

Disaster Nursing Model: An Approach to Reduce Post-Traumatic Stress Syndrome Prevalence in Nurses

Mustikasari Mustikasari¹, Harif Fadhillah², Anggi Pratiwi³, Rina Setiana¹, Nursalam Nursalam⁴

¹Faculty of Nursing, Universitas Indonesia, Jakarta, Indonesia

²University of Muhammadiyah Jakarta, Jakarta, Indonesia

³Central of Indonesian National Nurse Association, Jakarta, Indonesia

⁴Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia

ABSTRACT

Disasters have an impact in causing structural surface damage and affecting all sectors, resulting in loss of life and individual incapacity and are difficult to predict. The purpose of this study was to explain the effect of disaster nursing models to reduce post-traumatic stress syndrome. Quasi-experiment research with post-test using control group research design with 222 respondents. Data collection tools used by researchers were questionnaire containing respondents' demographic data, impact of event scale and affect intensity measure (AIM) (Larsen and Buss, 2008; Townley and Kloos, 2009), data were analyzed using Mann Whitney test. In a disaster nursing model to reduce PTSS we needed to evaluate the impact of event scale and affect intensity measure. Based on statistical analysis, the P value showed significant effect in variable impact of event

scale ($P = 0.000$), and for the affect intensity measured there was no significant influence. It can be concluded from the results that significant influence means there was difference between control and intervention group given by the disaster nursing model plan. Disaster nursing models to reduce post-traumatic stress syndrome have influence on impact of event preparation.

Keywords: disaster, nursing, post-traumatic stress syndrome

Correspondence:

Mustikasari Mustikasari
Faculty of Nursing, Universitas Indonesia, Jakarta, Indonesia
mustikasari@ui.ac.id

INTRODUCTION

Disasters have an impact on damage across the surface of the earth and all sectors that cause loss of life, individual incapacity and are difficult to predict (Brooks et al., 2019a). The event of a natural disaster is a situation that triggers trauma, which can cause grieving, displayed in the form of a reaction to sadness due to loss (Sawada & Takasaki, 2017). According to Kubler Ross, the stages of the grieving response include denial, anger, bargaining, depression and accepting (Gregory, 2017). The period of acceptance of an individual who experiences grieving for an event is normally 2-3 years depending on the cause of losing something they love (Ren et al., 2018). Grieving in an individual also depends on the thought process toward acceptance of each stage of grieving, and the adaptation of the behavior displayed depends on the patterns that already apply and the stress that they experience (Hoffmann & Muttarak, 2017).

Stress is a subjective feeling that an individual feels about an event that is difficult to control or threaten. Stress occurs in real conditions and is directly perceived as a threat, which causes physical, psychological and social changes (Sommerfeldt et al., 2019). Stress symptoms that arise include physical, emotional and behavioral aspects (Michels et al., 2015; Payne & Kensinger, 2018). Stress reactions in nurses differ depending on how individuals perceive the stress and coping mechanisms. Coping mechanisms provide the ability of individuals to support the functions of integration, growth, learning and achievement of goals. Poor coping mechanisms will inhibit such functions, reduce autonomy, and exhibit a need to control the environment (Payne & Kensinger, 2018; Sommerfeldt et al., 2019). Refractive stress reactions can vary, including headaches, digestive changes, and feelings of agitation; psychological aspects that arise are emotions that overflow and feeling depressed (Michels et al., 2015). Chronic stress is a continuation of acute stress, due to the depth of an event or events, for up to a year or continuously throughout life (Popoli et al., 2012). Chronic stress occurs because of a very strong stressor that is difficult to control and threatens, such as natural disasters, which are

characterized by: 1) the desire that must be done, where the opposite impact arises in the self, such as wanting to do and not do activities or activities, and 2) difficulties controlling yourself, which means things being beyond your ability, such as difficulty in deciding. This shows that, in trauma, there are parts that do not return intact and leave very deep marks (Bromet et al., 2017).

Trauma is difficult to predict, hard to believe, and crosses the line of imagination and involves loss of feelings, such as helplessness, nothing helps and anger (Brooks et al., 2019b). Another impact on nurses who are traumatized is the imbalance of interactions between biological, psychological, socio-cultural, environmental and legal ethical aspects that affect an individual's adaptation to their environment, which, in turn, affects their health, work productivity and the quality of life of nurses so they are unable to use social support (Meiser-Stedman et al., 2017). The final impact will cause mental health problems, which is post-traumatic stress syndrome (PTSS). Nurse intervention in overcoming PTSS is through individual therapy, which is changing cognitive function through cognitive therapy (Hori et al., 2018). Therapy can help survivor nurses in overcoming PTSS problems, enhancing nurses' functions and roles, and interdependencies, which are characterized by increased ability to analyze self-awareness, interaction, communication, and self-motivation (Legemaate et al., 2012a). The purpose of this study was to explain the effect of disaster nursing models to reduce post-traumatic stress syndrome.

METHODS

The study used quasi-experiment research with post-test with control group research design aimed at testing the effectiveness of cultural and spiritual aspects of disaster nursing models for nurses in reducing the incidence of PTSS. The research population in the study was nurse survivors with the following criteria: 1) nurses who were in a natural disaster and were saved; 2) experiencing one of the conditions of loss, such as damage to dwellings (destroyed houses), property, etc.; 3) grieving loss; 4)

experiencing anxiety during a scary event, and experiencing excessive fear until feeling helpless. Samples in the study following two stages of screening after the study area was determined obtained 1) intervention group: Sukabumi District a total of 15 people (Puskesmas Waluran, Ciemas, Tamanyaya, Jampang, Surade, Jampang Kulon) and Pandeglang District a total of 19 people (Puskesmas Panimbang, Cigeulis, Cibaliung, Sobang, Cimanggu), and 2) control groups: Ciamis Regency in total 10, Garut Regency in total 15, and Cianjur in total 10. Data collection tools used by researchers were questionnaire on respondents' demographic data, impact of event scale (IES) (Joseph, 2000) and affect intensity measure (AIM) (Townley & Kloos, 2009), Data were analyzed using Mann Whitney Test.

RESULTS

The characteristics of the respondents were almost of average age between 30 – 39 years old in the intervention group (64/162, 39.5%) and also in the control group (36/60, 60.0%). Gender of the respondents in the treatment group was female (95/162, 58.6%) and different in control group where the majority was male (46/60, 76.7%). Diploma education was background in average nursing (Treatment and Control, 101/162, 62.3% and 45/60, 75.0%) with occupation in primary health center nursing (146/90.1 %); the experience of working, for most of the respondents was more than ten years (68/162, 42.0%). The income of the respondents was upper and the same with regional minimum income based on 2019 (86/162, 53.1%) and the religion was Muslim (135/162, 83.3% and 59/60, 98.3%) (Table 1).

Table 1. The Characteristic of Respondents

Demographic Characteristics	Intervention		Control	
	N	%	N	%
Age				
20 – 29 years	64	39.5	16	26.7
30 – 39 years	86	53.1	36	60.0
40 years above	12	7.4	8	13.3
Gender				
Male	67	41.4	46	76.7
Female	95	58.6	14	23.3
Educational Background				
Senior High School	16	9.9	5	8.3
Diploma	101	62.3	45	75.0
Bachelor	45	27.8	10	16.7
Occupation				
Primary Healthcare	146	90.1	56	93.3
Hospital	16	9.9	4	6.7
Marital Status				
Married	36	22.2	8	13.3
Single	115	71.0	52	86.7
Widow/Widower	11	6.8	0	0.0
Working Experience				
1 – 5 years	38	23.5	18	30.0
6 – 10 years	56	34.6	17	28.3
> 10 years	68	42.0	25	41.7
Income				
Under Regional Minimum Income	76	46.9	28	46.7
Upper and same with Regional island	86	53.1	32	53.3
Religion				
Muslim	135	83.3	59	98.3
Christian	20	12.3	1	1.7
Hindu	5	3.1	0	0.0
Buddhist	1	0.6	0	0.0
Konghucu	1	0.6	0	0.0

Table 2. Variable Distribution in the Research

Variable	Intervention		Control	
	N (%)	%	N	%
Impact of Event Scale				
Mild Range	98	60.5	8	13.3
Moderate Range	52	32.1	33	55.0
Severe Range	12	7.4	19	31.7
Affect intensity measure				
Low	4	2.5	0	0.0
Moderate	9	5.6	60	100.0
High	149	92.0	0	0.0

Table 3. Hypothesis Analysis of the Research

Variable	Group	Min-Max	Post-Test (Mean ± SD)	Delta (Δ)	p-Value
Impact of event scale	Intervention	22-77	29.17±9.794	0.770	P = 0.000
	Control	22-97	37-108	1.886	
Affect intensity measure	Intervention	20-143	82.54±19.250	1.512	P = 0.155
	Control	37-108	84.12±13.793	1.781	

In the disaster nursing model to reduce PTSS we needed to evaluate the impact of event scale and affect intensity measure. The impact of the disaster in people was in the mild category in the intervention group (98/162, 60.5%), and moderate category in the control group (33/60, 55.0%). The effect of the disaster was felt by the community and given in good condition. The average of the effect in disaster was high in the intervention group (149/162, 92.0%) and moderate category in the control group (60/60, 100.0%) (Table 2). Based on statistical analysis, the P value showed significant effect in variable impact of event scale (P = 0.000), while the affect intensity measured had no significant influence. It can be concluded from the results that significant influence means there was a difference between control and intervention group given by the disaster nursing model plan (Table 3).

DISCUSSION

Disaster nursing approach to reduce post-traumatic stress syndrome did not show the influence to affect the intensity measure, but the different results showed the effect of the impact scale (Asim *et al.*, 2019). In each group after the disaster nursing model intervention was given, an approach to reduce PTSS, the intervention group showed better influence. When given the right intervention, there will be a change in behavior to face natural disasters; the control group results showed more or less improvement, so this shows the best benefits of the disaster nursing intervention to reduce PTSS (Legemaate *et al.*, 2012b). However, the impact effect scale showed no difference, so that both groups showed high results due to the impact of natural disasters. This condition is related to the incidence of trauma and the ability to do adaptive coping.

Adaptive coping mechanism is a coping mechanism used by individuals to support the function of integration, growth, learning and achieving goals (Parker *et al.*, 2015). The categories of adaptive coping mechanisms are talking to others, effective problem solving, relaxation techniques, balanced exercise, and constructive activity (Meiser-Stedman *et al.*, 2017; Sommerfeldt *et al.*, 2019), while maladaptive coping mechanisms are coping mechanisms that inhibit the function of integration and

growth, reduce autonomy, and a need to control the environment. The categories are overeating or not eating, overwork, avoidance, self-injury and aggressive. Based on the adaptive-maladaptive range, adaptive coping is characterized by 1) being able to analyze self-awareness, 2) being able to communicate, 3) having good intrinsic motivation (De Kloet & Molendijk, 2016; Garber, 2017). This is supported by the results of the study which found an increase in the ability of self-awareness analysis, communication, interaction, and intrinsic motivation of survivor’s nurses who received PTSS handling after the earthquake disaster.

Reactions that arise from the physiological aspects are headaches, digestive changes, and feelings of agitation; psychological aspects that arise are emotions that overflow, and feeling depressed (Crum *et al.*, 2017; Sriyono *et al.*, 2020). Chronic stress is a continuation of acute stress, due to the depth of an event or events, for up to a year or continuously throughout life. Chronic stress occurs because of a very strong stressor that is difficult to control and threatens, such as natural disasters, which are characterized by: 1) desires that must be carried out, where the opposite impact arises in the self, such as wanting to do and not do activities or activities, and 2) difficulties controlling yourself, which means things beyond one’s own ability, such as difficulty in deciding. The difference between acute stress and chronic stress (trauma) is that acute stress is temporary, meaning that it can still be improved by increasing coping abilities, while chronic stress (trauma) can cause extreme shock to damage to self-defense, loss of the entire body system and exceed the limits the ability of individuals to use their coping abilities (Parker *et al.*, 2015; Sriyono *et al.*, 2020). This means that, in trauma, there are parts that do not return intact and leave very deep marks.

Trauma is a threat that occurs to yourself or others in the form of unpleasant and recent events, death or serious injury, disruption of physical integrity, impact on feelings of extreme shock, characterized by damage to self-defense, and loss of the entire body system in humans, which includes responses to anxiety, helplessness and fear. The cause of trauma to an individual is due to the inability to use coping that is owned, or the individual has

been unable to think of using the various coping abilities they possess. Trauma is difficult to predict, hard to believe, goes beyond the limits of imagination and induces feelings such as helplessness, nothing helps and anger. Another impact on nurses who are traumatized is the imbalance of interactions between biological, psychological, socio-cultural, environmental and legal ethical aspects, which affect an individual's adaptation to their environment, which, in turn, affects their health, work productivity and the quality of life of nurses so that they are unable to use social support. The final impact will result in mental health problems depending on the severity of trauma and individual vulnerability to PTSS. Continued trauma is called post-traumatic stress syndrome (PTSS).

CONCLUSION

The disaster nursing approach to reduce post-traumatic stress syndrome can affect a victim's condition in the disaster area. This condition is related to the incidence of trauma and the ability to do adaptive coping. Adaptive coping mechanism is a coping mechanism used by individuals to support the function of integration, growth, learning and achieving goals. To sustain the ability of self-awareness analysis, communication, interaction, and intrinsic motivation of survivor's nurses, they should receive PTSS handling after the disaster.

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