Depression and Sleep Quality of Outpatients In Penjaringan Primary Health Care, Jakarta: A Cross-sectional Study

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Abstract

Introduction: *Depression is the most common mental disorder. Depression of outpatients in primary health care is frequently unrecognized. It might affect sleep quality, which is associated with worse quality of life, poor medication adherence, higher morbidity, and mortality. The study aimed to determine the association between depression and sleep quality of outpatients in Penjaringan Primary Health Care, Jakarta.*
Method: *This research was observational analytic using a cross-sectional approach involving 434 outpatients in Penjaringan Primary Health Care, Jakarta. The study was conducted from August until September 2019. Instruments used in this research were the demographic questionnaire, the Zung Self-Rating Depression (SDS) questionnaire, and the Pittsburgh Sleep Quality Index (PSQI) questionnaire. Data analytics were bivariate.*
Results: *There were 19.1% of respondents had depression, including 12.2% mild depression, 5.8% moderate depression, and 1.2% severe depression. There were 53.5% of respondents had poor sleep quality. There was a significant relationship ($p<0.001$, $OR=7.814$) between depression and sleep quality in outpatients. The results also showed that depression scores were moderately correlated with sleep disturbances ($r=0.434$).*
Conclusion: *This study showed a high prevalence of depression and poor sleep quality among outpatients. Depression was associated with a 7.8 times higher risk of having poor sleep quality and also correlated with the components of sleep quality especially sleep disturbance.*

Keywords: *Depression, Outpatient, Primary Health Care, Sleep Quality*

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Hubungan Depresi Dan Kualitas Tidur Pada Pasien Di Puskesmas Kecamatan Penjaringan Jakarta Utara: Studi Cross-Sectional

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Abstrak

Pendahuluan: *Depresi merupakan gangguan mental yang sering dijumpai. Gangguan depresi pada pasien di layanan primer khususnya puskesmas sering tidak terdiagnosa dan dapat memengaruhi kualitas tidur. Hal tersebut akan berdampak pada penurunan kualitas hidup, ketidakpatuhan minum obat, peningkatan angka morbiditas dan mortalitas. Mengetahui hubungan depresi dan kualitas tidur pada pasien di Puskesmas Kecamatan Penjaringan, Jakarta Utara.*
Metode: *Desain penelitian ini adalah cross-sectional pada 434 pasien rawat jalan di Puskesmas Kecamatan Penjaringan, Jakarta Utara. Penelitian dilakukan pada bulan Agustus sampai September 2019. Alat ukur yang digunakan adalah kuesioner demografi, Zung Self-Rating Depression (SDS), dan Pittsburgh Sleep Quality Index (PSQI). Analisis data secara bivariat.*
Hasil: *Terdapat 19.1% responden mengalami depresi, diantaranya 12.2% depresi ringan, 5.8% depresi sedang, dan 1.2% depresi berat. Sebanyak 53.5% responden memiliki kualitas tidur buruk. Analisis bivariat menunjukkan terdapat hubungan bermakna (p=0.000, OR=7.814) antara depresi dan kualitas tidur pada pasien. Selain itu, skor depresi memiliki korelasi sedang dengan komponen tidur sleep disturbance (r=0.434).*
Kesimpulan: *Penelitian ini menunjukkan tingginya prevalensi depresi dan kualitas tidur buruk pada pasien. Depresi berhubungan dengan risiko 7.8 kali lebih besar mengalami kualitas tidur buruk dan memiliki korelasi dengan komponen kualitas tidur terutama sleep disturbance.*

Kata kunci: *Depresi, Pasien, Puskesmas, Kualitas tidur*

Introduction

Depression is a common mental disorder characterised by feelings of sadness and guilt, loss of interest, disturbed sleep pattern or appetite, fatigue, and poor concentration. Depression can distract a person's activities in daily life and lead to suicide. World Health Organization (WHO) estimated that there were 4% (322 million) of the world's population experiencing depression. The prevalence of depression in Southeast Asia reached 27% (86 million). Meanwhile, the prevalence of depression in Indonesia is 3.7%.[1] In 2016, the District Health Profile showed the number of outpatients with mental disorders attending primary health care in Jakarta was 5.2%, whereas in North Jakarta was 5.3%.[2] Depression is predicted as the first leading cause of the global burden of disease in 2030.[3]

Primary health care is non-specialistic (primary) consisting of outpatient and inpatient services. Patients who visit primary health care predominantly present symptoms, such as fatigue, sleep disturbances, changes in appetite, palpitations, headaches, etc. Early detection and diagnosis of depression are necessary so that patients can get the appropriate treatment and prevent complications of physical and mental comorbidities.[4,5] The number of mental health care services in Indonesia is very limited. There are only 21.47% of primary health care, especially Puskesmas serving mental health care. Meanwhile, the treatment gap in mental disorders in Indonesia reaches around 90%. This shows that only 10% of patients with mental disorder receive mental health services. Whereas in patients who are undergoing medical treatment, there are 25% experiencing depression.[6]

The relationship between depression and sleep disorder is complicated because both influence each other. Symptoms of sleep disorder are symptoms of depression and sleep disorder can also have a further impact on depression.[7] Poor sleep quality was found in 38% of patients attending primary health care. Depression was a factor related to sleep quality and can increase the risk 7.7 times higher for having poor sleep quality.[8] It might be cause several impacts associated with worse quality of life, poor medication adherence, higher morbidity, and mortality. The study aimed to determine the relationship between depression and sleep quality of outpatients in Penjaringan Primary Health Care, Jakarta.

Method

Research design

This research is observational analytic using a cross-sectional approach involving 434 outpatients in Penjaringan Primary Health Care, North Jakarta, Jakarta. The sample was collected from August until September 2019 with a consecutive sampling technique.

Subjects

The inclusion criteria is outpatients aged ≥ 17 years in Penjaringan Primary Health Care, Jakarta. Exclusion criteria are patients who were undergoing therapy for mental disorders, did not complete the questionnaire, and were unable to communicate.

Measurements

Instruments used in this research were the demographic questionnaire, the Zung Self-Rating Depression (SDS) questionnaire, and the Pittsburgh Sleep Quality Index (PSQI) questionnaire. A demographic questionnaire was consisting of age, sex, marital status, education level, occupation, economic status, and chronic disease. SDS was a questionnaire used to measure the severity of depression in all ages. SDS had a Cronbach's Alpha 0.86 with 93% sensitivity and 69% specificity. Score ranges for the severity of depression are: index scores 25 – 49 (raw scores 20 – 40) means normal, index scores 50d – 59 (raw scores 41 – 47) means mild depression, index score 60 – 69 (raw scores 48 – 55) means moderate depression, and index scores ≥70 (raw scores ≥56) means severe depression.[9] PSQI was used to differentiate good and poor sleep quality. This instrument contained seven components of sleep quality, including

Table 1. Characteristic of Patients in Penjaringan Primary Health Care, Jakarta

Variable	Number (Percentage)
Characteristics	
Age (years), mean	47.11
Age (years)	
17 – 25	33 (7.6)
26 – 35	67 (15.4)
36 – 45	81 (18.7)
46 – 55	133 (30.6)
56 – 65	84 (19.4)
> 65	36 (8.3)
Sex	
Male	120 (27.6)
Female	314 (72.4)
Marital status	
Never married	36 (8.3)
Married	332 (76.5)
Widowed/ Divorced	66 (15.2)
Education level	
Never went to school	26 (6.0)
Primary education	244 (56.2)
Secondary education	130 (30.0)
Tertiary education	34 (7.8)
Occupation	
Working	199 (45.9)
Not working	235 (54.1)
Economic status	
≥ UMP DKI Jakarta 2019	169 (38.9)
< UMP DKI Jakarta 2019	265 (61.1)
Chronic Disease	
No	179 (41.2)
Yes	255 (58.8)
Depression	
No	351 (80.9)
Yes	83 (19.1)
Mild	53 (12.2)
Moderate	25 (5.8)
Severe	5 (1.2)
Sleep Quality	
Good	202 (46.5)
Poor	232 (53.5)

Table 2. Sociodemographic Factors Associated with Depression and Sleep Quality of outpatients in Penjaringan Primary Health Care, Jakarta

Variable	Non-depressed	Depressed	P value	Good sleep quality	Poor sleep quality	P value
	n (%)	n (%)		n (%)	n (%)	
Characteristics						
Age (years)			0.022			0.372
17 – 25	29 (8.3)	4 (4.8)		15 (7.4)	18 (7.8)	
26 – 35	60 (17.1)	7 (8.4)		33 (16.3)	34 (14.7)	
36 – 45	72 (20.5)	9 (10.8)		37 (18.3)	44 (19.0)	
46 – 55	100 (28.5)	33 (39.8)		53 (26.2)	80 (34.5)	
56 – 65	63 (17.9)	21 (25.3)		43 (21.3)	41 (17.7)	
> 65	27 (7.7)	9 (10.8)		21 (10.4)	15 (6.5)	
Sex			0.015			0.644
Male	106 (30.2)	14 (16.9)		58 (28.7)	62 (26.7)	
Female	245 (69.8)	69 (83.1)		144 (71.3)	170 (73.3)	
Marital status			0.007			0.103
Never married	33 (9.4)	3 (3.6)		19 (9.4)	17 (7.3)	
Married	273 (77.8)	59 (71.1)		160 (79.2)	172 (74.1)	
Widowed/ Divorced	45 (12.8)	21 (25.3)		23 (11.4)	43 (18.5)	
Education level			0.007			0.143
Never went to school	17 (4.8)	9 (10.8)		10 (5.0)	16 (6.9)	
Primary education	189 (53.8)	55 (66.3)		112 (55.4)	132 (56.9)	
Secondary education	114 (32.5)	16 (19.3)		58 (28.7)	72 (31.0)	
Tertiary education	31 (8.8)	3 (3.6)		22 (10.9)	12 (5.2)	
Occupation			0.454			0.904
Working	164 (46.7)	35 (42.2)		92 (45.5)	107 (46.1)	
Not working	187 (53.3)	48 (57.8)		110 (54.5)	125 (53.9)	
Economic status			0.010			0.644
≥ UMP DKI Jakarta 2019	147 (41.9)	22 (26.5)		81 (40.1)	88 (41.3)	
< UMP DKI Jakarta 2019	204 (58.1)	61 (73.5)		121 (59.9)	144 (58.7)	
Chronic disease			<0.001			0.001
No	164 (46.7)	15 (18.1)		100 (49.5)	79 (34.1)	
Yes	187 (53.3)	68 (81.9)		102 (50.5)	153 (65.9)	

subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleep medication, and daytime dysfunction. PSQI had a Cronbach's Alpha 0.83 with 89.6% sensitivity and 86.5% specificity. A score of 5 or less indicates good sleep quality, whereas the score of more than 5 indicates poor sleep quality.[10]

Statistical analysis

The data was analyzed using Statistical Package for the Social Sciences (SPSS) version 22.0 software. Descriptive findings were showed as numbers, percentiles, and means. Data analysis was evaluated using Chi-Square and Spearman test.

Ethical clearance

This study has been approved by the Ethical Clearance Committee, Faculty of Medicine and Health Sciences, Atma Jaya Catholic University of Indonesia, under number 03/05/KEP-FKUAJ/2019-May 6, 2019.

Results

The number of respondents in this study were 446 respondents. However, twelve respondents were excluded from this study (seven respondents did not complete the questionnaire, and five respondents were undergoing treatment for mental disorder), so there

were 434 respondents which can be analyzed in this study.

The results showed that most of the respondents were aged 46 – 55 (30.6%) with an average age of 47.11 years old, female (72.4%), married (76.5%), at primary education (56.2%), not working (54.1%), at low-income status (61.1%), and having chronic disease (58.8%). There were 19.1% of respondents had depression, including 12.2% with mild depression, 5.8% with moderate depression, and 1.2% with severe depression. There were 53.5% of respondents had poor sleep quality. (Table 1)

According to the Chi-Square test, sociodemographic factors such as age, sex, marital status, education level, economic status, and chronic disease were significantly associated with depression (p=0.022, p=0.015, p=0.007, p=0.007, p=0.010, p<0.001, respectively), while chronic disease was significantly associated with sleep quality (p=0.001). (Table 2).

The results showed that there were 83 of 434 respondents experiencing depression (19.1%). Respondents with depression had more poor sleep quality (86.7%) than good sleep quality (13.3%). Poor sleep quality was the most commonly found in respondents with severe depression (100.0%), moderate depression (92.0%), and mild depression (83.0%). (Table 2)

Table 3. Distribution of Depression and Sleep Quality Among Patients in Penjaringan Primary

	Sleep Quality	
	Good	Poor
	n (%)	n (%)
Depression		
No	191 (94.6)	160 (69.0)
Yes	11 (5.4)	72 (31.0)
Mild	9 (4.4)	44 (18.9)
Moderate	2 (1.0)	23 (9.9)
Severe	0 (0.0)	5 (2.2)

The bivariate analysis using Chi-Square showed a significant relationship (p=0.000) between depression and sleep quality among outpatients in primary health care of the Penjaringan, Jakarta. Respondents with depression had a 7.8 times higher risk (OR = 7.814) to experience poor sleep quality than non-depressed respondents. (Table 3)

Table 4. Association Between Depression and Sleep Quality of Outpatients in Penjaringan Primary Health Care, Jakarta

	Sleep Quality			
	Good	Poor	P value	OR (95% CI)
	n (%)	n (%)		
Depression			<0.001	7.814 (4.005 - 15.245)
No	191 (94.6)	160 (69.0)		
Yes	11 (5.4)	72 (31.0)		

The correlation between depression scores and components of sleep quality scores was analyzed using the Spearman test. There was a statistically significant correlation in components of subjective sleep quality (p=0.000), sleep latency (p=0.000), sleep duration (p=0.000), habitual sleep efficiency (p=0.018), sleep disturbances (p=0.000), use of sleeping medication (p=0.002), and daytime dysfunction (p=0.001). The results also showed that depression scores were moderately correlated with sleep disturbances (r=0.434), while weakly correlated with subjective sleep quality (r=0.296), sleep latency (r=0.318), sleep duration (r=0.178), habitual sleep efficiency (r=0.113), use of sleeping medication (r=0.147), and daytime dysfunction (r=0.162). (Table 5)

Table 5. Correlation Analysis Between Depression Scores and the Components of Sleep Quality Scores of Outpatients in Penjaringan Primary Health Care, Jakarta

Component	r	P value
Subjective sleep quality	0.296	<0.001
Sleep latency	0.318	<0.001
Sleep duration	0.178	<0.001
Habitual sleep efficiency	0.113	0.018
Sleep disturbances	0.434	<0.001
Use of sleeping medication	0.147	0.002
Daytime dysfunction	0.162	0.001

Discussion

The results showed that most of the respondents were 46 – 55 years old with an average age of 47.11, female, at primary education (elementary school and junior high school), not working, and at low-income status.

Various studies have reported that some respondents are 51 – 60 years old, female, primary education, not working or housewife, and the monthly income per household was IDR 1.000.000 to 3.000.000.[11,12]

There were 19.1% of respondents with depression, including 12.2% mild depression, 5.8% moderate depression, and 1.2% severe depression. The present study has a higher prevalence compared to data from the District Health Profile in 2016 which has prevalence of 5.3% in North Jakarta.[2] Differences in this prevalence due to outpatients attending primary health care generally come with physical symptoms as their initial complaints so that mental disorders such as depression frequently unrecognized and untreated by physicians. In addition, depression is often overlooked because of the negative stigma of depression and other mental disorders cause patients to hide their feeling about mood problems. Most patients do not have enough knowledge about depression. Therefore some symptoms of depression might be misinterpreted as other diseases.[13] This finding showed that there is high treatment gap for mental disorders. Riskesdas (2018) showed that only 9% of patients with depression were consuming drugs or undergoing medical treatment.[14] According to study by Sun Jin Jo, et al. (2015) conducted in primary health care, 14.1% outpatients experiencing depression.[15] Other studies in primary health care showed that 18.2% outpatients with chronic diseases experiencing depression.[16] A study by Marsasina and Fitrikasari (2016) in outpatients with physical illness showed 47.5% of patients with depression, including 22% mild depression, 18.6% moderate depression, and 6.8% severe depression. It might be associated with psychosocial stressors such as family, economy, and occupation.[11] High prevalence of depression might be caused by factors including the age range of 40 – 59 years, female, low education (≤ 6 years), and low or middle-low household income. Perceived stress and health status can also increase the risk of depression.[17] In addition, depression is the most common in the elderly. It was associated with low socioeconomic status, loss of partners, physical illness, and social isolation. The presence of depression in the elderly generally appears as somatic symptoms that are undiagnosed and untreated by general practitioners.[18] In this present study, sociodemographic factors such as age, sex, marital status, education level, economic status, and chronic disease were significantly associated with depression. A previous study by Lotfaliany, et al. also showed that being older, female, widowed/ divorced/ separated, lower education level, lower income, and having chronic diseases particularly diabetes, arthritis, asthma, chronic lung disease, angina, and stroke were associated with depression. Additionally, patients with one chronic disease had increases 58% the risk of depression, while the risk was higher for patients with at least two chronic diseases.[19] Interestingly, the instrument used in this study can also affect the prevalence of depression. The Zung Self-Rating Depression Scale (SDS) has a high sensitivity, but the use of this questionnaire mostly errors in setting the appropriate cut-off. The mistake was used cut-off directly in raw scores to determine depression criteria, without being changed to index scores. This reduces the sensitivity of SDS to 56%.[20]

In this study, there were 53.5% of respondents had poor sleep quality. Sleep alteration can also be influenced by age and sex. During the third decade of life, slow-wave sleep tends to decrease. In women, the occurrence of menopause can affect sleep quality. Whereas in men, sleep quality decrease continuously during the ageing process.[21] The previous study by Thichumpa, et al. (2018) reported that 44% elderly (≥ 60 years) had poor sleep quality. Sleep problems that commonly experienced including getting up to the bathroom, waking up in the middle of the night or early morning, and difficulty falling asleep within 30 minutes.[22] Poor sleep quality was the most frequently found in patients attending primary health care. This condition might be caused by their perceived complaints, uncertain diagnosis, and fear about the prognosis of the disease.[23] This present study also showed that patient with chronic disease was significantly associated with sleep quality. A population-based survey by Basnet et al. showed those with chronic diseases especially cardiovascular diseases, degenerative arthritis, and gallstones were associated with one or more sleep problems. Cardiac insufficiency was increased risk for poor sleep quality. Hypertension was increased risk for seasonal variation in sleep duration. Angina pectoris was increased risk both seasonal variation and sleep debt.[24] Another study by Chiang (2018) showed that among patients in primary health care showed that nocturia was the most common complaint experienced by elderly patients with cardiometabolic diseases including diabetes mellitus, hypertension, and hyperlipidemia that associated with the risk of having poor sleep quality.[25]

The correlation between depression scores and components of sleep quality scores was analyzed using the Spearman test. There was a statistically significant correlation in all components of sleep quality. The results also showed that depression scores were moderately correlated with sleep disturbances, while weakly correlated with subjective sleep quality, sleep latency, sleep duration, habitual sleep efficiency, use of sleeping medication, and daytime dysfunction. Similarly, previous study in the Chinese population using Center for Epidemiological Survey Depression Scale (CES-D) was reported that depression symptoms were associated with higher risk of having poor sleep quality in all components, especially in sleep disturbance (5.15 higher) and use of sleep medication (6.23 higher).[26] Another study using the Geriatric Depression Scale in elderly Asian subjects showed that depression scores were only significantly correlated with sleep disturbance and daytime dysfunction.[27]

The bivariate analysis using Chi-Square showed a significant relationship (p=0.000) between depression and sleep quality among outpatients in primary health care of the Penjaringan sub-district, Jakarta. Respondents with depression had a 7.8 times higher risk (OR = 7.814, 95% CI: 4.005 – 15.245) to experience poor sleep quality than non-depressed respondents. Depression can cause several changes that affect sleep quality. It might be due to neuroendocrine factors such as corticotropin-releasing hormone (CRH), adrenocorticotropin hormone (ACTH), and cortisol. Increased levels of these hormones found in patients with depression, particularly at night. High cortisol levels in depression are associated with sleep alterations including difficulty in falling asleep, frequent awakenings during the night, increased time in NREM 1 and 2, increased time in REM, and decreased in slow-wave sleep.[28] Similarly, the study showed that there was a significant relationship between depression and sleep quality in primary health care and depression increased the risk to have poor sleep quality.8 Another study reported that most people with depression experience sleep disorders such as insomnia, hypersomnia, or both.[29] A study also showed that depression is a risk of insomnia in the elderly. That was because an individual with depression had difficulty falling asleep and maintaining sleep during the night.[30] Among outpatients with chronic low back pain showed that depression was the most related factor with insomnia. This condition might be caused by a decreased in physical activity including loss of interest, fatigue, psychomotor retardation, and negative thoughts. Therefore, patients with depression tend to have poor sleep hygiene and sleep disorders.[13]

There were several limitations. This study conducted only in primary health care of the Penjaringan sub-district, Jakarta, studies in other primary health care facilities might be needed in further research. The role of physicians to diagnosed depression in patients also important to compare with undiagnosed patients. Some respondents need to be assisted during fill the questionnaire because of the low educational background.

Conclusion

In conclusion, there was a high prevalence of depression and poor sleep quality among outpatients. Depression was associated with a 7.8 times higher risk of having poor sleep quality and also correlated with the components of sleep quality especially sleep disturbance.

Conflict of Interest

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

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