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Original Research

Development of the Mind-Body-Spiritual Nursing Care Model (MBS) for Coronary Heart Disease Patients

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ABSTRACT

Introduction: Patients with coronary heart disease (CHD) may experience various physical, psychological or spiritual issues. A holistic mind-body spiritual nursing care (MBS) model is needed to help patients' cope with the issues. This study aimed to develop an MBS nursing care model for CHD patients.

Method: The study employed a crossectional design with 110 CHD patients participated in the study. Respondents were asked to fill out questionnaires to gather the required data. Criteria for respondent selection were Moslem, aged 40-75 year, medical diagnosis of CHD, and haemodynamically stable. The independent variables were focal, contextual and residual stimuli, while the dependent variables were coping and spirituality. Data were analyzed using partial least square.

Results: The results show that the mind-body-spiritual nursing care formed focal stimuli. Spirituality is formed by focal, contextual, residual stimuli and coping style. Nursing care significantly affects spirituality, shown by T-statistics of 6.795. Spirituality can be explained by patience, endeavour toward wellness, and offer the results only to the God by 72%, while the rest is explained by other factors.

Conclusion: MBS nursing care model has a strong relationship with spirituality. This model needs to be applied in a further research to see its effectiveness in improving spirituality and expression of cardiovascular risk inflammatory markers.

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coronary heart disease; mind-body-spiritual; nursing care model; spirituality

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INTRODUCTION

A provision of a mind-body-spiritual nursing care that emphasizes not only on physical aspect of care, but also psychological, and spiritual care are needed. However, a fit of a model of nursing care for patients treated in hospital has yet to be developed, hence, it is necessary to develop the mind-body-spiritual nursing care model.

Being treated in the hospital with the acute coronary syndrome can be very distressfull for patients, on several aspects. A qualitative study revealed that patients' experiencing multiple issues during hospital stays and need help from nurses to help them cope with the issues (Kurniawati, Nursalam, & Suharto, 2017). Stress has been empirically shown to interfere with immunity, mainly through a so-called hypothalamus-pituitary-adrenal (HPA) axis. After the brain perceives the stressor, the hypothalamus releases corticotropin-releasing hormone (CRH), which then stimulates the pituitary gland to release ACTH. This will, in turn, causes the adrenal cortex to express glucocorticoids.

Several studies have investigated the mind-body, spiritual intervention, but current research has not incorporated mind-body-spiritual intervention comprehensively in a series of nursing orders. Psychological interventions proved to be effective in improving pain tolerance and postoperative immunologic resistance (Rehatta, 2005), reducing postoperative pain, anxiety, tension and analgesic use in 20 studies involving a total of 1297 patients (Nelson et al., 2013) and decreasing physical symptoms and mental in patients with chronic physical and mental pain, (Vranceanu et al., 2014).

In addition to the mind-body intervention, studies have demonstrated the benefits of spiritual-based intervention in increasing HSP 72 (Asiyah, Putra, & Kuntoro, 2011), increasing alpha waves in the brain and decreasing cortisol levels, decreasing stress and anxiety (Barnby, Bailey, Chambers, & Fitzgerald, 2015), decreasing depression in patients with acute coronary syndrome (Warber et al., 2011), and lowering the cortisol levels of HIV patients (Murray et al., 2007).

Therefore, the literature review supports the promising benefits of a comprehensive mind-body-spiritual nursing care intervention for CHD patients. This study aimed at developing a mind-body-spiritual nursing care for coronary heart disease patients treated at hospitals. This is supported by the previously described literature review that highlights the promising benefits of the mind-body-spiritual nursing care for the patients that until to date, is yet to be developed.

MATERIALS AND METHODS

The research used an analytical explanatory design where required data were taken cross-sectionally approximately over six months period. The population of the study was all patients with coronary heart disease hospitalised in some hospitals in Surabaya, Indonesia. The sample was drawn from the population treated at various rooms in a top-referral-government-owned hospital in Eastern Indonesia, a university hospital and a big private hospital in Surabaya. The inclusion criteria were CHD patients with a stable hemodynamic status had been treated for at least two days and had a capacity to understand written information; whereas the exclusion criteria were CHD patients with decreased level of consciousness and withdrew from the study for many reasons. Participants of the study were selected randomly by simple random sampling.

The sample size was calculated using statistical power and effect size adjusted to SEM-PLS model sample size table from Sholihin & Ratmono (2013). Based on the preliminary model which consist of four big arrows, significant at 5% and minimum R2 of 0.50, the minimum sample size yielded from the table was 42. Thus, the number of respondents in this study was 110 respondents.

Data were collected from February to April 2017 using questionnaires developed from a previous study (Kurniawati et al., 2017) in 2017. Questionnaires were tested for validity and reliability and they were all valid and reliable with r = 0,508-951, p = 0,008- 0,000, and Cronbach alfa between 0,638- 927. All subjects were required to fill out the questionnaires once cross-sectionally and there was no follow up conducted by the authors. The collected data were tabulated and analysed using statistical analysis of Smart Partial Least Square with aimed to develop a statistical model of MBS nursing care.

The study protocols were reviewed and approved by Commissions of Ethics from Rumah Sakit Universitas Airlangga Number 023 / KEH / 2016, dated August 6, 2016, and RSUD Dr. Soetomo Number 262 / Panke.KKE / IV / 2017, dated April 6, 2017.

RESULTS

Table 1 shows participants' demographic data. It can be seen from the table 1 that the majority of respondents are male (68.18%), Javanese (82.73%), from Surabaya (54.5%), with medical diagnosis of STEMI (42.73%), underwent second hospitalisation (51%), aged 56-70 years (54.55%) and on their third day of hospital stay (43.64%).

Variables examined in this study were focal stimuli (X1), contextual stimuli (X2), residual stimuli (X3), coping (Y1) and spirituality (Y2). The focal stimuli depicted by Patient's issues (X1.1) and the Mind-Body-Spiritual Nursing Care (X1.2). The contextual stimuli had 3 indicators: Hospital Environment (X2.1), Family Support (X2.2), and Past Hospitalisation Experience (X2.3). Residual stimuli were measured through four aspects of indicators: education (X3.1), occupation (X3.2), health insurance (X3.3) and patients' religious rituals (X3.4). Coping was measured through two indicators: problem-focused coping (Y1.1) and emotional-focused coping (Y1.2). Lastly, Spirituality was defined by patients

Table 1. Characteristics of Respondents

Variables	Sub Variables	Frequency	%
Sex	Men	75	68.18
	Women	35	31.82
Ethnicity	Banjar	2	1.82
	Batak	3	2.73
	Javanese	91	82.73
	Madurese	7	6.36
	Buginese	1	0.91
	Malay	2	1.82
	Sasak	1	0.91
	Sundanese	3	2.73
Address	East Java	97	88.18
	Borneo	2	1.8
	Madura	8	7.3
	West Nusa Tenggara	2	1.8
	Papua	1	0.9
Age	40-50	28	22.45
	51-60	47	42.73
	61-70	35	31.82
Medical Diagnosis	Angina, UAP	23	20.91
	NSTEMI	13	11.82
	STEMI	47	42.73
	OMI	22	20.00
	Iskemia	5	4.55
Number of hospitalisation	1	32	29.09
	2	51	46.36
	3	27	24.55
Length of hospital stay	1	5	4.55
	2	28	25.45
	3	48	43.64
	4	29	26.36

Table 2. Distribution of Respondents of Children and Caregivers Meeting the Research Criteria at YPAC Surakarta March-April 2017 (n= 23)

Variable	Indicator	Sub Indicator	Category									
			Never		Sometimes		Often		Always		Total	
			n	%	n	%	n	%	n	%	n	%
Focal stimuli	Patients's issue	Physical	4	3.64	24	21.82	55	50.00	27	24.55	110	100
		Psychological	46	41.82	36	32.73	27	24.55	1	0.91	110	100
		Social	71	64.55	31	28.18	8	7.27	0	0.00	110	100
		Spiritual	23	20.91	67	60.91	18	16.36	2	1.82	110	100
	MBS nursing care	Assess	4	3.64	15	6.82	46	20.91	155	70.45	220	100
		Help meet the patient's physical need	2	1.82	14	6.36	44	20.00	160	72.73	220	100
		Fascilitate the coping strategy	37	33.64	10	4.55	48	21.82	125	56.82	220	100
		Fascilitate spiritual activity	47	42.73	11	5.00	68	30.91	94	42.73	220	100
Contextual stimuli	Hospital environment	Comfortness	2	0.61	36	10.91	119	36.06	173	52.42	330	100
		Nurse's communication	0	0.00	15	6.82	62	28.18	143	65.00	220	100
		Nurse's friendliness	0	0.00	33	15.00	63	28.64	124	56.36	220	100
	Family support	Emotional suppport	2	0.91	17	7.73	78	35.45	123	55.91	220	100
		DuCognitive suppport	6	2.73	34	15.45	54	24.55	126	57.27	220	100
		Material suppport	2	0.91	27	12.27	73	33.18	118	53.64	220	100
	Past experience	Satisfaction toward nursing care	89	40.45	48	21.82	71	32.27	12	5.45	220	100
		Effectiveness of previous coping style	124	56.36	40	18.18	48	21.82	8	3.64	220	100
Coping	Problem focused coping	Planned-problem solving	12	5.45	52	23.64	65	29.55	91	41.36	220	100
		Direct action	4	1.82	34	15.45	98	44.55	84	38.18	220	100
		Seeking help	3	1.36	31	14.09	96	43.64	90	40.91	220	100
		Information seeking	3	1.36	27	12.27	77	35	113	51.36	220	100
	Emotional Focused Coping	Avoidance	61	27.73	129	58.64	19	8.64	11	5	220	100
		Deny	61	27.73	123	55.91	21	9.55	15	6.82	220	100
		Self-criticsm	131	59.55	45	20.45	31	14.09	13	5.91	220	100
		Look for silver lining	26	11.82	81	36.82	78	35.45	35	15.91	220	100
Spirituality	Patience		0	0	30	9.09	103	31.21	197	59.70	330	100
	Endevour		11	3.33	11	3.33	98	29.7	210	63.64	330	100
	Submission to God		0	0	17	5.15	98	29.70	215	65.15	330	100

Table 3. Description of Residual Stimuli

Indicator	Sub Indicator	n	%
Education	Non/elementary	26	23.64
	High school	50	45.45
	Diploma	7	6.36
	≥ S1	27	24.55
Occupation	None/housewife	16	14.55
	Labor, retirement, farmer, driver	27	24.55
	Entrepreneur, Private employee	57	51.82
	Goverment employee	10	9.09
Health insurance	Govt health insurance class III	5	4.55
	Govt health insurance class II	45	40.91
	Govt health insurance class I	55	50.00
	Private insurance	5	4.55
Religious rituals	Never	0	0
	Sometimes	5	4.55
	Often	40	36.36
	Always	65	59.09

during illness, endeavour toward wellness, and a total submission toward the God's will.

Table 2 summarises the data of focal and contextual stimuli. Based on the table it can be concluded that the majority of respondents used a problem-focused coping style, rather than emotional-focused coping style with seeking information reported being the highest proportion (51.36%). The most common coping style was under emotional focused coping style that respondents never used was self-criticism (59.55%). Most respondents reported always being patient (59.7%), endeavouring toward wellness (63.64%), and offering all the result of the treatment to God (65.15%).

After the outer model was defined, the inner model was then analysed. The purpose of structural model analysis (Inner Model) was to examine the influence of exogenous factors on endogenous factors. The value used as a reference was the T-

Table 2. Convergent validity of the latent variables

No	Latent variable	Indicator	Convergent Validity		
			Loading factor (λ)	T-Statistic	Validity
1	Focal Stimuli	MBS nursing care	1.000		Valid
2	Contextual stimuli	Hospital environment	0.803	1.330	Valid
		Family support	0.903	1.782	Valid
		Hospitalisation experience	-0.620	0.954	Valid
3	Residual stimuli	Education	0.857	4.302	Valid
		Religious ritual	0.604	2.408	Valid
		Health insurance	0.725	3.102	Valid
4	Coping	Problem focused coping	0.999	2.813	Valid
		Emotional Focused Coping	-0.586	1.254	Valid
5	Spirituality	Patience	0.917	34.652	Valid
		Endeavour toward wellness	0.914	33.456	Valid
		Submission to God	0.928	24.137	Valid

Table 3. Relationship between the exogenous factor and endogenous factor

No	Pathway	Path Coefficient	T-Statistic	T-Table	Significance
1	(X1) Focal stimuli → (Y1) Coping	0.189	1.260	1.96	Not significant
2	(X2) Contextual stimuli → (Y1) Coping	0.129	0.778	1.96	Not significant
3	(X3) Residual stimuli → (Y1) Coping	0.217	1.294	1.96	Not significant
4	(X1) Focal stimuli → (Y2) Spirituality	0.720	6.795	1.96	Significant
5	(X2) Contextual stimuli→ (Y2) Spirituality	-0.013	0.158	1.96	Not significant
6	(X3) Residual stimuli → (Y2) Spirituality	0.187	1.857	1.96	Not significant
7	(Y1) Coping → (Y2) Spirituality	0.073	0.613	1.96	Not significant

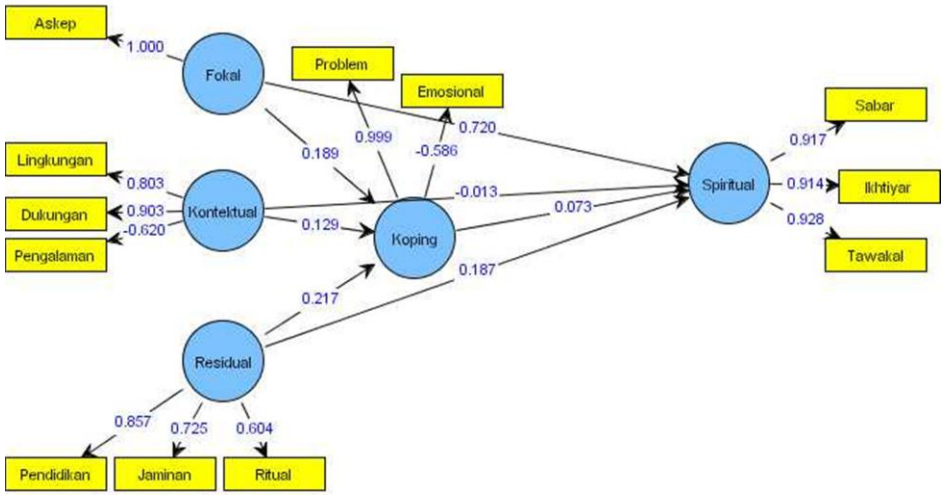

Figure 1. Mind-body-spiritual nursing care model, pathway analysis

table value (109.025 = 1.96). Exogenous factors were considered had an effect on endogenous factors if the T-statistic value was greater than a table with fault tolerance (α) = 5%. The result of the significance test is described in the following table.

To develop a fit model, the structural equation model was analysed by measuring both the outer and inner model. The measurement model (outer model) was analyzed by testing the validity and reliability of the construct. As can be seen from table 4, patients' issues and occupation were statistically not significant in defining the model, thus those two indicators were removed from the model. It can be concluded from the Table 5 that almost all exogenous variables had no significant effect on endogenous variables. Only one exogenous variable had a significant effect on an endogenous variable, namely the focal stimuli variable of spirituality.

Figure 1 illustrates the model of nursing care of MBS on the spirituality of patients treated with CHD. It can be seen from the figure that none of the exogenous factors has an influence on endogenous factors, except for the mind-body-spiritual nursing care itself (R-square value shows 0.720). Therefore in providing patient of CHD treated in hospital, the main focus of the nurses rely solely on the nursing care itself. The R-square value shows that the variable of spirituality can be explained by patience,

endeavour, and submission to God by 72%, while the rest explained by other factors.

To determine whether the MBS nursing care model has a good ability in predicting the improvement of someone's spirituality, the goodness of fit (GoF) test was performed and yielded a score of 0,6172. Showing that the MBS nursing care model's ability to explain its research variables very strongly. In another word, the size of the influence of variable is big.

DISCUSSION

The results show that the focal, contextual, and residual stimuli do not have any effect on coping. Additionally, the contextual stimuli, residual stimuli, and coping also have no effect on spirituality. Only focal stimuli have a significant effect on spirituality. These findings suggest that the patients' spirituality can be enhanced directly by the provision of focal stimuli, which is the mind-body-spiritual nursing care. This is a very promising result because it highlights the strength of the study that proves the MBS nursing care may improve the patients' spirituality although other aspects of care may less favourable.

These findings are inconsistent with the previous theory that the desired adaptive response, spirituality, was not only influenced by focal stimuli, but also the contextual and residual stimuli. The results of Siyoto, Peristiowati, & Agustin (2016) showed focal stimulus, contextual stimulus, and residual stimulus related to the coping mechanism in people living with HIV. Several studies have also shown that spirituality is related to coping of cancer patients in Iran (Abuatiq, 2015; Rezaei, Adib-Hajbaghery, Seyedfatemi, & Hoseini, 2008), and African-American respondents subjected to racist treatment (Cooper, Thayer, & Waldstein, 2014).

The limitation of the study was the efficacy of the model has not been investigated; therefore, further study is required to prove the efficacy of the model in coronary heart disease patients treated in hospitals.

CONCLUSION

Based on the results of the study can be concluded that the focal stimuli, the mind-body-spiritual nursing care, affects spirituality directly without going through coping pathways. This is very beneficial because several variables that might affect spirituality can be ignored as long as the focal stimuli can be given by the nurse properly.

However, as previously described in the discussion, this mind-body spiritual nursing care model firstly needs to be tested to patients with coronary heart disease to know its effectiveness in improving spirituality and other aspects before it can be used in clinical practice.

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