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The Relationship Between Care Environment Stressors with Oxygen Saturation and Quality of Life of Covid-19 Patients

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Abstract

Background and Aim: Isolation in hospitals has a significant impact on COVID-19 patients physically, psychologically, spiritually, and socially, so it needs special attention. This research aimed to investigate the relationship between care environment stressors with oxygen saturation and quality of life of COVID-19 patients in isolation rooms of dr. Soegiri hospital Lamongan.

Methods: The research applied a correlational design and conducted in isolation rooms of dr. Soegiri hospital Lamongan. The population in this study was 64 people. We used purposive sampling with inclusion and exclusion criteria, obtained 59 respondents. The data were gathered from March to May 2021. The research variables included care environment stressors, oxygen saturation, and quality of life. The instrument was a questionnaire. The data were analyzed by t-test and Somers tests ($\alpha = 0.05$).

Results: The research results showed that most of the respondents were female (66.1%), aged between 30 and 60 years (69.5%), were self-employment (79.7%), latest education was elementary school (37.3%), source of transmission from other factors (74.6%), and length of treatment was 4-7 days (67.8%). The care environment stressors significantly related to oxygen saturation ($p=0.022$) and quality of life ($p=0.035$).

Conclusion: It is hoped that during treatment, nurse maintain a comfortable treatment environment so that they do not become stressors that aggravate the patient's condition.

Keywords: Care Environment; Covid-19; Isolation Rooms; Oxygen Saturation, Quality of Life

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INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an infectious disease which causes respiratory problems, acute respiratory syndromes, kidney failure, and even death (Kemenkes RI, 2020). In addition, previous studies have stated that COVID-19 has a negative impact on physical and mental health and quality of life of patients (Nguyen et al., 2020; Ping et al., 2020; Rajkumar, 2020). Severe acute respiratory infections cause the hospitalization of millions of people worldwide each year (Alinia et al., 2021). Patients with symptomatic infection are quarantined in the hospital separated from other patients (Nareza, 2020). Isolation in hospitals significantly impacts COVID-19 patients physically, psychologically, spiritually and socially (Hsiao et al., 2021). So that COVID-19 patients who are treated in isolation rooms need special attention.

COVID-19 cases are increasing rapidly and spreading to other countries in a short time. On November 3rd, 2020, WHO reported 47,392,484 confirmed cases with 1,212,524 deaths all over the world (Kemenkes RI, 2020). Indonesia reported its first case of COVID-19 on March 2nd, 2020. Health Ministry reported 418,375 confirmed cases with 14,146 deaths (Kemenkes RI, 2020). Confirmed cases in East Java were 53,274 with 3,818 death, while in Lamongan, confirmed cases were 857 with 69 deaths.

Isolation seems to be the most effective way to cope with COVID-19. Isolation room is a separate room which is used to isolate patients who are suffering from very infectious diseases (Panda et al., 2020). However, in reality many COVID-19 patients are experiencing psychological problems

during isolation at the hospital (Deng et al., 2021; Hu et al., 2020). Therefore, care environment in isolation rooms becomes internal stressors for patients.

The results of the preliminary survey conducted in dr. Soegiri hospital to 5 patients obtained 4 out of 5 patients (80%) were afraid of being isolated in isolation rooms. Medical record data showed patients' saturation level average was $\geq 90\%$. Three patients had good quality of life. The previous research showed that saturation level below 90% when entering hospitals was a strong predictor of death (Mejía et al., 2020). In addition, COVID-19 deaths will depend on access to health services, and will likely also depend on the types of health services offered (Mansab et al., 2021).

Based on the above explanation, the researchers intended to conduct a study about the relationship between care environment stressors with oxygen saturation and quality of life of COVID-19 patients in dr. Soegiri hospital Lamongan.

METHOD

The research applied a correlational design and conducted in isolation rooms of dr. Soegiri hospital Lamongan. The data were gathered from March to May 2021. The population is 64 people and obtained a sample of 59 respondents by purposive sampling. The inclusion criteria for this study were: 1) Inpatients in the COVID Isolation Room at RSUD dr. Soegiri Lamongan; 2) Covid-19 patients who want to sign the informed consent. While the exclusion criteria are: 1) Patients who are treated with an unconscious condition; 2) Covid-19 patients who are not willing to be studied. The independent variables

included environmental care stressors while the dependent variables included oxygen saturation, and quality of life. The research environment stressor questionnaire was made by the researcher, while the quality of life used the WHOQOL questionnaire. The questionnaire was filled out by the respondent through a google form. Oxygen saturation data were obtained from nurses' measurement. Then, the data were analyzed by Gamma and Somers tests ($\alpha = 0.05$). This research was approved by the Health Research Ethics Commission of the University of Muhammadiyah Lamongan, with

reference No.120/EC/KEPK-S2/03/2021.

RESULTS

Based on Table 1, most of the respondents were female (66.1%), aged between 30 and 60 years (69.5%), were self-employment (79.7%), latest education was elementary school (37.3%), source of transmission from other factors (74.6%), and length of treatment was 4-7 days (67.8%). Table 2 showed that care environment stressors related significantly to oxygen saturation and patients' quality of life ($p < 0.05$).

Table 1. Frequency and percentage distribution of respondents' characteristic

Characteristic Data		F	%
Gender	Male	20	33.9
	Female	39	66.1
	Total	59	100.0
Age	20-30 years	4	6.8
	30-60 years	41	69.5
	> 60 years	14	23.7
	Total	59	100.0
Occupations	Self-employment	47	79.7
	Private employee	7	11.9
	Civil Servant	5	8.5
	Total	59	100.0
Latest Education	Elementary School	22	37.3
	Junior High School	7	11.9
	Senior High School	17	28.8
	Diploma 3/ Diploma 4	4	6.8
	Bachelor	9	15.3
Total	59	100.0	
Source of transmission	Family	5	8.5
	Workplace	9	15.3
	School	1	1.7
	Others	44	74.6
Total	59	100.0	
Length of Treatment	1-3 days	9	15.3
	4-7 days	40	67.8
	> 7 days	10	16.9
	Total	59	100.0
Anxiety	Mild	12	20.3
	Moderate	6	10.2
	Severe	41	69.5
	Total	59	100.0

Table 2. The relationship between care environment stressors with oxygen saturation and quality of life

Variables	Care Environment Stressors			P-value
	Severe	Moderate	Mild	
Oxygen Saturation	Good	2	0	0.022
	Moderate	38	4	
	Poor	6	0	
Quality of Life	Good	30	1	0.035
	Sufficient	13	2	
	Poor	3	1	

DISCUSSION

Patients came from diverse backgrounds and characteristics indeed, yet according to some sources, patients who were isolated could experience anxiety (Alamri et al., 2021; Deng et al., 2021; Hu et al., 2020; Purssell et al., 2020). Most of the patients who experienced anxiety were female because they tend to have higher anxiety level (Deng et al., 2021). Besides, one of the leading factors of anxiety was quarantine in isolation rooms (Deng et al., 2021; Xiang et al., 2020).

During treatment in isolation rooms, respondents feel afraid and worried and suffer from insomnia. Most of the respondents were in critical conditions so that they need to treat in isolation rooms. Another research also revealed that as a new disease which threaten life, COVID-19 can cause substantial anxiety and stress especially those who are treated in isolation rooms (Deng et al., 2021; Xiang et al., 2020).

The results showed that there was a relationship between environmental care stressors and oxygen saturation. Generally, COVID-19 patients who are treated in isolation rooms will experience anxiety and fear, besides that hospital policies and isolation ward facilities can affect patients' daily life activities (Hsiao et al., 2021; Innah et al., 2020). The presence of physical activity can

reduce the severity of illness in COVID-19 patients (Tavakol et al., 2021). Physical activity or training has an effect on increasing immune function, releasing muscle myokines that stimulate the production of IL-1ra and IL-10, decreasing dysfunctional adipose tissue, and increasing oxygenation (Salgado-Aranda et al., 2021). Uncontrolled anxiety and fear conditions as well as activity limitations cause physiological effects in patients, one of which can change oxygen saturation in the blood.

The results also revealed that there was a relationship between care environment stressors and quality of life. This is in line with the previous research which mentioned that environmental factors highly affected quality of life (Algahtani et al., 2021). The respondents had good quality of life although they are treated in isolation rooms. This follows a research conducted by Yağar (2021) which showed that COVID-19 did not have a negative impact on quality of life in the short term. In the isolation rooms, patients admitted that they could communicate with their families and loved ones through cellular phones. Respondents revealed that they could communicate with healthcare workers, even though not all the time. They were monitored through CCTV.

CONCLUSION

Care environment stressors are related to oxygen saturation and patient quality of life. Most of the respondents had good sleep quality and adequate oxygen saturation. Some respondents while in the isolation room experienced anxiety, worry, fear, difficulty sleeping, felt their condition was critical, limited activities, so that it could indirectly affect oxygen saturation. It is hoped that during treatment, nurse maintain a comfortable treatment environment so that they do not become stressors that aggravate the patient's condition.

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