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Effectiveness of Stress-Adaptation and Cognitive Behavior (SACB) Model for Independent Health Recovery for Clients with Coronary Heart Disease in the Community

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Abstract

The main risk factors of coronary heart disesase are: hypertension, hypercholesterolemia, and smoking, as factors that can be controlled and are reversible. Other risk factors are age, race, gender, heredity, geography, diet, obesity, diabetes, exercise, behavior and other life habits, stress, social changes and reversible mass changes. Lifestyle management, stopping smoking and effective changes in hypertension can reduce risk and death. Through this research, it is expected that the effectiveness of the Stress-Adaptation and Cognitive Behavior (SACB) Model on the ability to independently recover health care for clients with coronary heart disesase. The design of this study was pretest-posttest with control group. Samples were 29 patients with coronary heart disesase in RW 03 and RW 08, Pondok Labu, South Jakarta, which were selected by cluster random sampling technique, which were further divided into intervention and control groups. The intervention given was the Stress-Adaptation and Cognitive Behavior (SACB) model. The research instrument was the ENRICHD Social Support Instrument (ESSI) and modified the SF-36 Mental Health Index and Social Functioning subscale. Measurements included rehabilitation behavior, self recovery, blood pressure and pulse. Data were collected through observation and questionnaires, then analyzed using logistic regression tests and Mancova. Based on the results of the study it can be concluded that the Stress-Adaptation and Cognitive Behavior (SACB) Model is effective for building the ability of people with coronary heart disesase to recover health independently.

Keywords: *coronary heart disesase; stress-adaptation and cognitive behavior (SACB) model; independent health recovery*

Introduction

In Indonesia there has been a shift in the incidence of heart and blood vessel disease, from the 10th in 1980 to the 8th in 1986. While the cause of death remains third. Many factors affect the occurrence of coronary heart disesase (CHD) so prevention efforts must be multifactorial. Prevention must be tried as much as possible by controlling the risk factors for CHD. Primary prevention is aimed more at those who are healthy, but has a high risk, while secondary prevention is an effort to prevent worsening of the disease condition. Various studies have been conducted for more than 50 years, where there are variations in the incidence of CHD that differ in geographical conditions and certain social conditions that have been increasing since 1930, and starting in 1960 this disease became the main cause of death in industrialized countries.(1)

The main risk factors of CHD are: hypertension, hypercholesterolemia, and smoking, as factors that can be controlled and are reversible. Other risk factors are age, race, gender, heredity, geography, diet, obesity, diabetes, exercise, behavior and other life habits, stress, social changes and reversible mass changes. Lifestyle management, stopping smoking and effective changes in hypertension can reduce risk and death.

Based on the 2013 Basic Health Research, the highest rate of hypertension was 30.9% and the lowest was 16.8%. CHD with hypertension as the cause becomes very alarming. In a sick condition, the client experiences continuous stress, and can aggravate his physical and psychological condition, thereby threatening productivity in daily activities, also decreasing the client's contribution in the family and community.(2) Hypertension cases cause around 9.4 deaths worldwide

each year. Hypertension causes at least 45% of deaths due to heart disease and 51% of deaths due to stroke. Deaths caused by cardiovascular disease, especially CHD and stroke are expected to continue to increase to reach 23.3 million in 2030. Every year World Heart Day is celebrated every September 29.[3]

Likewise, A Randomized Controlled Trial of Stress Reduction in African American Treated for Hypertension for Over One Year through a 20-minute intervention in the form of Progressive Muscle Relaxation (ROP), results in a decrease in blood pressure.[4] Clients with CHD have risk factors that can be avoided, namely smoking, obesity, lack of physical activity, and stress, including eating patterns. Overall risk factors are generally known by the client, but he often underestimates and violates them. Other healthy behaviors are avoiding fatty foods, consuming fibrous foods (vegetables and fruits), avoiding salt or flavoring, consuming vitamins, consuming water, avoiding soft drinks, and getting enough sleep.

Clients with CHD at home who have been left out of care need family support and health workers to be able to carry out their health recovery independently (ENFICHD) from the beginning of stress and must adapt to the conditions of illness, both ways of regulating lifestyle healthy to independent abilities, both cognitive abilities and monitoring their health conditions. Stress-Adaptation and Cognitive Behavior (SACB) models can strengthen the client's ability to adapt through mindset and immune system, each other has a connection that can be explained through communication of cells that are experiencing stress and neurotransmitter factors[5], in order to carry out recovery health independently through adjustments to coping mechanisms and health status. Strengthened with the Cognitive Behavior model, it is expected that the client is able to recognize the structure, content and function in dealing with his pathophysiological conditions, especially the ability of assimilation until the client is able to independently monitor his health condition.[6]

Through this research, it is expected that the effectiveness of the Stress-Adaptation and Cognitive Behavior (SACB) Model on the ability to independently recover health care for clients with CHD.

Method

The design of this study was pretest-posttest with control group. Samples were 29 patients with CHD in RW 03 and RW 08, Pondok Labu, South Jakarta, which were selected by cluster random sampling technique, which were further divided into intervention and control groups. The intervention given was the Stress-Adaptation and Cognitive Behavior (SACB) model. The research instrument was the ENRICHD Social Support Instrument (ESSI) and modified the SF-36 Mental Health Index and Social Functioning subscale. [7] Measurements included rehabilitation behavior, self recovery, blood pressure and pulse. Data were collected through observation and questionnaires, then analyzed using logistic regression tests and Mancova.

Findings

The analysis showed that there were differences in sex, education and history of DM between the intervention group and the control group. But there was no difference in history of hypertension and history of CHD.

Table 1. The equality test

Variable	Intervention group		Control group		P-value
	f	%	f	%	
Gender					
• Male	11	44	2	8	0.004
• Female	14	56	23	92	
Education					
• Elementary school	1	4	-	-	0.010
• Junior high school	18	72	5	20	
• Senior high school	6	24	20	80	

Cont... **Table 1. The equality test**

Variable	Intervention group		Control group		P-value
	f	%	f	%	
History of DM • Yes • No	 8 17	 32 68	 17 8	 68 32	0.011
History of hipertension • Yes • No	 11 14	 44 56	 11 14	 44 56	1.000
History of CHD • Yes • No	 18 7	 72 28	 12 13	 48 52	0.083

The analysis showed that there were differences in the duration of CHD between the intervention group and the control group. However there was no age difference between the intervention and control groups.

Tabel 2. The equality test of age and the duration of CHD

Variable	Group	n	Mean	SD	P-value
Age	Intervenstion	25	54.76	56	0.867
	Control	25	54.32	51	
Long suffering from CHD	Intervenstion	25	3.12	3.77	0.017
	Control	25	1.04	1.67	

Table 3. Comparison of respondents' self adaptation, self recovery, blood pressure and pulse before and after the intervention between the two groups

Variabel	Kelompok	Mean	SD	95% CI	t	P value
Self adaptation	Intervention Group Before After Difference	 9.960 10.080 -0.120	0.600	-0.367 – 0.127	-1.000	0.327
	Control Group Before After Difference	 11.650 11.640 -0.080	0.400	-0.245 – 0.085	-1.000	0.327

***Cont...* Table 3. Comparison of respondents' self adaptation, self recovery, blood pressure and pulse before and after the intervention between the two groups**

Self recovery	Intervention Group Before After Difference	 45.520 46.520 -1.000	2.380	-1.982 - -0.017	-2.100	0.046
	Control Group Before After Difference	 48.400 46.360 2.040	7.976	-1.252 – 5.332	1.279	0.213
Systolic	Intervention Group Before After Difference	 133.76 132.68 1.080	10.711	-3.341 – 5.501	0.504	0.619
	Control Group Before After Difference	 141.20 142.29 -1.040	2.835	-2.210 – 0.130	-1.834	0.079
Diastolic	Intervention Group Before After Difference	 85.040 80.720 4.320	10.823	-0.147 – 8.787	1.996	0.057
	Control Group Before After Difference	 86.20 86.96 -0.76	5,117	-2.872 – 1.352	-0.743	0.465
Pulse	Intervention Group Before After Difference	 94.400 92.560 1.840	6.749	-0.946 – 4.626	1.363	0.186
	Control Group Before After Difference	 94.36 93.12 1.24	6.200	-1.319 – 3.799	1.000	0.327

The results of the analysis showed that there were differences in rehabilitation behavior in the intervention group before and after the intervention (p = 0,000), with the difference in attitude score = 2,640; there was a difference in self-recovery in the intervention group before and after the intervention (p = 0.046), with a difference in mean score = 1,000; and there was a diastolic blood pressure difference between before and after the administration of the intervention (p = 0.057), with the mean score difference = 0.4320.

Table 4. Comparison of knowledge, self-recovery and diastolic blood pressure, after intervention between the two groups

Variable	Group	n	Mean	SD	95% CI	F	P-value
Self adaptation	Intervention	25	-2.64	2.157	-3.684 – (-1.835)	32.260	0.000
	Control	25	0.12	0.665			
Self recovery	Intervention	25	-9.200	2.379	-2.960 – 1.664	1.556	0.056
	Control	25	2.040	7.976			
Diastolic blood pressure	Intervention	25	4.320	10.823	0.215 – 9.944	12.189	0.041
	Control	25	-0.760	-0.766			

The analysis showed that there were differences in self adaptation and diastolic blood pressure between the intervention group and the control group after the intervention (p = 0,000; p = 0.041).

Table 5. Effect of respondent characteristics on self adaptation, self recovery and diastolic blood pressure

Independent variable	Dependent variable	Mean Square	df	F	P-value
The duration of CHD	- Knowledge - Self recovery - Diastolic blood pressure	21.174 3.949 5.179	1 1 1	10.341 0.103 0.066	0.003 0.750 0.799
Gender	- Knowledge - Self recovery - Diastolic blood pressure	9.401 40.248 2.071	1 1 1	4.591 1.049 0.026	0.038 0.312 0.872
Education	- Knowledge - Self recovery - Diastolic blood pressure	5.470 0.826 65.661	2 2 2	2.672 0.022 0.834	0.081 0.979 0.442
Cognitive: history of DM and family support	- Knowledge - Self recovery - Diastolic blood pressure	0.324 2.868 57.082	1 1 1	0.158 0.075 0.725	0.693 0.786 0.399

Based on the results of the MANCOVA test, it was found that the length of suffering from CHD, gender and education affected the variable of respondents' knowledge about the treatment of CHD, including family support

Discussion

Differences in levels of knowledge, self adaptation, self recovery, blood pressure and pulse between before and after the intervention in the intervention group and the control group

Based on the results of data analysis it is known that there are differences in knowledge in the intervention group between before and after the intervention; there were differences in self-recovery in the intervention group between before and after the intervention; there were also differences in diastolic blood pressure in the intervention group between before and after the administration of the intervention. Experience forms

the behavior of an individual, the ability of individuals to act and the appearance of desirable behavior is a very simple process of action (stimulus) and reaction (response). Hosland, et al (1953) in Notoatmodjo (1997) [8] said that the process of behavior change is essentially the same as the learning process. Three variables that influence it are attention, understanding, and acceptance. Understanding (cognitive) is the acquisition, structuring, and use of knowledge. In the learning process, a person who has long suffered from CHD will try to involve his relationship with the environment as a stimulus and response relationship, more than that, learning involves a very complex thought process, especially the desire to recover. Through Jean Piaget's cognitivism, the client will carry out the processes of assimilation, accommodation, and equilibration both internally and externally with the everyday environment.

Thus, through exposure to information about CHD and how to recognize the signs of symptoms and the dangers instinctively to the respondent, from the beginning of the pre-test to post-test, the respondent came to understand the importance of maintaining his health condition (assimilation). Respondents apply knowledge about CHD (accommodation), until the respondent is able to treat himself with his own initiative, in order to monitor his health independently.

Clients with CHD who have implemented and internalized their abilities, will also automatically adapt to themselves, especially when clients initially experience stress which then adapts to stressors of CHD. The respondent's ability to adapt to stress is that the client is able to adjust constructively to CHD, feel relatively free from tension and anxiety about the dangers of CHD, obtain satisfaction and independent efforts to monitor his health or life struggle against CHD, feel more satisfied to provide information about CHD to friends in the community, especially when carrying out control with the group.

The healthy people are people who can prevent interference caused by stressors, and are influenced by the size of the stressor, intensity, meaning, culture, and so on. Thus, the more individuals have varying coping capacities, which are influenced by the environment, stress conditions, and the sources and support available, the individual becomes healthy with adaptation, and has adaptive coping, including assessments of stressors, coping sources and coping mechanisms that are well.[9]

Differences in levels of knowledge, self-recovery and diastolic blood pressure after intervention between the two groups

After the intervention, it was found that there were differences in respondents' knowledge and diastolic blood pressure between the intervention group and the control group. Diastolic blood pressure is an illustration of a heart pump disorder that can be categorized as follows.

Table 6. The Classification of blood pressure

Classification of blood pressure	Systolic (mmHg)	Diastolic (mmHg)
Normal	< 120	<80
Prehypertension	120-139	80-89
Stage 1 hypertension	140-159	90-99
Stage 2 hypertension	160 atau >160	100 atau >100

Clients with CHD who already have good knowledge, cognitively will continue to maintain themselves, always have an alarm to maintain healthy behavior. Many factors affect the occurrence of CHD, both can be avoided or can not be avoided. After the client is able to adapt to the stress of his CHD, of course with SOR (Cognitive Behavior theory), the respondent will keep himself healthy. Respondents from several questions and answers through the independent monitoring booklet can answer more than 85% correctly about how to recognize and prevent the increasingly severe CHD they are experiencing. Therefore, changes in blood pressure towards improvement are the result of good self-monitoring of respondents.

The effect of respondent characteristics on the level of knowledge, self-recovery and diastolic pressure of patients with CHD.

Based on the results of data analysis, duration of CHD, knowledge, self-recovery, diastolic blood pressure are influenced by the characteristics of the respondents. Based on the results of the MANCOVA test, it was found that the duration of CHD, gender and education had an influence on knowledge about the treatment of CHD.

Wahyuni & Rezkiki[9] reported a significant difference if clients with CHD were given interventions for self-efficacy and empowerment, especially providing structured health education.

The elements of knowledge about CHD can be internalized by providing knowledge continuously through an independent health monitoring booklet, namely; Heart disease is a condition when the heart's blood vessels are damaged due to accumulation of fat or cholesterol in the heart's blood vessels. As a result, the heart blood vessels harden and narrow so that blood flow is blocked, so that the heart does not get the oxygen and food needed to function normally.

Clients with CHD at home who have been left out of care need family support and health workers to be able to carry out their health recovery independently (ENFICHD) from the beginning of stress and must adapt to the conditions of illness, both ways of regulating lifestyle healthy to independent abilities, both cognitive abilities and monitoring their health conditions. Stress-Adaptation and Cognitive Behavior (SACB) models can strengthen the client's ability to adapt through mindset and immune system, each other has a connection that can be explained through communication of cells that are experiencing stress and neurotransmitter factors[5], in order to carry out recovery health independently through adjustments to coping mechanisms and health status. Strengthened with the Cognitive Behavior model, it is expected that the client is able to recognize the structure, content and function in dealing with his pathophysiological conditions, especially the ability of assimilation until the client is able to independently monitor his health condition.[6]

Conflict of Interest-No

Source of Funding- Authors

Ethical Clearance- Yes

Conclusion

Based on the results of the study it can be concluded that the Stress-Adaptation and Cognitive Behavior (SACB) Model is effective for building the ability of people with CHD to recover health independently

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