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Factors that Affect Coping Mechanisms in Chemotherapy Patients with the Approach of Callista Roy Adaptation Theory



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Abstract

Chemotherapy can cause pain and emotional stress in the patient. This condition will make the patient delay the therapy. Strong coping mechanism is required to maintain good conditions. One of the empirical evidence of conceptual model theory is "Holistic Adaptive System" conceptual model theory, proposed by Callista Roy. This model is used in chronic diseases which undergone treatment. This study aimed to analyze factors which influence coping mechanisms in chemotherapy patients by using the Callista Roy adaptation theory approach. The study used cross sectional design. The population was 95 chemotherapy patients at the SumberGlagah Hospital in Mojokerto. The sampling technique used simple random sampling and the sample was 78 respondents. The instrument used coping and adaptation processing scale (CAPS) with an adaptation theory approach. The results of logistic regression showed educational factors (p value 0.031) and work (p value 0.023) had an effect on coping mechanisms, while the chemotherapy cycle factor (p value 0.688) had no effect on coping mechanisms with the theoretical approach of Callista Roy adaptation to chemotherapy patients. The higher the level of education, the better tolerance and control of stressors, the workplace environment will provide social support so that coping mechanisms become adaptive.

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INTRODUCTION

Cancer is a chronic disease that threatens human health both physically and psychologically. One treatment for prevent the cancer cell metastases is chemotherapy (Firmana, 2017). Chemotherapy can cause pain that gradually makes the patient's condition weaken. (CancerHelps, 2014) The condition of patients who are weakened due to chemotherapy can affect the seriousness of patients and it needs a good coping mechanism in adapting to maintain good conditions.(Firmana, 2017)

One empirical proof of conceptual model theory "Holistic in Adaptive System", which was stated by Callista Roy, this model was used in chronic disease which undergoes medication, because theoretically the success of treatment can be achieved by doing adaptive coping mechanism which was an important variable in the process of physiology and psychology adaptation to the stimulus that occurs (Kasron, Sahran, & Ohorella, 2016).

Deaths caused by Non Communicable Diseases (NCDs), accounting for 70% of the total 56 million cancer deaths are in the second number as many as 8.8 million deaths (22%) after cardiovascular disease 17.7 million deaths (45 %) in the world (WHO, 2017)

Data from 2016 non communicable diseases research on breast tumors survey carried in 34 provinces, 76 districts / cities, with women aged 25-64 years as many as 38,749, the prevalence of positive sadanis 8.1% and had been diagnosed with breast cancer 0.6% (Health Research and Development Agency, 2016). According to the Mojokerto Profile 2016 the greatest number in visual inspection of acetid acid (IVA) positive was in Mojoanyar District (13.33%) and for the most breast tumors cases was in Kemlagi District (4.85%) (Mojokerto District Health Office, 2017).

Treatment of cancer mostly with chemotherapy, data found as many as 58% patients underwent chemotherapy (American Cancer Society, 2016).

Side effects on chemotherapy can affect physical or psychological, which are 95% weakness, 90% fatigue, 79% vomit, 75% hair loss, 73% nausea, (Aslam et al., 2014). This will cause negative feelings as well as anxiety on the effects of chemotherapy that are unpleasant for patients during chemotherapy.

Based on a preliminary study on November 20 at the Mojokerto Sumber Glagah Leprosy Hospital,

there were 96 patients from July to December 2017 and there were 28 patients in January to February 13, In 2018 with a total of 124 chemotherapy patients. During interviews with 5 chemotherapy patients, it was found that 2 patients that said they only slept and did not leave the house, often to delay treatment, did not work, and 3 respondents who had been undergoing treatment stated that they were getting used to the usual side effects, maintaining the body in a good condition and continue with the next chemotherapy treatment. This is a positive or negative adaptation because of adjustments in conditions.

Adaptation is needed by patients as an effort to deal with physical and psychosocial threats in responding to changes in the effects of chemotherapy, patients need good coping so that therapy becomes effective (Wahyuni, Huda, & Utami, 2015). The results showed that effective coping mechanisms had an effect on decreasing anxiety, adherence to chemotherapy to improve patients' psychological prosperity (Lutfa & Maliya, 2008; Sonia, Arifin, & Murni, 2014).

This is in line with Roy's theory which states that constant interaction between individuals and the environment is characterized by internal and external changes, with these changes, individuals must maintain their integrity, which is a continuous adaptation (Nursalam, 2016). In Astuti's research (2014) said adaptation must be carried out by clients and families in adapting to their conditions (Astuti, 2014). This will help the client's acceptance of the disease (Roy, 2016). As explained above, Roy's theory of adaptation can be useful for patients with chronic diseases who are undergoing treatment (Kasron et al., 2016).

The process of adaptation and formation of coping mechanisms is influenced by several factors according to the mechanism of coping with the approach of calistaroy adaptation theory. These factors include human, environment, health and nursing, health and environment as individuals such as age, occupation, socio-economic status, adjustment, interdependent sick experiences (Kasron et al., 2016).

METHODS

The study used cross sectional design. The population in this study were 95 chemotherapy patients at the Sumber Glagah Hospital in Mojokerto. The sampling technique used simple random

sampling and the sample size was 78 respondents which criteria are first, the age is over 20 years, second, patients are communicable, and last, patients with all types of cancer who undergo chemotherapy.

The independent variables in this study were human factors (age and education) and health factors (chemotherapy cycle) the dependent variable in this study was a coping mechanism with the Callista Roy adaptation theory approach. The research began in January to April 2018. The research instrument used coping and adaptation processing scale (CAPS) with an adaptation theory approach. The validity and reliability of this questionnaire were tested before being used with Pearson's Correlation Product Moment with $r_{count} > r_{table}$ that is 0,444 and reliability of Chronbach Alpha $0.832 > 0.6$. It can be concluded the instrument was valid and reliable. The instrument consists of 13 questions.

The statistical test used in this study was logistic regression.

RESULT

The Characteristic of chemotherapy patients.

Descriptive results of respondents' characteristics are shown in Table 1.

Table 1 The Characteristic of chemotherapy patients in Hospital of Kusta Sumber Glagah Pacet Mojokerto 2018

No	Variable	f	%
1	Age of		
	26-45 years old	31	40
	>45 years old	47	60
2	Gender		
	Male	20	26
	Female	58	74
3	Education		
	Elementary school	10	13
	Junior high school	20	26
	Senior High school	40	51
	Bachelor	8	10
4	Job		
	Government Employees	5	6
	Worker	18	23
	Entrepreneur	38	49
	Unemployment	17	22

The result of analysis showed that 60 % of respondents were in the age of more than 45 years old and 74 % of them were female. The highest level of education for Senior High School is 51% and 78% of respondents are employed.

Table 2 The Result of Hypothesis Test of Factors That Can Affect Coping Mechanism With The Approach Of Calista Roy Adaptation Test On Chemotherapy Patient

	B	SE	df	Sig	95 % CI	
					Lower	Upper
Education	0,84	0,39	1	0,031	1,081	5,014
Job	0,97	0,43	1	0,023	1,44	6,135
Chemotherapy cycle	-0,1	0,16	1	0,688	0,693	1,274
Constant	-4,9	5,17	1	0,023		

Factors That Can Affect Coping Mechanism With The Approach Of Calista Roy Adaptation

The results of the hypothesis test use the test logistic regression is shown in Table 2

The test result about the effect of education on coping mechanism with the approach of Callista Roy adaptation theory obtained the result of confidence interval was more than 1 *p-value* 0,031 < 0,05 which meant that partially, education variable affected the coping mechanism with the approach of Callista Roy adaptation theory on chemotherapy patient.

The test result about the effect of job on coping mechanism with the approach of Callista Roy adaptation theory obtained the result of confidence interval was more than 1 *p-value* 0,023 < 0,05 which meant that partially that job variable affected coping mechanism with the approach of Callista Roy adaptation theory on chemotherapy patient

The test result about the effect of chemotherapy cycle on coping mechanism with the approach of Callista Roy adaptation theory, obtained the result of confidence interval was more than 1 *p-value*

0,6881 > 0,05 which meant that partially, chemotherapy cycle variable did not affect the coping mechanism with approach of Callista Roy adaptation theory on chemotherapy patient

The final model of factors that affect coping mechanism with approach of Callista Roy adaptation theory on chemotherapy patient : $\hat{g}(x) = -4,9 + 0,84 * \text{education} + 0,97 * \text{job}$

DISCUSSION

The result of factor analysis of coping mechanism which were education, job, and chemotherapy cycle with the approach of Callista Roy adaptation theory in Kusta Sumber Glagah Pacet Mojokerto hospital.

The results of the education effect test on the coping mechanism with Callista Roy's adaptation theory approach obtained a confidence interval of more than 1 p-value 0.031 < 0.05, meaning that partially the education variable had an effect on coping mechanisms with the Callista Roy adaptation theory approach to chemotherapy patients. The results of this study indicate that the majority of respondents graduated from Senior high school education (51%).

Education of respondents who are mostly high school and tertiary institutions makes respondents have the ability to solve problems that are more realistic and have the ability to be able to control stressors better so that this affects their coping mechanisms as well.

Education could have a different meaning for everyone. Education is generally useful in changing mindset, behavior patterns and decision making patterns. An adequate level of education will be easier in identifying stressors in themselves and outside themselves. Someone with a higher level of education will also have higher cognitive complexity, and vice versa. This has a big effect on attitudes, conception of thinking and individual behavior which further influences coping strategies that get better. (Sijangga, 2010) Therefore someone who is highly educated will be more realistic and active in solving problems (Afiyah, 2017; Tanumidjojo, S., & Yudiarso, 2004). Individual coping skills depend on temperament, perceptions and cognitions and cultural or normative backgrounds in which they are raised. (Maulina & Bahri, 2016)

A high level of education can make someone more able to identify stress, understand stress, control stress, be more active and realistic in solving

problems. Someone who has a high level of education has a brave mindset in taking a position to overcome problems and not procrastinate.

The results of the job effect on the coping mechanism with Callista Roy's adaptation theory approach obtained a confidence interval of more than 1 p-value of 0.023 < 0.05 meaning that the work variable partially influenced the coping mechanism with the Callista Roy adaptation theory approach to chemotherapy patients. This research shows that most respondents work (78%). Stuart (2009) states that one source of coping is asset economics can help improve individual coping in the face of stressful situations. By working someone has economic assets as a source of coping, so as to improve coping abilities (Stuart, 2009). Work as a human characteristic to work and carry out role functions in society to sustain life (Kasron et al, 2016).

Work can make someone have economic assets as a source of coping, so that being able to improve coping skills becomes more adaptive because it has money to finance the treatment/ chemotherapy process.

The test results of the influence of the chemotherapy cycle on the coping mechanism with the Callista Roy adaptation theory approach showed a confidence interval of more than 1 p-value of 0.6881 > 0.05 meaning that the cycles of chemotherapy variables had no effect on the coping mechanism with the Callista Roy adaptation theory approach in patients chemotherapy. In sick experience by looking at the chemotherapy cycle, in this case the treatment process does not rule out the possibility of physical or psychological changes due to the chemotherapy effects, in the form of fear, stress on the mind, anxiety.

This is in accordance with the five types of human reaction phases with the disease, in these phases not always regularly, it can be surpassed quickly or gradually, depending on the patient's psychological condition, understanding of psychological conditions, not only by the sufferer but also the presence support of people in the lives of patients in the healing process (Smart, 2013).

Most of the respondents had undergone chemotherapy for 1-6 times, this was closely related to the adaptive coping of the respondents, where respondents were accustomed to undergoing treatment and able to adapt to the side effects that appeared after chemotherapy, besides positive beliefs, the ability to control good emotions, social

support, and high spirituality values in respondents can support the formation of adaptive coping for respondents (Anggeria & Daeli, 2017; Maulina & Bahri, 2016). The physical and psychological effects caused by the administration of chemotherapy are related to a decrease in ability in functional status while undergoing chemotherapy. The longer the duration of chemotherapy, the more cancer cells will experience damage and death, as well as healthy cells in the body, after several periods, one to three weeks healthy cells recover but suffer significant damage that will decrease function and the endurance of the patient's body will also decrease this will continue in the next chemotherapy (Ogce & Ozkan, 2008; Ogce, Ozkan, & Baltalarli, 2007).

The chemotherapy cycle is more often able to make respondents become accustomed to undergoing treatment and able to adapt to the side effects that arise after chemotherapy so that this can make responding coping more adaptive than fewer chemotherapy cycles. The longer a person suffers from an illness, the more experience various stressors due to his illness and that experience can be used as an anticipatory effort in dealing with the stressors experienced by these patients so that patients can adapt to their conditions.

CONCLUSION

Results of logistic regression analysis it was found that the factors that affect the coping mechanism with Callista Roy adaptation theory approach on chemotherapy patients are Education (p -value 0,031) and job (p -value 0,023).

The logit form of the final model is $g^{\wedge}(x) = -4,9 + 0,84 * \text{education} + 0,97 * \text{job}$.

SUGGESTION

Social support and family support need to be improved to improve cancer coping mechanisms. Health care providers emphasize caring-based services and comprehensive health services.

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