ORIGINAL ARTICLE
Intisari Sains Medis 2023, Volume 14, Number 1: 138-142
P-ISSN: 2503-3638, E-ISSN: 2089-9084

Psychosomatic disorder screening in health officers during the COVID-19 pandemic

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ABSTRACT

Background: Health workers are at high risk of developing depression, anxiety, and sleep disturbances due to increased stress during the COVID-19 pandemic; that matter is closely related to fatigue. The impact of psychosomatic disorders will have an immediate or indirect impact on the quality of health care services. This study aims to evaluate the psychosomatic disorder screening in health officers during the COVID-19 pandemic.

Methods: A cross-sectional study was conducted in Esensia Clinic Semarang in February 2022. This study surveyed clinic health workers with completed questionnaires and had their Heart-Rate Variability (HRV) measurement. Data were analyzed using SPSS version 20 for Windows.

Results: About 138 subjects were recruited from Esensia Clinic, 100 subjects underwent this study until analysis. The unanxious subjects have the highest percentage accounting for 61.0%, followed by 25.0% mild anxiety, 12.0% moderate, and 2.0% severe. Furthermore, 86.0% were undepressed, followed by 13% mild and 1% moderate, but there was no severe case. Also, 65.0% did not experience fatigue and the percentage of good sleep quality (8.0%) is significantly lower than the poor (92.0%). The results also showed that 76.0% of the subjects had a balanced autonomic nervous system compared to the 24.0% of subjects with an autonomic imbalance.

Conclusion: The outcomes of psychosomatic disorders such as anxiety, depression, fatigue, and autonomic imbalance are generally poor. However, this study’s prevalence of poor sleep quality was very high.

Keywords: Anxiety, Depression, Sleep Disturbances, Heart-Rate Variability (HRV).


INTRODUCTION

Health workers are at high risk of developing psychological disorders due to various stresses during the COVID-19 Pandemic.1 The fear of becoming infected and infecting people they are close to contributes to the emergence of these disorders,2 whose causes or recurrences are aggravated psychological conditions.3 These trigger negative psychological effects, including anxiety, depression, fatigue, sleep disturbances, and autonomic imbalances.4

Anxiety is defined as a state of discomfort or worry that is accompanied by an autonomic response.5 Conversely, depression is an emotional-psychological disorder (affective/mood disorder).6 According to the World Health Organization (WHO), it is the second leading cause of death after heart disease.7 A study of 34 Chinese hospitals found that 50% of the 1,257 health workers who treated COVID-19 patients had symptoms of depression, 34% had insomnia, and 71.5% had psychological distress.1 In Indonesia, the cases of insomnia are estimated to be 28 million people or approximately 10% of the total population.8 Sleep disturbances are closely related to depression, anxiety, psychosis, post-traumatic stress, and bipolar disorder.9 They can also result in fatigue, which describes suffering associated with a decline in physical and/or psychological conditions.10

The impact of psychosomatic disorders will worsen physical and psychological conditions, increase work errors, and lower the quality of health care services due to a lack of care for patients. This potentially leads to errors in care that endanger patients.11 The presence of psychosomatic disorder can be determined using a questionnaire and Heart Rate Variability (HRV) measurement.12 HRV can also be used to assess stress and psychological burden.13

One important factor affecting work productivity is the presence or absence of psychosomatic disorders in health workers. Based on this background, the purpose of this study is to screen research on health workers to determine the presence of psychosomatic disorders in Esensia Clinic in Semarang City.

METHODS

This study adopted a descriptive observational method with a cross-sectional approach. Our study subjects were obtained based on a non-probability sampling method with total sampling; the sampling method was carried out by taking all members of the population as respondents or samples.
Study inclusion criteria comprised all subjects, active health workers in the Clinic, and willing to join the research. While the exclusion criteria included having heart disease (such as arrhythmias), a history of mental illness previously, being pregnant women and having consumed coffee, cigarettes, or drug three hours before the HRV measurement.

The subjects of this study were healthcare workers who work at the Esensia Clinic in the city of Semarang. Subjects were recruited in the study from the 21st to the 26th of February 2022. The number of health workers at the Esensia Clinic amounted to 138 people, and the population was used as the study sample to collect data using questionnaires and HRV measurements. Furthermore, the Hospital Anxiety and Depression Scale (HADS), Fatigue Severity Scale (FFS), and Pittsburgh Sleep Quality Index were used as questionnaires (PSQI). The subject’s autonomic imbalance was also assessed using HRV measurement to determine the presence of psychosomatic disorders.

**Study Variables**

Demographic profiles and medical histories were collected, including age, gender, job position, history of heart disease, and mental illness history. Age was classified into 3 groups (less than 30, 31-50, and >50) and sex was classified into male and female. The job position was classified into 4 groups Physician, Nurse & Midwife, Nutritionist & Analyst, and Others. The others are a group of job positions of several health workers at Esensia Clinic consisting of Pharmacy, Radiographer, Administration, Cashier, Cleaning Service, Security, and Driver. That group significantly had workload and pressure same among other health workers because they also give service to the patients. For the duration of work they also work 24 hours following shifts, so they are susceptible to psychosomatic disorders. Subsequently, the data collected were analyzed descriptively.

**Collecting Data and HRV measurement**

On the day of admission, demographic and clinical data were obtained from all subjects based on inclusion and exclusion criteria. The HRV measurement is non-invasive and real-time. To date, HRV Measurement can be done by pulse photoplethysmography (PPG) method with finger plethysmograph (FPG), which only needs 2-3 minutes to complete the measurement.

The variables PPG method include low frequency (LF), high frequency (HF), LF/HF ratio, a standard deviation of normal-to-normal interval (SDNN), and the square root of mean squared differences of consecutive normal-to-normal intervals (RMSsSD). Samples were collected and analyzed by different independent investigators to prevent any potential bias. Data were analyzed using SPSS version 20 for Windows.

**RESULTS**

A total of 138 subjects were recruited from health workers at Esensia Clinic Semarang. Out of these subjects, 8 subjects were excluded since they did not become willing to participate in this study, and 23 subjects were excluded because 3 had a history of arrhythmias, 4 with a history of Generalized Anxiety Disorder (GAD), 4 were pregnant, 3 drank coffee, 2 smoked, 2 took heart medication, and 5 physical weakness before the examination. Later, 7 subjects were excluded because the data was incomplete. In the end, 100 subjects were included for data collection and analysis. Figure 1 shows the subjects’ profiles.

The primary data used in this study were obtained from questionnaires and HRV measurements, including anxiety, depression, fatigue, sleep disturbances, and autonomic imbalance. The characteristics of health workers are classified into job positions, age groups, and gender, as shown in Table 1 below.

Table 1 shows the distribution of health workers at the Esensia Clinic based on the job position, age group, and sex. In the job position category, ‘Others’ has the largest respondent, amounting to 61 (61.0%). Meanwhile, in the sex category, most subjects are female (82.0%), compared to males (18.0%). The age group ≤30 years had the most subjects (68.0%), followed by 31-50 years (26.0%) and >50 (6.0%).
Table 1. Characteristics of Health Workers as a Percentage.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Subjects (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job Position, n (%)</td>
<td></td>
</tr>
<tr>
<td>Physician</td>
<td>2 (2.0)</td>
</tr>
<tr>
<td>Nurse, Midwife</td>
<td>22 (22.0)</td>
</tr>
<tr>
<td>Nutritionist, Analyst</td>
<td>15 (15.0)</td>
</tr>
<tr>
<td>Others</td>
<td>61 (61.0)</td>
</tr>
<tr>
<td>Age Group (year), n (%)</td>
<td></td>
</tr>
<tr>
<td>≤30</td>
<td>68 (68.0)</td>
</tr>
<tr>
<td>31-50</td>
<td>16 (26.0)</td>
</tr>
<tr>
<td>&gt; 50</td>
<td>6 (6.0)</td>
</tr>
<tr>
<td>Sex, n (%)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>18 (18.0)</td>
</tr>
<tr>
<td>Female</td>
<td>82 (82.0)</td>
</tr>
</tbody>
</table>

Table 2. Variable Percentage Results.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Subjects (n=100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety, n (%)</td>
<td></td>
</tr>
<tr>
<td>No Anxiety</td>
<td>61 (61.0)</td>
</tr>
<tr>
<td>Mild Anxiety</td>
<td>25 (25.0)</td>
</tr>
<tr>
<td>Moderate Anxiety</td>
<td>12 (12.0)</td>
</tr>
<tr>
<td>Severe Anxiety</td>
<td>2 (2.0)</td>
</tr>
<tr>
<td>Depression, n (%)</td>
<td></td>
</tr>
<tr>
<td>No depression</td>
<td>86 (86.0)</td>
</tr>
<tr>
<td>Mild depression</td>
<td>13 (13.0)</td>
</tr>
<tr>
<td>Moderate depression</td>
<td>1 (1.0)</td>
</tr>
<tr>
<td>Severe Depression</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Fatigue, n (%)</td>
<td></td>
</tr>
<tr>
<td>Absence</td>
<td>65 (65.0)</td>
</tr>
<tr>
<td>Presence</td>
<td>35 (35.0)</td>
</tr>
<tr>
<td>Sleep Quality, n (%)</td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>8 (8.0)</td>
</tr>
<tr>
<td>Poor</td>
<td>92 (92.0)</td>
</tr>
<tr>
<td>Autonomic Imbalance, n (%)</td>
<td></td>
</tr>
<tr>
<td>Balanced</td>
<td>76 (76.0)</td>
</tr>
<tr>
<td>Imbalances</td>
<td>24 (24.0)</td>
</tr>
</tbody>
</table>

Furthermore, the oldest and youngest respondents were 65 and 18 years old, respectively.

The frequency distribution of subjects based on anxiety, depression, fatigue, sleep disturbances, and autonomic imbalances are summarized as follows.

Table 2 shows that 61.0% of the subjects did not experience anxiety, followed by 25.0% mild, 12.0% moderate, and 2.0% severe, which is the lowest. Furthermore, 86% did not experience depression, followed by 13.0% mild cases, 1% moderate, and no severe.

Also, 65% of subjects did not experience fatigue and 35.0% fatigue. Furthermore, the number of health workers with good and poor sleep quality is 8.0% and 92.0%, respectively. The HRV examination result showed that 76.0% of the subjects had balanced autonomic nerves compared to the 24.0% who had autonomic imbalances.

**DISCUSSION**

The majority of subjects (61) were not anxious in 100 samples (61%), followed by mild (25%), moderate (12%), and severe anxiety (2%). This is consistent with the previous study during the COVID-19 pandemic, that the majority accounting for 130 subjects, was not anxious (83.3%).

This study showed that COVID-19 caused no anxiety in 151 of 155 health workers. Subsequently, only 15.7% of the subjects in Singapore and India were reported to experience anxiety.

This present study contradicts the report of a previous study that from a total of 63 subjects, 30 (47.6%) experienced mild anxiety, 33 (52.4%) moderate, and no severe case. In accordance with other investigations, this study showed low anxiety cases. Furthermore, the level of anxiety is influenced by gender, where women have more experience than men.

The distribution of depression cases showed that the non-depressed subjects were the most common, accounting for 86 (86%), followed by mild 13 (13%), 1 for moderate (1%), and no severe depression was found (0%). This result is contrary to the reports of the study conducted at 34 hospitals in China, comprising 1,257 health workers who treated COVID-19 patients, which showed symptoms of depression by 50%.

Globally, the prevalence of depression in adults is 8-12%. The prevalence data are in line with the results of this study and the level of depression among health workers at the Esensia Clinic has a low rate of depression cases. The psychosocial factors influencing depression include life events and environmental stressors, psychodynamics, repeated failure, cognitive theory, and social support.

The result showed that 65% of health workers at the Esensia Clinic did not experience fatigue. This is contrary to the reports of Purnama et al., who discovered that most health workers (67.3%) at the Kassi-Kassi Public Health Center in Makassar City experienced fatigue. Meanwhile, inconsistent results were obtained for field health workers in Dompet Dhuafa Jabodetabek during the COVID-19 pandemic, where 33 subjects (71.1%) experienced fatigue and 13 (28.3%) did not have fatigue.

It can be concluded that the rate of fatigue cases at the Esensia Clinic is low compared to other studies. This demonstrates that health workers experience positive effects of psychosocial factors on performance to improve service quality.

The sleep disturbances with poor and good sleep quality accounted for 92 (92%) and 8 (8%) subjects, respectively. The number of people with poor sleep quality in this study was higher than in the previous conducted at RSUD Prof. Dr. W' Z Johannes Kupang. In this case,
24 (54.54%) out of 44 subjects have good sleep quality, while those in the poor category 20 (45.45%). Another study with inconsistent results was discovered at the Temanggung Hospital, where 39 nurses (62.9%) in the COVID-19 isolation ward had good sleep quality while 23 (37.1%) fell in the poor category. The result of this study is in line with the report of the previous studies that from a total of 63 subjects, 33 (52.4%) had poor sleep quality. According to a previous study, around 20%-50% of adults have sleep disturbances yearly.

The high number associated with poor sleep quality is due to the third wave of the COVID-19 pandemic, where the number of patients and workloads increased significantly. The use of complete Personal Protective Equipment (PPE) and continuous treatment of patients put health workers at risk of dehydration and fatigue. Sleep quality suffers due to fatigue physical conditions. Additionally, most health workers had negative experiences with COVID-19, such as fear of exposure to the virus and having family, friends, or relatives who were seriously ill or died from the virus.

According to the International data on Sleep Disorders, the most common are restlessness (5-15%), alcohol dependence (10%), sleep delays (10%), schedule changes (2-5%), illness (1%), and stress (65%). Based on this description, it is clear that psychosomatic disorders are the leading cause of a person's sleep quality deterioration.

Most health workers at Esensia Clinic have a balanced autonomic nervous system, represented by 76 (76.0%) subjects, followed by autonomic imbalances with 24 (24.0%) subjects. The report of a previous study showed that irregular heart rate changes are caused by stress from a job. Hence, this result can be used to assess the level of psychological stress. In conclusion, the risk of autonomic imbalance for health workers at Esensia Clinic is low because most nerves are balanced.

There are several limitations to our study. This was a single-center study. It was not randomized, but we carefully included subjects according to our inclusion and exclusion criteria. Reflecting on our result, we recommend taking a serial measurement with a longer follow-up time to strengthen the value of HRV.

CONCLUSION
Conclusively, the percentage of psychosomatic disorders in Esensia Clinic health workers in the COVID-19 era, such as cases of anxiety, depression, fatigue, and autonomic imbalance, is low compared to previous studies. However, poor sleep quality was found to be high.

CONFLICT OF INTEREST
The authors declare that they have no competing financial or personal interests.

ETHICAL CLEARANCE
This study was granted clearance from Health Research Ethics Committee, dr. Kariadi Hospital Semarang (Komite Etik Penelitian Kesehatan RSUP dr. Kariadi Semarang) Number: 1037/EC/KEPK-RSDK/2022. All subjects were provided with detailed information about the study and signed the informed consent voluntarily. All subjects’ information was kept confidential.

FUNDING
This research received no specific grant from the public, commercial, or not-for-profit funding agencies.

AUTHOR CONTRIBUTION
All authors contributed equally to the study and writing and revising the manuscript.

ACKNOWLEDGMENTS
The authors are grateful to the XVIII National Congress of Association of Indonesian Internists, Department of Internal Medicine, Faculty of Medicine, Universitas Indonesia/Cipto Mangunkusumo National Hospital, Jakarta and Esensia Clinic in Semarang City, Indonesia.

REFERENCES

