

Sleep Quality in Patients with Depression at the Outpatient Psychiatric Department of Dr. Soetomo General Hospital

Wiwin Indarti ¹, Andini Dyah Sitawati ^{2,*}, Fidiana ³ and Izzatul Fithriyah ⁴

¹ Faculty of Medicine, Universitas Airlangga, Surabaya, Indonesia.

² Department of Psychiatry, Faculty of Medicine, Universitas Airlangga, Universitas Airlangga Hospital, Surabaya, Indonesia.

³ Department of Neurology, Faculty of Medicine, Universitas Airlangga, Universitas Airlangga Hospital, Surabaya, Indonesia.

⁴ Department of Psychiatry, Faculty of Medicine, Universitas Airlangga, Dr. Soetomo General Academic Hospital, Surabaya, Indonesia.

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Abstract

Background: Depression is one of the most common mental disorders and one of the leading causes of disability and suicide. Approximately 50 – 90% of patients with depression experience sleep disturbance as an additional symptom. Sleep disorders not only represent as a primary factor for patients with depression to seek for professional help but also represent as a risk factor for suicide and self-harm. A good sleep quality can improve mood and support the recovery process in patients with depression.

Methods: The type of research used in this study is a cross-sectional study employing a demographic and PSQI (Pittsburgh Sleep Quality Index) questionnaire to assess sleep quality among patients with depression at Outpatient Psychiatric Department of Dr. Soetomo General Hospital. This study utilized primary data obtained through guided-interviews and secondary data collected from the patient's medical records.

Results: Based on 81 respondents at Outpatient Psychiatric Department of Dr. Soetomo General Hospital, most respondents were female patients around 18 – 25 years old. According to the PSQI (Pittsburgh Sleep Quality Index) score, 74 respondents (91.35%) had poor subjective sleep quality. The PSQI components include fairly good subjective sleep quality (41.98%), poor sleep latency (64.2%), very good sleep duration (34.57%), very good sleep efficiency (49.38%), fairly frequent sleep disturbance (50.62%), frequently use of sleep medication (65.43%), and fairly poor daytime dysfunction (40.74%).

Conclusion: Based on a cross-sectional study of 81 patients with depression at the Outpatient Psychiatric Department of Dr. Soetomo General Hospital, it can be concluded that the majority of respondents were female patients aged 18 – 25 years. According to the PSQI (Pittsburgh Sleep Quality Index) score, 74 respondents (91.35%) had poor sleep quality. The PSQI components include subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, use of sleep medication, and daytime dysfunction. The main factors contributing to poor sleep quality among respondents were physical comorbidities and drugs interactions from medications being taken.

Keywords: Sleep Quality; Depression; PSQI; Sleep

* Corresponding author: Andini Dyah Sitawati

1. Introduction

Depression is one of the mental disorders that is commonly found and one of the leading contributors to global disability and suicide. According to WHO (World Health Organization) in 2019, there are 280 million individuals that lives with depression, 23 million among them are children and adolescent [1]. Within this global figure, 15.6 million cases occurred in Indonesia. However, only 9% of individuals require assistance from professionals [2]. During a depressive episode, individuals typically exhibit a persistently depressed mood, manifested by irritability, sadness, or feeling of emptiness or a marked loss of interest in previously enjoyed activities [1]. Individuals with depression experience these symptoms nearly every day for at least two weeks. Additional symptoms may manifest as impaired concentrations, excessive guilt, diminished self-esteem, and sleep disturbances [3].

According to the Indonesian Ministry of Health, sleep is a passive yet essentials physiological process that supports both physical and psychological well-being. Millions of individuals fail to obtain adequate sleep or experience various forms of sleep disturbances. Sleep requirements vary across the lifespan, with adults generally need approximately 7 – 8 hours of sleep each night. The duration of sleep obtained plays a critical role in determining overall sleep quality in each individual [4]. Sleep quality refers to the individual's level of satisfaction with all aspects of their sleep experience [5]. Insufficient sleep may lead to various adverse outcomes, including depressive symptoms, difficulty sustaining attention, frequent yawning, and other related effects [4].

Sleep quality can be evaluated through several components, including sleep efficiency, sleep latency, sleep duration, and wake after sleep onset [6]. Around 50 – 90% of patients with depression are reported to experience sleep disturbances. Sleep disturbances are recognized as common accompanying symptoms of depressive disorders; patients often present with prolonged sleep onset and difficulty returning to sleep following nocturnal awakenings [7]. Sleep disturbances in patients with depression may serve as a primary reason for seeking professional help and are recognized as risk factors to suicide and self-harm [8]. Furthermore, attaining good sleep quality has been shown to improve mood in individuals with depression.

2. Material and methods

The study employed a descriptive qualitative design with cross-sectional approach; these data were gathered through guided interviews with the research subjects and through medical records of patients at Outpatient Psychiatric Department of Dr. Soetomo General Hospital. The study population consisted of patients with depression at Outpatient Psychiatric Department of Dr. Soetomo General Hospital, Surabaya. The sample size was determined using the Lameshow formula, resulting in a total of 81 respondents. This study has been approved by the Research Ethics Committee at Dr. Soetomo General Hospital Surabaya with the ethics approval code (1194/KEPK/XII/2024). The identities of the respondents are not disclosed in this study to ensure their privacy. All respondent data will be kept confidential by the author, and any information obtained will be used solely for research purposes.

3. Result and discussion

A total of 81 respondents from the Outpatient Psychiatric Department of Dr. Soetomo General Hospital were included in this analysis. Respondents' characteristics were obtained through a 15-item demographic questionnaire, while sleep quality was assessed using the 19-item PSQI (Pittsburgh Sleep Quality Index). PSQI evaluates seven components: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medication, and daytime dysfunction.

Table 1 Data on demographic characteristics of respondents

Variables	Categories	Frequencies	Percentage (%)
Age	18-25	31	38.27
	26-35	29	35.80
	36-45	14	17.28
	46-60	7	8.64

Gender	Male	10	12.35
	Female	71	87.65
Residential area	Urban	71	87.65
	Rural	10	12.35
Employment status	Teacher	2	2.47
	Housewives	15	18.52
	Students	13	16.05
	Private employee	34	41.98
	Civil servant	2	2.47
	Unemployed	15	18.52
Highest level of education	> Bachelor	3	3.70
	Others	1	1.23
	Bachelor	34	41.98
	Elementary/Junior High School	2	2.47
	Senior High School	41	50.62
Marital status	Unmarried	53	65.43
	Divorce	3	3.70
	Married	25	30.86
Length of treatment	> 12 months	39	48.15
	≤ 12 months	42	51.85
Alcohol consumption within the past month	>4x within one-month period	0	0.00
	1-2x within one-month period	2	2.47
	3-4x within one-month period	1	1.23
	None	78	96.30
Nicotine consumption within the past month	>4x within one-month period	4	4.94
	1-2x within one-month period	1	1.23
	3-4x within one-month period	3	3.70
	None	73	90.12
Bedroom environment	Dark	37	45.68
	Bright	23	28.40
	Dim	21	25.93
Bedroom arrangement	Alone	36	44.44
	Shared	45	55.56

Dietary habits over the past month	>3x a day	7	8.64
	1 – 2x a day	41	50.62
	3x a day	33	40.74
Past medical history	Present	56	69.14
	Not present	25	30.86
History of psychosis	Delusions	8	9.88
	Hallucinations	11	13.58
	Not present	62	76.54
Medication use	Alprazolam	3	3.70
	Amitriptyline	9	11.11
	Aripiprazole	15	18.52
	Clobazam	33	40.74
	Clonazepam	1	1.23
	Clozapine	2	2.47
	Divalproex	1	1.23
	Fluoxetine	20	24.69
	Fluvoxamine	10	12.35
	Haloperidol	1	1.23
	Lamotrigine	1	1.23
	Lorazepam	41	50.62
	Maprotiline	1	1.23
	Methylphenidate	1	1.23
	Quetiapine	18	22.22
	Risperidone	8	9.88
	Sertraline	39	48.15
	Trihexyphenidyl	3	3.70
	Venlafaxine	1	1.23
Total		81	100.00

Table 1 presents the demographic characteristics of the patient with depression at the Outpatient Psychiatric Department of Dr. Soetomo General Hospital. Based on their ages, most respondents were between 18 – 25 years old, other studies have reported that the high prevalence of depression among young adults may be influenced by several factors, including socioeconomic transitions, family background, and childhood traumatic [9]. The majority were female; previous studies have shown that women tend to experience depression more often than men. This condition may be influenced by biological differences in hormonal fluctuations that occur during puberty. Earlier research also indicates that these hormonal changes can affect an individual's ability to regulate stress and emotions, thereby contributing to functional impairments and elevating the likelihood of depression [10].

According to the residential area, most respondents live in urban areas, several factors may contribute to this conditions. High population density can increase stress and mental health problems due to competition for resources, limited living space, and intensified social interactions. Moreover, environmental conditions such as air pollution, noise, and the limited availability of green open spaces may further heighten the risk of depression [11]. Based on employment status, most respondents were private employees. This may be attributed to the relatively limited support available to

private employees, their less flexible hours, unclear job descriptions, demanding schedules, high work pressure, and the benefits they receive. In addition, private employees are often required to compete at a more intensive global level to maintain their employment [12]. Most respondents were unmarried, other study reported that being married may act as a protective factor against depression. Married individuals often exhibit better emotional regulation [13].

In terms of treatment duration, more than half of respondents had been receiving treatment for ≤ 12 months, other study have noted that as short treatment duration may not provide a significant outcome, as the therapeutic response to anti-depressant medication generally requires approximately 10 – 12 months of treatment to prevent early relapse [14]. Regarding bedroom conditions, most respondents reported sleeping in a dark room. This may be explained by research showing that sleeping in darkness can act as a protective mechanism against the worsening of depressive symptoms. Exposure to light at night can disrupt the circadian rhythm and the sleep-wake cycle, which in turn may trigger various physiological and emotional changes, including mood disturbances [15]. Based on bedroom arrangements, majority of respondents reported using a shared bedroom. Some respondents shared their bedroom due to specific circumstances, due to the need to monitor the individual sleeping with them, such as after hospitalization, the presence of physical comorbidities, or a risk of self-harm, while others reported having used a shared bedroom since the beginning.

According to dietary habits within past month, most respondents reported eating only 1 – 2 times per day which may be the results of changes in appetite commonly observed in depression. Other studies have shown that depression can alter eating patterns, with some individuals experiencing increased appetite while others experience a decrease. These changes are linked to reduced hemodynamic activity in the brain, which disrupts physiological functions and impairs the brain's ability to process signals from bodily organs, particularly in the anterior regions and bilateral insula [16]. In this study, most respondents presented with physical comorbidities, with spondyloarthritis emerging as the most prevalent condition. Other studies also reported that comorbidities in individuals with depression are associated with reduces quality of life, worsening the course of physical illness, increasing mortality rates, raising medical costs, elevating disability levels, and causing more severe functional impairment compared to when depression or other conditions occur in isolation [17].

Based on the respondent's history of psychosis, the majority reported no previous psychotic episodes. Several factors may help explain this finding. Limited mental-health literacy may reduce individuals' ability to recognize or accurately report psychotic symptoms. In addition, insufficient family or social support may hinder help-seeking behaviours. The stigma surrounding mental disorders may also discourage individuals from disclosing psychotic experiences or seeking treatment due to fears of being judged or perceived negatively by others. Collectively, these factors may contribute to the low reported prevalence of psychotic history in this study [18]. The majority of respondents were prescribed lorazepam to manage their presenting complaints. This pattern is consistent with the clinical profile of depressive disorders, in which sleep disturbances are among the most frequently reported symptoms. Consequently, lorazepam is commonly administered to alleviate insomnia and related sleep difficulties experienced by patients with depression [19]. More than half of respondents had completed Senior high school and not consuming alcohol or nicotine within past month. Other studies have reported that highest level of education and nicotine or alcohol consumption is not significantly associated with the presence of depressive symptoms. Nevertheless, some individuals may consume alcohol or nicotine as a means of self-medication to alleviate the depressive symptoms they experience [20], [21], [22].

Table 2 Data of sleep quality

Sleep quality	Frequencies	Percentage (%)
Good sleep quality	7	8.64
Poor sleep quality	74	91.36
Total	81	100.00

Table 2 presents the PSQI score interpretation among patients with depression at Outpatient Psychiatric Department of Dr. Soetomo General Hospital, Surabaya. Majority of respondents are experiencing poor sleep quality. Other studies also explained that depression is frequently characterized by the presence of sleep disturbances. Common manifestations include reduced sleep duration and decreased sleep efficiency. Insufficient sleep may precipitate the onset or recurrences of depressive episodes, while depression itself can further exacerbate sleep disturbances. This bidirectional relationship underscores the close interplay between sleep and depressive symptoms [23].

Table 3 Data of sleep quality based on respondents' demographic characteristics

Variables	Categories	Good Sleep Quality		Poor Sleep Quality		Total	
		F	%	F	%	F	%
Age	18-25	4	4.94	27	33.33	31	38.27
	26-35	2	2.47	27	33.33	29	35.80
	36-45	1	1.23	13	16.05	14	17.28
	46-60	0	0.00	7	8.64	7	8.64
Gender	Male	1	1.23	9	11.11	10	12.35
	Female	6	7.41	65	80.25	71	87.65
Residential area	Urban	7	8.64	64	79.01	71	87.65
	Rural	0	0.00	10	12.35	10	12.35
Employment status	Teacher	0	0.00	2	2.47	2	2.47
	Housewives	1	1.23	14	17.28	15	18.52
	Students	2	2.47	11	13.58	13	16.05
	Private employee	1	1.23	33	40.74	34	41.98
	Civil servant	0	0.00	2	2.47	2	2.47
	Unemployed	3	3.70	12	14.81	15	18.52
Highest level of education	> Bachelor	0	0.00	3	3.70	3	3.70
	Others	0	0.00	1	1.23	1	1.23
	Bachelor	1	1.23	33	40.74	34	41.98
	Elementary/Junior High School	0	0.00	2	2.47	2	2.47
	Senior High School	6	7.41	35	43.21	41	50.62
Marital status	Unmarried	5	6.17	48	59.26	53	65.43
	Divorce	0	0.00	3	3.70	3	3.70
	Married	2	2.47	23	28.40	25	30.86
Length of treatment	> 12 months	3	3.70	36	44.44	39	48.15
	≤ 12 months	4	4.94	38	46.91	42	51.85
Alcohol consumption within the past month	>4x within one-month period	0	0.00	0	0.00	0	0.00
	1-2x within one-month period	0	0.00	2	2.47	2	2.47
	3-4x within one-month period	0	0.00	1	1.23	1	1.23
	None	7	8.64	71	87.65	78	96.30
Nicotine consumption within the past month	>4x within one-month period	0	0.00	4	4.94	4	4.94
	1-2x within one-month period	0	0.00	1	1.23	1	1.23

	3-4x within one-month period	0	0.00	3	3.70	3	3.70
	None	7	8.64	66	81.48	73	90.12
Bedroom environment	Dark	0	0.00	37	45.68	37	45.68
	Bright	4	4.94	19	23.46	23	28.40
	Dim	3	3.70	18	22.22	21	25.93
Bedroom arrangement	Alone	2	2.47	34	41.98	36	44.44
	Shared	5	6.17	40	49.38	45	55.56
Dietary habits over the past month	>3x a day	0	0.00	7	8.64	7	8.64
	1 – 2x a day	5	6.17	36	44.44	41	50.62
	3x a day	2	2.47	31	38.27	33	40.74
Past medical history	Present	2	2.47	54	66.67	56	69.14
	Not present	4	4.94	21	25.93	25	30.86
History of psychosis	Delusions	3	3.70	5	6.17	8	9.88
	Hallucinations	1	1.23	10	12.35	11	13.58
	Not present	3	3.70	59	72.84	62	76.54
Medication use	Alprazolam	0	0.00	3	3.70	3	3.70
	Amitriptyline	0	0.00	9	11.11	9	11.11
	Aripiprazole	2	2.47	13	16.05	15	18.52
	Clobazam	2	2.47	31	38.27	33	40.74
	Clonazepam	0	0.00	1	1.23	1	1.23
	Clozapine	0	0.00	3	3.70	2	2.47
	Divalproex	0	0.00	1	1.23	1	1.23
	Fluoxetine	2	2.47	18	22.22	20	24.69
	Fluvoxamine	1	1.23	9	11.11	10	12.35
	Haloperidol	0	0.00	1	1.23	1	1.23
	Lamotrigine	0	0.00	1	1.23	1	1.23
	Lorazepam	4	4.94	37	45.68	41	50.62
	Maprotiline	0	0.00	1	1.23	1	1.23
	Methylphenidate	0	0.00	1	1.23	1	1.23
	Quetiapine	2	2.47	16	19.75	18	22.22
	Risperidone	2	2.47	6	7.41	8	9.88
	Sertraline	3	3.70	36	43.21	39	48.15
	Trihexyphenidyl	0	0.00	3	3.70	3	3.70
	Venlafaxine	0	0.00	1	1.23	1	1.23
Total						81	100.00

Table 3 presents respondents sleep quality based on their demographic characteristics. Based on their ages, most respondents that reported having a poor sleep quality were between 18 – 35 years old, this may be because individuals in this age range often experience psychological and environmental changes that contribute to the onset of depression

and sleep disturbances. These changes include various stressors, such as academic, occupational, family, or other external pressures that are commonly encountered by respondents [24]. Majority of respondents that were reported having a poor sleep quality were female; this may be influenced by several factors, including differences in the prevalence of depressive disorders, variations in stress-coping mechanism, and the impact of social and cultural factors [24]. According to the residential area, most respondents reported that having a poor sleep quality lives in urban area, this may be attributed to differences in sociodemographic characteristics, lifestyle factors, economic development, and the quality of healthcare services [25].

Based on employment status, most respondents reported having poor sleep quality were private employees. This may be because private-sector employees often face greater job-related pressures, less flexible working hours, and limited emotional support, all of which can contribute to poorer sleep quality among patients with depression working in this sector [12], [26]. Most respondents that reported having a poor sleep quality were unmarried, other study reported that unmarried individuals tend to have later or more irregular sleep patterns, as well as more severe sleep disturbances both during day and night. However, these outcomes are not solely influenced by marital status; they are also shaped by various sociocultural, economic, and physical or psychological health factors [27]. In terms of treatment duration, more than half of respondents had been receiving treatment for ≤ 12 months, previous research has shown that patients who have recently initiated treatment for depressive symptoms often experience poorer sleep quality than those who have been in treatment for a longer period. This may be related to early responses to antidepressant therapy, as some agents, such as SSRIs (Serotonin Selective Reuptake Inhibitor), may negatively affect sleep in certain individuals. Consequently, during the early stages of treatment, pharmacotherapy may not yet be fully optimized, requiring dose adjustments or the addition of sleep medication to alleviate sleep-related symptoms [28], [29].

Regarding bedroom conditions, most respondents reported sleeping in a dark room. This may be explained by previous research indicating that sleeping in a brightly lit bedroom can worsen sleep quality. Night-time light exposure suppresses melatonin production and disrupts circadian rhythms, ultimately leading to poorer sleep outcomes [30]. Based on bedroom arrangements, majority of respondents that have poor sleep quality reported using a shared bedroom. This may be because sharing a bedroom with others can increase exposure to noise or light and reduce privacy, all of which may further impair sleep quality in patients with depression. However, this factor is unlikely to be a primary factor to poor sleep quality among patients with depression [31]. According to dietary habits within past month, most respondents that having a poor sleep quality reported eating only 1 – 2 times per day which may be due to unhealthy eating patterns among patients with depression, which can affect gastrointestinal hormones and stimulate serotonin and melatonin production, ultimately contributing to poorer sleep quality [32].

In this study, most respondents that having a poor sleep quality presented with physical comorbidities, with spondyloarthritis emerging as the most prevalent condition. Previous studies reported that this may be related to patients' symptoms and concerns regarding their prognosis [33]. Additionally, individuals with SpA (Spondyloarthritis) commonly experience chronic back pain that tends to worsen at night, particularly in midnight [34]. Based on the respondent's history of psychosis, the majority reported no previous psychotic episodes. This may be explained by the low prevalences of respondents presenting with psychotic symptom history. However, previous studies have described the relationship between depression and poor sleep quality as bidirectional. Poor sleep can increase the risk of depressive symptoms, while presence of depression can likewise contribute to worsening sleep quality [35].

Many respondents that having poor sleep quality were prescribed lorazepam to manage their presenting complaints. This may result from sleep disturbances being a frequent additional symptom in patients with depression. As a result, a large proportion of patients with depression presenting to Outpatient Psychiatric Department of Dr. Soetomo General Hospital reported poor sleep quality as their primary complaint. Therefore, many patients required Lorazepam to reduce their sleep-related symptoms [36]. More than half of respondents had completed Senior high school and not consuming alcohol or nicotine within past month. Other studies have reported that highest level of education and nicotine or alcohol consumption does not significantly lead to poor sleep quality among patients with depression [37], [38], [39].

Table 4 Data of sleep quality based on PSQI components

Components of PSQI	Categories	Good sleep quality		Poor sleep quality		Total	
		F	%	F	%	F	%
Subjective sleep quality	Excellent	3	3.70	8	9.88	11	13.58
	Good	4	4.94	30	37.04	34	41.98
	Poor	0	0.00	14	17.28	14	17.28
	Very poor	0	0.00	22	27.16	22	27.16
Sleep latency	Excellent	5	6.17	10	12.35	15	18.52
	Good	1	1.23	4	4.94	5	6.17
	Poor	0	0.00	9	11.11	9	11.11
	Very poor	1	1.23	51	62.96	52	64.20
Sleep duration	> 7 hours	4	4.94	24	29.63	28	34.57
	6 - 7 hours	3	3.70	14	17.28	17	20.99
	5 - 6 hours	0	0.00	18	22.22	18	22.22
	< 5 hours	0	0.00	18	22.22	18	22.22
Sleep efficiency	≥ 85%	6	7.41	34	41.98	40	49.38
	75 - 84%	1	1.23	26	32.10	27	33.33
	65 - 74%	0	0.00	6	7.41	6	7.41
	< 65%	0	0.00	8	9.88	8	9.88
Sleep disturbances	Excellent	1	1.23	0	0.00	1	1.23
	Good	5	6.17	24	29.63	29	35.80
	Poor	1	1.23	40	49.38	41	50.62
	Very poor	0	0.00	10	12.35	10	12.35
Use of sleeping medication	None within past month	6	7.41	8	9.88	14	17.28
	< 1x in a week	0	0.00	8	9.88	8	9.88
	1 - 2x in a week	0	0.00	6	7.41	6	7.41
	≥ 3x in a week	1	1.23	52	64.20	53	65.43
Daytime dysfunction	Excellent	4	4.94	5	6.17	9	11.11
	Good	1	1.23	15	18.52	16	19.75
	Poor	2	2.47	31	38.27	33	40.74
	Very poor	0	0.00	23	28.40	23	28.40
Total						81	100.00

Table 4 presents respondents sleep quality based on the PSQI components of. Based on the subjective sleep quality, most respondents reported having a good subjective sleep quality. Previous studies have highlighted that subjective sleep quality plays an important role in overall sleep assessment. However, an individual's sleep quality is also shaped by various additional factors. Early-morning awakenings, daytime dysfunction, and prolonged sleep latency may each contribute to a poorer overall sleep experience, despite perceptions of adequate subjective sleep quality [40]. When considering sleep latency, most respondents demonstrated very poor sleep latency. This may be attributed to the tendency of patients with depression to experience persistent negative thoughts that heighten pre-sleep cognitive

activity and delay sleep onset. Moreover, prolonged sleep latency reflects a disturbance in sleep continuity, in which individuals struggle to initiate and maintain sleep throughout the night [41], [42]. Majority of respondents reported sleeping for more than seven hours. Excessive sleep duration has been associated with increased sleep fragmentation and reduced physical activity, which may contribute to lower energy, diminished vitality, and mood disturbances. Additionally, previous studies suggest that oversleeping may reflect stress or exposure to stressful events, indicating that an individual's ability to manage stress can influence the relationship between sleep patterns and depression [43].

Regarding sleep efficiency, majority respondents were reported to have excellent sleep efficiency. This may be explained by their overall long sleep duration, as most participants slept for more than seven hours, contributing to the high efficiency scores observed. For the sleep disturbance component, most respondents exhibited poor sleep disturbances, most commonly early-morning awakenings and waking at night to use the bathroom. These disturbances are closely linked to depression severity. Previous studies have also shown that individuals with depression exhibit elevated levels of TNF- α , which, together with other cytokines, may activate the HPA axis and contribute to hypercortisolism, thereby triggering or exacerbating sleep disturbances and depressive symptoms [44], [45]. Majority of respondents reported using sleep medication three or more times per week. This may be related to the use of certain antidepressants that stimulate the central nervous system and disrupt sleep episodes. However, in this study the primary reason for prescribing sleep medication appeared to be patients' complaints of insufficient sleep, which is a common additional symptom experienced by patients with depression [46]. In this study, most respondents exhibited poor daytime dysfunction. This may be attributed to the poor sleep quality commonly experienced by individuals with depression. In the present findings, daytime dysfunction was largely associated with the effects of sleep medicine and/or reduced interest and motivation, both of which are common symptoms of depression [47].

4. Conclusion

Based on the findings in this study, it can be concluded that most respondents were female patients aged 18 – 25 years. Most respondents also resided in urban areas, worked in private sector, and completed senior high school as their highest level of education. According to their PSQI score, 74 respondents (91.35%) are experiencing poor sleep quality. The PSQI components include subjective sleep quality, sleep latency, sleep duration, sleep efficiency, night-time sleep disturbances, use of sleep medication, and daytime dysfunction. The primary factors contributing to poor sleep quality among respondents were their physical comorbidities, drug interactions, and night-time sleep disturbances such as pain arising from their comorbidities condition, pre-dawn awakenings, and prolonged sleep latency.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declared there is no conflict of interest.

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