnaire link of Google Form. One hundred and twenty-three people of 154 fresh nursing graduates were obtained, with 123 people filling the questionnaire, 12 people did not fill the questionnaire, and 19 people were excluded. There was a positive relationship between mastery experience, vicarious experience, and verbal persuasion with the self-efficacy of fresh nursing graduates in performing CPR. Meanwhile, the physical and emotional state had a negative relationship with self-efficacy. The most dominant factor affecting self-efficacy was verbal persuasion. There is a significant relationship between mastery experience, vicarious experience, verbal persuasion, physical state, and emotional state with self-efficacy. The most dominant factor affecting self-efficacy is verbal persuasion. It indicates that persuasion or suggestions from surrounding people that encourage one to solve their problems and direct them to reach the goal and success significantly affect self-efficacy.

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INTRODUCTION

Cardiovascular diseases are one of the death causes (Organization for Economic Cooperation and Development, 2017). In 2016, it was estimated that 17.9 million people died due to Cardiovascular Diseases (CVD) (World Health Organization, 2017). It is crucial to provide immediate help of Cardiopulmonary Resuscitation (CPR) when the patient experiences cardiac arrest in the CVD context.

In the cardiac arrest case, fresh nursing graduates play a vital role in delivering an optimal treatment for all patients, regardless of the patient experiencing In-Hospital Cardiac Arrest (IHCA) or Out Hospital Cardiac Arrest (OHCA) (Graham *et al.*, 2015). According to American Heart Association (2020), the survival of cardiac arrest patients highly depends

on early recognition, quick initiation, quality resuscitation response, and quality post-resuscitation treatment.

The competence of fresh nursing graduates in performing CPR is a key factor to improve the survival rate of cardiac arrest patients (Brennan. *et al.*, 2013). It is because fresh nursing graduates often become the first responder to cardiac arrest patients (Moon & Hyun, 2019). However, they often fail to perform CPR because of various factors. According to Huang *et al.* (2016), people refrain from performing CPR due to poor knowledge, forget the method, negative attitude, poor awareness, panic, anxiety, and low self-efficacy in emergencies. From these factors, self-efficacy is the primary factor to consider in performing CPR (Desiani *et al.*, 2017).

In CPR, a nurse's self-efficacy plays an essential role in achieving an optimal result (Gonzi *et al.*, 2015). High self-

efficacy is vital to perform CPR as a first aid (Gonzi *et al.*, 2015). Low self-efficacy in performing CPR may cause prolonged intervention time and reduce the patient's survival opportunity (Ferianto *et al.*, 2016). A precedent study by Roh & Issenberg (2014) showed that a person correctly performing CPR has high self-efficacy. Following Huang *et al.* (2016), high self-efficacy does reduce not only one's anxiety but also improves the possibility of performing CPR in emergency settings.

According to Bandura's theory (1994 in Shofiah & Raudatussalamah 2014), self-efficacy is influenced by four factors, i.e., mastery experience, vicarious experience, verbal persuasion, and physical and emotional state. According to Partiprajak & Thongpo (2016), success and training experiences directly affect one's self-efficacy and skills in performing CPR. Subsequently, experience in observing other people's success in performing something will improve individuals' faith that they can do as well as other people (Ferianto *et al.*, 2016). Meanwhile, verbal persuasion to an individual directed by suggestions, advice, and assistance can improve their self-efficacy concerning their skills to achieve their objectives (Chan & Lam, 2010). The last factor affecting self-efficacy is the physical and emotional state. Tired physical and high-emotional conditions will reduce one's performance. When a person experiences high fear, anxiety, and stress levels, it will reduce their self-efficacy (Izaah, 2012).

METHOD

The study was observational analysis using a cross-sectional approach. The study population was fresh nursing students completing the Nurse Profession study in Universitas Brawijaya, Universitas Muhammadiyah Malang, and STIKES Maharani, amounting to 154 students.

Sampling was carried out using the purposive sampling technique using the following inclusion criteria: students graduating from the nurse profession study program, receiving BLS/BTCLS training, directly performing CPR to patients, and willing to be study respondents. The study exclusion criteria are fresh nursing graduates from program B (switch level), unwilling to be study respondents, and fresh nursing graduates of the nurse profession involved as respondents in the instrument's validity and reliability tests. The total study respondents were 123 fresh nursing graduates. This research received a certificate of ethical aptitude from the Commission Medical Research Ethics Brawijaya University Medical Faculty with the number No. 77 / EC / KEPK – S2 / 03 / 2021.

Table 2
The relationship between independent variables (*mastery experience, vicarious experience, verbal persuasion, physical and emotional state*) and the dependent variable (*self-efficacy*)

<i>Independent Variable</i>	<i>Dependent Variable</i>	<i>P-Value</i>	<i>Correlation Coefficient (r)</i>	<i>OR</i>
<i>Mastery experience</i>	<i>Self-efficacy</i>	0,000	0,659	122,286
<i>Vicarious experience</i>		0,000	0,435	17,333
<i>Verbal persuasion</i>		0,000	0,742	104,000
<i>Physical and Emotional State</i>		0,000	-0,711	0,011

From Table 2, using the phi coefficient test, there was a significant relationship between mastery experience and self-efficacy in performing CPR, with a p-value = 0.000 (p<0.05) and a correlation value of 0.659, indicating a strong

RESULT AND DISCUSSION

The study result is respondent characteristics including institutional origin, mastery experience, vicarious experience, verbal persuasion, and the physical and emotional state presented in the following table 1

Table 1
Respondent Characteristics Based on Institutional Origin, Self-Efficacy, Mastery Experience, Vicarious Experience, Verbal Persuasion, and Physical and Emotional State (N=123)

Variable	Frequency (n)	Percentage (%)
Institutional Origin		
Brawijaya University	48	39,0
Muhammadiyah Malang University	39	31,7
STIKES Maharani	36	29,3
Self-Efficacy		
High	108	87,8
Low	15	12,2
Mastery Experience		
High	114	92,7
Low	9	7,3
Vicarious Experience		
High	113	91,9
Low	10	8,1
Verbal Persuasion		
High	107	87,0
Low	16	13,0
Physical and Emotional State		
High	20	16,3
Low	103	83,7

Based on Table 1, 87.8% of fresh nursing graduates in Malang City involved in the study had high self-efficacy, while 12.2% had low self-efficacy in performing CPR. 92.7% of respondents had high mastery experience from factors affecting self-efficacy, while 7.3% had low mastery experience. Furthermore, 91.9% of fresh nursing graduates had a high vicarious experience level, and 8.1% had a low vicarious experience level. Third, 87% of fresh nursing graduates in Malang City categorized in a high verbal persuasion level in performing CPR, while 13% were categorized in a low level. In the physical and emotional state component, 83.7% of respondents had a low category, and 16.3% had a high category.

correlation. A significant relationship was present between vicarious experience and self-efficacy with a p-value = 0.000 (p<0.05) and a correlation value of 0.435, indicating a moderate correlation. Moreover, there was a significant

relationship between verbal persuasion and self-efficacy with a p-value = 0.000 ($p < 0.05$) and a correlation coefficient of 0.742, meaning a strong correlation. Finally, a relationship was discovered between physical and emotional state and self-efficacy with a p-value = 0.000 ($p < 0.05$) with a correlation value of -0.711, showing a strong, negative correlation.

The multivariate analysis in the current study employed a logistic regression. Before the logistic regression test, the researchers performed the Chi-square test, where mastery experience, vicarious experience, verbal persuasion, physical and emotional state variables met the requirements to be involved in the logistic regression analysis with a p-value < 0.25 .

Table 4
Logistic Regression Analysis Result

	Variable	Coefficient (B)	P- value	OR (CI 95%)
Step 1	<i>Mastery experience</i>	0,280	0,872	1,323 (0,044-39,330)
	<i>Vicarious experience</i>	-2,147	0,233	0,117 (0,003-3,976)
	<i>Verbal persuasion</i>	5,388	0,002	218,670 (7,657-6244,749)
	<i>Physical and Emotional State</i>	-4.327	0,002	0,013 (0,001-0,208)
	Constant	1,681	0,377	5,370
Step 2	<i>Vicarious experience</i>	-2,098	0,230	0,123 (0,004-3,774)
	<i>Verbal persuasion</i>	5,453	0,001	233,535 (8,898-6129,123)
	<i>Physical and Emotional State</i>	-4.430	0,000	0,012 (0,001-0,143)
	Constant	1,898	0,148	6,674
Step 3	<i>Verbal persuasion</i>	4,212	0,000	67,502 (6,465-704,780)
	<i>Physical and Emotional State</i>	-4,135	0,000	0,016 (0,002-0,160)
	Constant	0,920	0,308	2,509

The logistic regression analysis in Table 4 using the backward method shows that verbal persuasion and physical and emotional state with a significance (p) value of $0.000 < \alpha < 0.05$ were affecting factors in the study. The most dominant factor affecting self-efficacy was verbal persuasion with a variable coefficient (B) = 4,212 and OR = 67,502, stating a positive relationship between both variables, where increased verbal persuasion means increased self-efficacy. Another factor affecting self-efficacy was the physical and emotional state with a variable coefficient (B) = -4.135 and OR = 0,016, asserting a negative relationship between both variables, where increased physical and emotional state means reduced self-efficacy.

DISCUSSION

Mastery experience is successful experiences achieved in the past that improve one's self-efficacy. Based on the study result, a significant relationship was present between mastery experience and self-efficacy of nurses in performing cardiopulmonary resuscitation in cardiac arrest patients in Malang City. According to Maharani (2017), previous experience is the most dominant information source for self-efficacy. Individuals with continuous success will improve their self-efficacy since success is a real experience. It follows Ferianto et al. (2016), stating that nurses' self-efficacy is created through social learning processes occurred in the hospital. Capa-Ayudin et al (2018) argued that self-efficacy is constructed as an adaptation and learning process in such an

environment. The more frequently a person does a particular job, the higher their self-efficacy in the field.

Self-efficacy is obtained through the social learning method, i.e., learning from other people's experiences. Observing others' success through continuous efforts can improve one's faith regarding their ability. Based on the study result, there was a significant relationship between vicarious experience and the self-efficacy of nurses in performing cardiopulmonary resuscitation in cardiac arrest patients in Malang City. According to Bandura (1997 in Ferianto et al. 2016), observing others' success in performing something will improve individual self-efficacy that they can have the same ability as their role model. The extent of the role model's effect on one's self-efficacy depends on how the person perceives similarity with the model by comparing themselves (Ferianto et al., 2016). Murti (2019) asserted that individuals do not depend on self-experiences concerning failure and success as the self-efficacy source since other individuals' experiences influence self-efficacy. Vicarious experience affects self-efficacy, observation of others' success will improve individual judgment on their ability, and individuals will augment their efforts (Ghufron N & Rini RS 2014).

Individual observation of others' success will improve the individual's self-efficacy in the same field (Shirey, 2020). According to Ferianto et al (2016), individuals persuade themselves by saying that if other individuals can do it successfully, they can do it too. Likewise, observation of others' failure despite exerting numerous efforts decreases individual judgment on their ability and reduces individual efforts to achieve success.

Verbal persuasion is support from surrounding people for suggestions, advice, and assistance. It is a source of self-efficacy. A person supported by surrounding people will have faith in their ability. Fundamentally, verbal persuasion is a communication ability to persuade or direct others (Hendricks, 2016). Persuasion communication has components or elements, including good persuasion objective, commands within invitation or persuasion not to appear forcing, and based on data or facts to strengthen argumentation (Ferianto *et al.*, 2016). According to Maharani (2017), a person supported by their closest people will have faith in their ability. Verbal persuasion can reinforce one's belief that they have the ability to achieve their goals.

Murti (2019) argued that if someone assures us that we can do something well, usually, we can do the job well. It is supported by Ferianto *et al.* (2016), asserting that encouragement can indeed help someone complete a job. Someone tends to be more motivated after receiving verbal support; however, success usually depends more on the person's efforts to complete it.

Physical and emotional state following behavior or action will affect one's self-efficacy in a particular situation. One's judgment on self-efficacy is affected by mood. A good mood will improve self-efficacy (Murti, 2019). Decreased anxiety or increased physical relaxation will improve performance because strong emotions will affect someone. An individual feeling high anxiety, fear, or stress is likely to have low self-efficacy (Feist & Feist, 2017). Based on Maharani (2017), the emotional state that follows a behavior or action will affect self-efficacy in certain situations. Rising emotions and tension are interpreted as a sign that the individual will show poor performance.

In general, individuals are always faced with various stressors that come from within themselves or from the environment. If the individual is unable to respond to the stress he experiences, it will have a negative impact on the individual concerned and the surrounding environment (Verlitasari, 2014). Each individual has a special way of adjustment and depends on the ability of each individual to make adjustments effectively, namely by directing actions to certain targets in order to overcome the causes of stress (Ferianto *et al.*, 2016).

The most dominant factor affecting self-efficacy is verbal persuasion. The study result is supported by a precedent study by Putri & Fakhruddiana (2019), stating that verbal persuasion functions as a further facility in reinforcing one's belief that they have the ability to achieve their goals. In his study, Nofrion (2016) stated that verbal persuasion might direct individuals to strive in achieving goals and success. However, self-efficacy fostered by this method usually does not last long, especially when individuals experience unpleasant, traumatic events.

Verbal persuasion is used to increase a person's belief about the things he has to try more persistently in achieving goals and success or success (Ariani, 2014). Verbal persuasion suggests individuals to believe that they can overcome their problems (Astuti & Gunawan, 2016). According to Rustika (2016), the encouragement given to people who have potential and are open to receiving the information will inspire the person's enthusiasm to improve their self-efficacy. The more people believe in the ability of the information provider, the stronger the belief in being able to change self-efficacy. Besides, Ferianto *et al.* (2016) asserted that verbal persuasion would work well if the person providing the information can diagnose the strengths and weaknesses of the person whose self-efficacy will be

improved and know the knowledge or skills that can actualize the person's potential.

CONCLUSION AND SUGGESTION

There is a significant relationship between mastery experience, vicarious experience, verbal persuasion, and physical and emotional state with self-efficacy. The most dominant factor affecting self-efficacy is verbal persuasion. It shows that persuasion or suggestion from others making one believes they can solve their problems and direct them to strive to achieve goals and success highly affects self-efficacy.

Measures to improve self-efficacy of fresh nursing graduates in performing CPR using verbal persuasion include positive reinforcement from surrounding people, such as saying, "good job," "great," "keep up the good work," and "remarkable," are required for fresh nursing graduates in improving their self-efficacy in performing CPR on cardiac arrest patients.

Ethics Committee

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