Insomnia Among Covid-19 Patients During Isolation Treatment in Inpatient Room of Indonesian Health Care Facilities

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ARTICLE INFO

ABSTRACT

Insomnia was a problem of Covid-19 patients often moaned because the physical and psychological condition of patients are weak. This study aims to analyze the association between respondent's characteristics, social factors, and medication adherence with insomnia when Covid-19 survivor become isolated patients. This study used a descriptive and analytical cross-sectional design. The study was conducted in August 2021. The population of this study was all Covid-19 survivors. The sample of this study was part of Covid-19 survivors with a total number of 191. Data were collected by an online questionnaire via google form and analyzed by chi-square test. Almost all respondents (83.77%) were female, and most of the respondents (73.30%) worked as health workers. The age mean of the respondents was 31.51 (SD 8.82, min=18, max=60). Insomnia was experienced by almost half of the respondents (41.36%). There was no association between sex (OR = 1.92, 95% CI 0.89-4.17; p=0.113), type of work (OR = 1.11, 95% CI 0.58-2.11; p=0.868), medication adherence (OR = 0.47, 95% CI 0.05-4.56; p=0.644), and motivation (p=0.269) with insomnia. There was an association between optimism (p=0.043) and discrimination (OR=4.19, 95% CI 1.86-9.43, p=0.001) with insomnia. Insomnia was experienced by almost half of isolated patients in inpatient rooms of Indonesian health care facilities. Factors associated with insomnia were optimism and discrimination. Treatment for Covid-19 patients should pay attention to their physical care and give psychological care.

INTRODUCTION

In almost two years, the world has been busy with cases of mysterious pneumonia infection originated from one of the most populated cities in Central China. By identifying genetic sequences, it was found that SARS-CoV-2 caused the infection.[1,2] The massive increase in infections to various world regions underlies the determination of Covid-19 pandemic status in March 2021 by WHO.[3]

The Covid-19 pandemic impact was diverse and complex in all sectors of life. The most significant sector affected is the health sector. The increasing number of patient visits at health care facilities caused the augmentative workloads on health workers, the unpreparedness of health care facilities in dealing with the pandemic because it occurs quickly and in a short time, and the lack of logistics for patient care were some of the pandemic impacts felt by the management of health services.

Meanwhile, if it was observed in public health, the perceived effect was the increasing number of disease incidences, getting serious attention.[4] SARS-CoV-2 infection not only caused problems in physical health but also affected the mental health of patients.[5] Cases of Covid-19 infection in Indonesia experienced a significant increase in the middle 2021.

Since the initial discovery of Covid-19 infection cases in March 2020, the graph of the highest increase was shown in the interval from July to August 2021, with cumulative confirmed cases reaching 30,000-50,000 people per day.[6] Health surveys in Indonesia showed that during the Covid-19 pandemic, there was an increase in mental health disorders characterized by high rates of stress, anxiety, depression, and obsessive-compulsive disorder (OCD).[7,8]

Insomnia was one of the problems that Covid-19 patients often moan about.[5] Representation of mental health disorders could be seen in patients with moans of sleeping difficulty.[9] Weak physical conditions caused insomnia in Covid-19 patients. Insomnia was more influenced by psychological conditions when the virus infected the patient.

The rise of news in the mass media about Covid-19, the high number of infections, the increasing number of deaths due to Covid-19, the patient's fear of its condition when infected with the virus, the lack of motivation from those closest people, discrimination from the surrounding environment, and the impact of Covid-19 therapy were factors that caused poor sleep quality in patients.[10,11] Insomnia would cause patients to stay in the hospital for a long time because it inhibits the production of hormones that help the patient's healing.[12]

Insomnia would cause long duration of treatment, so it reduced mental health and caused a high burden on health service management.[10] Therefore, an analysis of insomnia was needed to help patients and the health care management facilities to take further action to prevent its severity. This study aims to analyze the association between respondent characteristics, social factors, and medication adherence with insomnia when survivor Covid-19 becomes isolated patients.

MATERIAL AND METHOD

This study used a descriptive and analytic cross-sectional design. The study was conducted in August 2021. The study population was all Covid-19 patients who had been declared to get cured (Covid-19 survivors) and were discharged from the hospital with a minimum limit of July 1, 2021, until the study took place. The research sample was part of Covid-19 survivors in considering the inclusion and exclusion criteria.

The calculation of sample size refers to the Lemeshow with an infinite population (P = 11%,[13] d = 0.05, = 95%) and obtained 191 samples. Sampling was done by simple random sampling technique. The inclusion criteria included having been an isolated patient in a public hospital, private hospital, or a Covid-19 specific field hospital for more than 24 hours. Exclusion criteria included had been long Covid symptoms which made them difficult to communicate and did not remember their physical and psychological conditions while at isolation treatment.

Research variables included insomnia, medication adherence, optimism, discrimination, and motivation. Insomnia was defined as a sleep disorder experienced by Covid-19 patients with less than 7 hours of sleep per day. Medication adherence was defined as the patient's routine of taking drugs given by health workers. Optimism was defined as the patient's confidence to

recover from Covid-19 and carry out normal activities. Discrimination was defined as the patient's feeling of being ostracized or shunned by the people around them. Motivation was defined as the patient's support from the closest people in the family and friendship.

Data collection by an online questionnaire via google form, which had previously been tested for validity and reliability with an r > 0.361 and Cronbach's Alpha 0.731. The questionnaire consisted of five questions related to insomnia, five questions related to medication adherence, five questions related to optimism, five questions related to discrimination, and five questions related to motivation. The scoring was done on a dichotomous scale.

Categorization of each variable was given by calculating the maximum and minimum values. Insomnia categories were divided into insomnia (score: 8-10) and no insomnia (score: 5-7). Medication adherence categories were divided into obedient (score: 8-10) and no obedient (score: 5-7). Optimism categories were divided into optimism (score: 8-10) and not optimism (score: 5-7). Discrimination categories were divided into experienced discrimination (score: 8-10) and not experienced discrimination (score: 5-7). Motivation categories were divided into get motivated (score: 8-10) and not get motivated (score: 5-7).

Data were analyzed by Chi-Square test through SPSS 22. This research has received ethical approval from the Ethics Committee of Public Health Faculty, Universitas Airlangga with the ethical number 50/EA/PK/2021.

RESULTS

Characteristics of respondents showed that almost all respondents (83.77%) were female, and most of the respondents (73.30%) worked as health workers. The mean respondent's age was 31.51 (SD 8.82, min: 18, max: 60). Characteristics were grouped by sex, age, and type of work. Characteristics of respondents are presented in Table 1.

Almost half of the respondents (41.36%) experienced insomnia. A total of 2.09% of respondents did not obey taking medication, 3.14% of re-

spondents were not optimistic, 17.28% of respondents experienced discrimination, and 1.57% of respondents did not get motivation from family or close relatives. Insomnia, medication adherence, optimism, discrimination, and motivation are presented in Table 2.

The association between sex and insomnia was statistically no significant (OR=1.92, 95% CI 0.89-4.17; p=0.113). However, the cross-tabulation analysis showed that females experienced insomnia more than males. The association between type of work and insomnia was statistically no significant (OR=1.11, 95% CI 0.58-2.11; p=0.868). However, the cross-tabulation analysis showed that health workers experienced insomnia more than non-health workers. The association between medication adherence and insomnia was statistically no significant (OR=0.47, 95% CI 0.05-4.56; p=0.644). However, the cross-tabulation analysis showed that patients who obeyed taking medication experienced insomnia more than patients who did not obey taking medication (Table 3).

Through the Fisher Exact test, it was found that optimism was significantly associated with insomnia (p=0.043). Respondents who experienced discrimination had 4.19 times the risk of experienced insomnia than respondents who did not experience discrimination and this association was statistically significant (OR=4.19, 95% CI 1.86-9.43, p=0.001). Through Fisher Exact test, it is known that motivation was not significantly associated with insomnia (p=0.269). Through cross-tabulation analysis, it is known that all respondents who had motivation also experienced insomnia (Table 3).

Table 1. Characteristics of Respondents

Characteristics	n=191	%
Sex		
Male	31	16.23
Female	160	83.77
Type of Work		
Health Worker	140	73.30
Non-Health Worker	51	26.70
Age (Years)		
Min		18
Max		60
Mean		31.51
SD		8.82

Source: Primary Data, 2021

Table 2. Distribution of Insomnia, Medication Adherence, Optimism, Discrimination, and Motivation

Measurement Component	n=191	%
Insomnia		
Experienced	79	41.36
Not Experienced	112	58.64
Medication Adherence		
Obey	187	97.91
Not Obey	4	2.09
Optimism		
Optimistic	185	96.86
Not Optimistic	6	3.14
Discrimination		
Experienced	33	17.28
Not Experienced	158	82.72
Motivation		
Get Motivated	188	98.43
Not Get Motivated	3	1.57

Source: Primary Data, 2021

DISCUSSION

Insomnia was a predictor that can assess a person's mental health. Insomnia in Covid-19 patients was higher than in general care patients. Insomnia symptoms were found immediately after the patient entered the hospital treatment room. This study showed that almost half of the respondents (41.36%) experienced insomnia. The frequency of Covid-19 patients with insomnia increased to 36.36% in the first two days after treatment. Up to the seventh day of treatment, an increase of 69.23% of Covid-19 patients with insomnia was found.[14] Insomnia in Covid-19 patients was more influenced by their social conditions, such as restrictions on movement, discrimination, fear of losing their job, and lack of motivation.[15,16]

Sex had an essential role in determining a person's psychological reaction to pandemic. The study results stated that although there was no significant association between sex and insomnia, insomnia was more experienced by female respondents. Guadagni in his research, stated that females had a higher sense of worry, anxiety, and stress levels than males when infected with Covid-19.[16] It was because females often feel alone during isolation treatment. There was news about the high mortality rate that triggers anxiety, perceptions about the difficulty of Covid-19 treatment, and perceptions of discrimination obtained from the surrounding environment after knowing their status as a Covid-19 survivor.[16]

Table 3. Factor Associated with Insomnia in Covid-19 Patient

Variable	Insomnia						p-value	OR	CI	
	Experienced		Not Experienced		Total				Lower	Upper
	n = 79	%	n = 112	%	n = 191	%				
Sex										
Male	17	8.90	14	7.33	31	100	0.113	1.92	0.89	4.17
Female	62	32.46	98	51.31	160	100				
Type of Work										
Health Worker	57	29.84	83	43.46	140	100	0.868	1.11	0.58	2.11
Non-Health Worker	22	11.52	29	15.18	51	100				
Medication Adherence										
Obey	78	40.84	109	57.07	187	100	0.644	0.47	0.05	4.56
Not Obey	1	0.52	3	1.57	4	100				
Optimism										
Optimistic	79	41.36	106	55.50	185	100	0.043	-	-	-
Not Optimistic	0	0.00	6	3.14	6	100				
Discrimination										
Experienced	23	12.04	10	5.24	33	100	0.001	4.19	1.86	9.43
Not Experienced	56	29.32	102	53.40	158	100				
Motivation										
Get Motivated	79	41.36	109	57.07	188	100	0.269	-	-	-
Not Get Motivated	0	0.00	3	1.57	3	100				

Source: Primary Data, 2021

Having Analyzed from the sex difference, females were a vulnerable group for mental health disorders. Females tend to be more sensitive to negative stimuli obtained from the surrounding environment, marked by an increase in Galvanic Skin Response (GVA) and changes in heart rate. Women's high level of sensitivity to negative stimuli was prone to cause excessive emotions, so it impacted mental health problems.[17,18]

Insomnia was found to have a high prevalence in health workers.[19,20] The association test showed no significant association between insomnia and type of work. The cross-tabulation showed that all respondents who experienced insomnia, health workers experienced more insomnia. The study showed that health workers belong to the nurse group were more prone to experience insomnia because they were at the forefront of patients service. Insomnia could be caused by excessive searching for news about the pandemic through personal cellphones and inflicted nightmares so that the sleeping time was only 6 hours per day.[21] Recommended hours of adequate sleep for adults was not less than 7 hours per day.[22] In addition, to worry about their condition, insomnia in health workers was also caused by feelings of anxiety if their family were infected, and other people's response after knowing their status as a Covid-19 survivor.[21,23]

Patient treatment was a medical effort made to relieve symptoms, cure, stop, and prevent severe infection so they can go back to normal activities.[24] The association test showed no significant association between medication adherence and insomnia. Analyzed from the cross-tabulation analysis, it could be seen that almost all patients who experienced insomnia adhere to medication. This condition should be a serious concern because even though the patient had received medical treatment and followed the recommendations for routine care, the patient still had insomnia. Sleeping was a human biological need. Lack of sleeping can worsen health conditions after being infected with SARS-CoV-2, reduce well-being, and affect safety.[25]

Sleep quality was closely associated with one's feelings of optimism. When a person experiences a depressive mood, symptoms of anxiety and stress would occur, which would cause a pessimistic attitude to do daily activities and cause insomnia.[26] The results showed a significant association between an optimistic and insomnia. Cross tabulation shows that although most of optimistic respondents did not experience insomnia, it needs to be a concern because not a few respondents who have an optimistic attitude also experienced insomnia. This condition might happen because Thinking something over would eliminate drowsiness and experienced insomnia.[27] Someone who experienced insomnia also tends to face an optimism bias. That means that every decision seems advantageous even though it will significantly lose. As exemplified by gamblers who have less sleep duration, they will continue to spend money with the assumption of winning when in reality, they have spent much money.[28]

Discrimination was one of the factors that could also affect insomnia in Covid-19 patients. The results showed a significant association between discrimination and insomnia. Respondents who experienced discrimination had 4.19 times risk of experienced insomnia than respondents who did not experience discrimination. Cross-tabulation analysis showed that most of the respondents who were not discriminated also experienced insomnia.

There were still 56 respondents who did not receive discrimination but experienced insomnia. Discrimination was defined as unequal treatment obtained by a person due to differences in social conditions in society.[29] Even though Covid-19 patients have recovered from the infection, they feel that they got a lot of discrimination in their daily lives from the work environment, education environment, and social environment in society.[30] Discrimination could cause patients to experience mental health disorders characterized by insomnia, anxiety, and isolation from the social environment.[30] The worse impact was shown by some people who experienced symptoms of Covid-19 feeling better if they hide their condition for fear of being discriminated against by the surrounding environment.[31]

Motivation was an essential factor to reduce mental health disorders during the Covid-19 pandemic. The motivation was a determining factor for a person's decision-making.[32] Motivation could encourage Covid-19 patients to take various ways to achieve recovery, such as following treatment procedures from health care

facilities, one of them was adequate sleep duration. The results showed no significant association between motivation and insomnia. Through cross-tabulation analysis, it could be seen that although respondents were motivated, they still experienced insomnia. These conditions may be due to the excessive motivation of the respondents. Insomnia could have occurred when the human brain is too active to think due to depression, so eliminating drowsiness and making it difficult to sleep.[33]

CONCLUSION AND RECOMMENDATION

Insomnia was experienced by almost half of isolated patients in inpatient rooms of Indonesian health care facilities. Factors associated with insomnia were optimism and discrimination. Insomnia was more experienced by females. Insomnia was more experienced by health workers.

People who adhere to medication still experienced insomnia. People who were optimistic about recovering from Covid-19 infection still experienced insomnia. People who did not receive discrimination still experienced insomnia. Motivated people still experienced insomnia. Based on these conclusions, we recommend that treatment for Covid-19 patients does not only focus on their physical care but also gives psychological care.

The limitations of this study are the study only analyzes the association between variables so that the response and variable predictors are not known. The results of cross-tabulation showed that there are still cells with zero value, further research should increase the sample size and conduct an experimental study to assess psychological care on Covid-19 patients and its impact on sleep disorders and other mental health problems.

AUTHOR CONTRIBUTIONS

Tamara Nur Budiarti contributed at performed the analysis and writing the paper. Arina Dery Puspitasari and Alfian Nur Rosyid contributed to designing the analysis, writing the paper, and supervising the study. Diah Indriani and Soenarnatalina Melaniani contributed at performed the analysis. Fatimatuz Zahra Oviary Satryo, Lily Aina, Nanda Ardianto, Melinda Putri, Amelia Rachman, and Fauzul Meiliani contributed to collecting the data and writing the paper.

CONFLICTS OF INTEREST

The author declares that there is no conflict of interest regarding the publication of this article.

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