

Characteristics of Sleep Patterns in Patients Before COVID-19 Diagnosis

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ABSTRACT

Based on WHO data which states that Covid-19 is an epidemic that causes people to experience a decrease in quality of life, anxiety, depression, and stress. Sleep pattern is an important indicator for a person's immunity rather than being susceptible to infection. The purpose of this study was to describe the characteristics of respondents infected with Covid-19 and a history of sleep patterns before being infected. The method in this research is a quantitative description with the PSQI instrument as data collection related to sleep patterns, the sample used is 103 respondents with analysis using SPSS and Rapid Miner. The results showed that most of the respondents were female (56.3%), ages 26-35 (38.9%), higher education level (76.7%), private employees (52.4%), and the quality of sleep bad (53.4%). The conclusion in this study is that good or quality sleep is one of the key factors to maintain the immune system and body metabolism so that it can be immune from several infections that can enter the body, including the Covid-19 pandemic.

Keywords: Sleep Quality, Covid-19, Immune System

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BACKGROUND

Based on data obtained from the World Health Organization on March 12, 2020, Coronavirus (COVID-19) has become a disease that has spread to society and is of international concern (WHO, 2020). The human-to-human transmission of Covid 19 with high morbidity and potential mortality has caused serious threats to physical health and people's lives. In addition, the number of Covid-19 cases is still increasing in the world. Data obtained on January 19, 2021, there were 94,124,612 confirmed cases of Covid-19, and 2,034,527 cases of death due to Covid-19, which were in 223 countries (WHO, 2021). Indonesia is the country with the most COVID-19 cases, which ranks 20th, namely (917,015) cases, after Netherland (917,308) cases, Peru (1,064,909) cases, Ukraine (1,167,655) cases, Iran (1,336,217) cases, Poland (1,443,804) cases, Turkey (1,578,625) cases, Mexico, (1,641,428) cases, Argentina (1,799,243) cases, Colombia (1,908,413) cases, Germany (2,052,028) cases, Spain (2,211,967) cases, Italy (2,390,102) cases, France (2,866,665) cases, The United Kingdom (3,443,498) cases, Russia (3,612,800) cases, Brazil (8,488,099) cases, India (10,581,837) cases, and the United States (23,556,676) cases (WHO, 2021).

Based on data obtained from Josue Pinto's research entitled "Sleep quality in times of Covid-19 pandemic", it is stated that patients experience difficulty sleeping when suffering from Covid-19 (Pinto et al., 2020). This is because these patients experience shortness of breath so that the patient wakes up at night, and results in disturbances in sleep patterns. Another study by Xiao et al with the title "Social Capital and Sleep Quality in Individuals Who Self-Isolated for 14 Days During the Coronavirus Disease 2019 (COVID-19) Outbreak in January 2020 in China" shows that the research participants' social capital is isolating oneself during the COVID-19 epidemic improves sleep quality, and is reduced by anxiety and stress (Xiao et al., 2020). Anxiety levels correlate with stress levels, which reduce sleep quality. Quoted from the research of Blume, Schmidt, and Cajochen that restrictions during the Covid-19 period caused changes in the pattern of activity in a society which caused the time between sleeping and waking individuals to increase possibly due to the flexibility of social schedules, which was due to a large amount of work that had to be done at home. (Blume et al., 2020) (Purnama, Afrina and Shifa, 2020).

Sleep disturbance is a clinical diagnostic criterion and aetiological estimate, the three main categories of sleep disorders in the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders) are primary sleep disorders, sleep disorders associated with other mental sleep disorders, and other sleep disorders, specifically. sleep disorders resulting from common medical conditions or those caused by substances. Primary sleep disorders consist of dyssomnia and parasomnia (Prayitno, 2002). Dyssomnia is a heterogeneous group of sleep disorders including (i) primary insomnia, (ii) primary hypersomnia, (iii) narcolepsy, (iv) sleep-related sleep disorders, and (v) circadian rhythm sleep disorders. A parasomnia is a group of sleep disorders including (i) nightmare disorder, (ii) sleep terror disorder, and (iii) sleepwalking disorder (Prayitno, 2002). From the explanation above, it can be concluded that patients who experience sleep pattern disorders, including primary sleep pattern disorders, can be caused by anxiety which causes disturbed sleep patterns. Therefore, based on the data that has been obtained, we took a study entitled "Characteristics of Sleep Patterns in Patients Before COVID-19 Diagnosis" so that researchers could find out what percentage of patients experienced sleep disturbances while experiencing Covid-19, and whether there was a relationship. between Covid-19 disease and sleep patterns in Covid-19 patients.

METHODS

The method used in this research is quantitative descriptive design analysis to see a description of the characteristics of sleep patterns before being diagnosed with Covid-19. The population in this study were all Covid-19 patients who were hospitalized at X Hospital, the sample in this study amounted to 103 respondents using total sampling according to the inclusion and exclusion criteria that had been determined. Among the inclusion criteria were patients with a diagnosis of Covid-19, patients with compos mentis awareness level, and willing to become respondents. The exclusion criteria were age under 17 years and over 60 years, as well as patients who had previous comorbidities. The instrument used in this study is the PSQI (Pittsburgh Sleep Quality Index). This questionnaire is a standard questionnaire and is widely used by researchers in measuring the level of sleep quality by looking at data retrospectively, namely looking at the data one month earlier where in this study it was looking at the data. One month before the patient was infected with Covid-19, the data analysis used was univariate analysis, namely looking at the characteristics of the respondent and a description of the quality of sleep. The software used in this study is SPSS 25 and Rapid Miner with a decision tree algorithm to describe the sleep patterns of respondents in an image.

RESULTS

The results of the research that have been carried out obtained descriptive results of the characteristics of respondents diagnosed with Covid-19 which are presented in Table 1 which includes the demographic characteristics of the respondents such as age, the gender of the respondent, occupation of the respondent, marital status, sleep quality, and age of the respondent, all of which were processed using SPSS 25 to get the percentage of the characteristics accurately.

Table 1. Characteristics of Respondents consisting of Age, Gender, Education, and Occupation (N = 103)

No.	Characteristics	Frequency	%
Gender			
1	Male	45	43,7
	Female	58	56,3
Usia			
2	17-25 years	20	19,4
	26-35 years	39	37,9
	36-45 years	26	25,2
	46-55 years	15	14,6
	56-60 years	3	2,9
Education			
3	Elementary	2	1,9
	Junior High School	2	1,9
	Senior High School	20	19,4
	Collage	79	76,7
Occupation			
4	Civil servants	11	10,7
	Private Employees	54	52,4
	Self Employed	16	15,5
	Not Working	22	21,4
Marital Status			
5	Yes	69	67
	No	34	33

from table 1 above, the results are that the characteristics of respondents diagnosed with Covid-19 have a gender description that is dominated by women with a total of 58 respondents (56, 3%), for the description of the age characteristics of respondents who were infected with Covid-19, the most were in the age range 26-35 years (37.9%) followed by the age range 36-45 years (25.2%) in the second position, for, For the education of the respondents, data shows that higher education is the majority of the respondents studied with a total of 79 respondents (76.7%) and for the marital status of the most respondents is married to 69 respondents (67%)

Table 2. Description of Respondents' Sleep Quality Before Covid-19 Infection (N = 103)

No.	Sleep Quality	Frequency	%
	Normal	2	1,9
	Light	3	2,9
	Moderate	43	41,7
	Bad	55	53,4
	Total	103	100

The data in Table 2 were obtained using the PSQI instrument, the results obtained from this study were data one month before the patient was admitted to the hospital with a diagnosis of Covid-19, the sleep quality of patients from the data collection results was obtained at most was bad with the number of respondents as many as 55 respondents (53, 4%) followed by moderate sleep quality with a total of 43 respondents (41.7%). Sleep quality can be used as an important indicator to see a patient's immune status before being infected with Covid-19. From the results of data processing using Rapid Miner software, the classification data obtained using the decision tree algorithm is presented in figure 1.

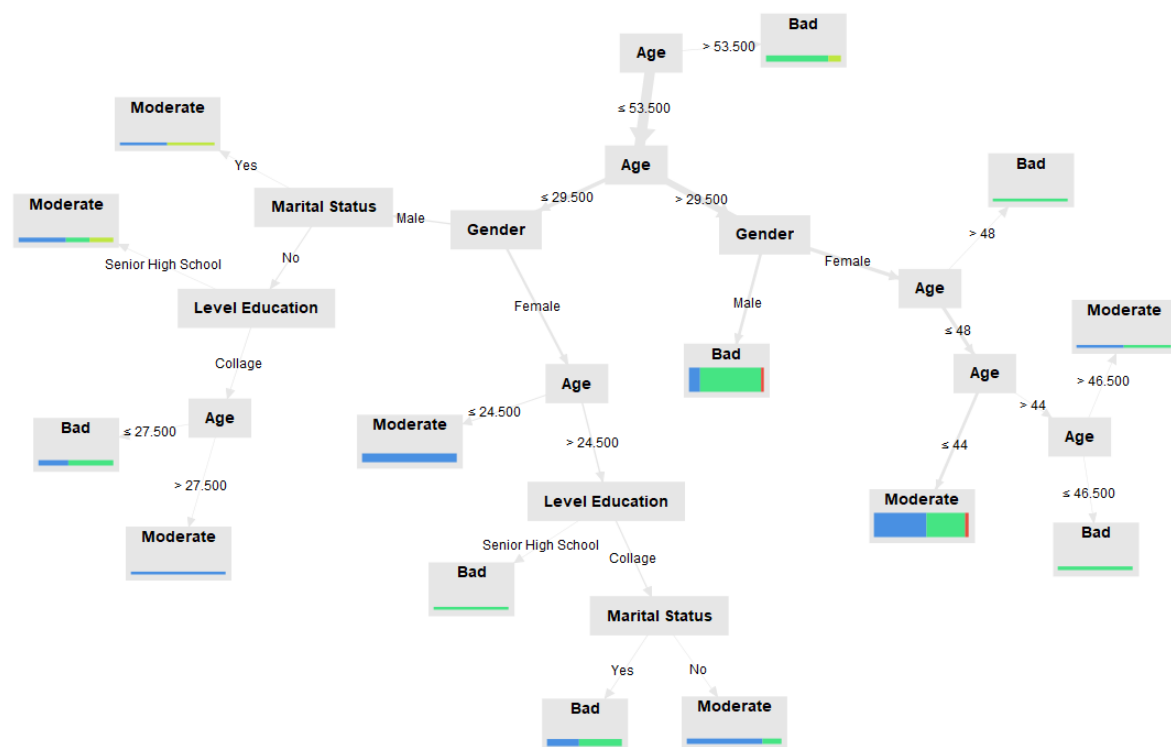


Figure 1. Map of classification of patient sleep patterns based on age, sex, education, and marital status

From Figure 1, the classification data shows that those over 53 years of age have poor sleep quality, then the age if more than 29 years of age is the type of male, the quality is poor, while for women if more than 48 years the quality of sleep is poor and less than 48 years is classified again with a range 44 years of age, namely the age of 44 years, the quality of sleep is moderate and more than 44 years, the quality of sleep is between moderate and poor. The left branch of the decision tree is found to be less than 29 years old, then it is seen by gender where women who are over 24 years old with the last high school education have poor quality sleep while those with college graduates who are not married are of moderate quality and those who are married are of poor quality. The sex of men who are married has moderate sleep quality and men who have not been married who have graduated from high school sleep quality are moderate, and those who are over 27 years old have poor sleep quality.

DISCUSSION

The purpose of this study was to see the description and distribution of the characteristics of patients diagnosed with Covid-19 and the sleep patterns of patients before contracting Covid-19. The results that have been carried out by researchers found that most of the respondents who were infected with Covid-19 at X Hospital were female as many as 58 respondents or about 56.3% than men who were only 45 respondents with a percentage of 43.7%. Research conducted by Savitsky et al on a study that examines mental health in health students conducted in Israel states that women dominate the number of respondent characteristics with a percentage of 89.2% (Savitsky et al., 2020). Other studies state the same thing that women are more infected with the Covid-19 virus than men according to research conducted in China, which is 74.9% (Huang et al., 2020). From the age characteristics, most of the ages infected with Covid-19 are the age range between 26-35 years which means they are in the adult age range, this is confirmed by a study entitled Changes in Depression and Physical Activity Among College Students on a Diverse Campus After a The COVID-19 Stay-at-Home Order which states that the average age at early adulthood is around 25 years of contracting Covid-19, which this research was conducted in the United States in 2020 (Coughenour et al., 2020). The results showed that the second largest age was in the age range between 36-45 years, this is in line with the research conducted by Esteban et al. The results of the study stated that the media age value for Covid sufferers in the early phases was 42 years in men. -men and 39 years in women (Ortiz-Prado et al., 2021). Furthermore, it is seen from the characteristics of education where education with college graduates is the most with a percentage of 76.7% and this is also related to the work status of the respondent where the respondent's occupation is mostly private employees, namely with a percentage of 52.4%, this is This can occur because most workers in urban areas, especially in private work areas such as offices, require workers to have high educational qualifications so that the distribution of college graduates, especially in urban areas, is getting bigger (Kipkebut, 2010). This research is in accordance with that conducted by Moghanibasi, who stated that most of the patients infected with Covid-19 have a diploma and bachelor's level of education from the results of research conducted in Iran 2020 (Moghanibashi-Mansourieh, 2020). Likewise with a marital status where the results of the study stated that most of the respondents already had marital status with their partners.

Sleep is a basic human need as part of rest and restoring the body's metabolic system, the need for sleep is not only related to the body's metabolic system but also to the endocrine system and the immune system (Perras & Born, 2005). From the results of the

study using the PSQI questionnaire, it was found that respondents indicated that Covid-19 had a history of poor sleep patterns with a percentage of 53.4% and 41.7% were in moderate quality sleep patterns, the rest were in light quality with a percentage of 2, 9% and only 1.9% of respondents who have good sleep quality. The results of this study indicate that patients treated with a diagnosis of Covid-19 are associated with previous poor sleep quality, research conducted by Jeannine A found that a person's sleep pattern affects a person's immune system both the innate immunity system (Majde & Krueger, 2013). 2005). The results of processed data using the Rapid Miner application show that sleep quality is classified based on the gender and age of the respondent where the higher the age, the person has poor sleep quality, this is in accordance with research conducted by Hatice in 2012 which states that the older a person is, there will be a decrease in the quality of sleep and quality of life in that person (Tel, 2013). In addition, other research states that insomnia or sleep disturbances often occur in patients who experience infectious disorders or problems, and sleep also affects the immune system of research that has been conducted on Covid-19 patients (Ono & Souza, 2020). From the results of the literature and research conducted by researchers, it can be concluded that the quality of a person's sleep can affect the level of a person's immunity, in this case, a patient diagnosed with Covid 19. These findings are the basis for further research to determine how much influence sleep disruption has on the incidence. Covid-19.

CONCLUSION

In conclusion, the findings of the researchers found that most of the characteristics of respondents who were diagnosed with Covid-19 at RS X were women with an adult age range and had a history of previous sleep disorders, therefore good or quality sleep is one of the key factors to maintaining the immune system and the body's metabolism so that it can be immune from several infections that can enter the body. This study can broaden insights regarding the characteristics of sleep patterns and demographic characteristics of patients so that a good sleep pattern must be part of the needs that must always be met properly.

CONFLICTS OF INTEREST

In this study there is no conflict of interest whatsoever and with any party

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