

# Quality of Sleep in Psychiatric Outpatients

Lalitanantpong D, MD<sup>1</sup>

<sup>1</sup> Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand

**Background:** People with mental health disorder usually have sleeping problems. Measuring the sleep quality may reflect the severity of the illness, effectiveness of care, and management.

**Objective:** To study the sleep quality of psychiatric outpatients and assess the factors associated with the quality of sleep in these patients.

**Materials and Methods:** Outpatients who sought psychiatric OPD services were selected randomly. The sleep quality of these patients was measured with the Pittsburgh Sleep Quality Index (PSQI). The severity of the psychiatric diagnostic symptoms were also rated with the Clinical Global Impression-Severity scale (CGI-S). Outcomes and its correlation to sleep were analyzed.

**Results:** There were 136 psychiatric outpatients (55 males and 81 females). The mean age of the patients was 51.09 years. According to the diagnosis, there were 38 patients with generalized anxiety disorder (28%), 27 with schizophrenia (19.9%), 24 with depressive disorder (17.6%), and 15 with other mental disorders (11%). Average sleep times were 8.0±2.0 hours, but only 70 patients (51.5%) had good quality of sleep compared to 66 patients (48.5%) had bad quality of sleep. Generalized anxiety disorder was highly associated with bad quality of sleep (76.3%). Factors such as generalized anxiety disorder and recent use of sleeping medications were statistically significantly associated with poor sleep quality.

**Conclusion:** Almost half of the psychiatric outpatients had poor quality of sleep. Factors associated with poor quality of sleep were psychiatric diagnosis of generalized anxiety disorder and recent use of sleeping medications.

**Keywords:** Quality of sleep, PQSI, Psychiatry, Outpatient, GAD, CGI-S

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Sleep is one of the most important clinical monitors for outpatient psychiatric service. Insomnia is a highly prevalent condition that has a major impact on the public health and economic burden<sup>(1)</sup>. In psychiatric outpatient, sleep disturbances usually influence the course of the disorders and lead to impaired quality of life<sup>(2)</sup>. Any causes of sleep problem may trigger psychiatric symptoms. Poor sleep quality can cause people to become suicidal and will require emergency services to prevent the patients from killing themselves<sup>(3,4)</sup>. Sleep problems play a role in the etiology and pathophysiology of psychosis especially when it occurs during the pre-psychotic period<sup>(5)</sup>.

According to one large community survey study, the prevalence of sleep disorders in the participants with mental disorder was 11.6%. The most common diagnosis were depression and anxiety<sup>(6)</sup>.

## Materials and Methods

Psychiatric outpatients from the King Chulalongkorn Memorial Hospital, Bangkok, Thailand, were included in the present study. One hundred thirty-six patients that met the diagnostic criteria for mental disorders according to the Structured Clinical Interview for DSM-V Axis I Disorders were selected randomly. The inclusion criteria were patients who can communicate and cooperate. Severely psychotic patients or patients with any conditions that need emergency management were excluded. The diagnosis of any substance disorders, physical disorder, or medication usage that may affect the quality of sleep were ruled out. Informed consent was obtained from all patients or their legally

### Correspondence to:

Lalitanantpong D.

Department of Psychiatry, Faculty of Medicine, Chulalongkorn University, Bangkok 10330, Thailand.

**Phone:** +66-2-2564298, **Fax:** +66-2-2564445

**Email:** [decha.l@chula.ac.th](mailto:decha.l@chula.ac.th)

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**Table 1.** Information on the patients' sex, age, diagnosis, CGI-S, use of sleep medication, and sleep time

Variable	Cases n (%)	CGI-S Mean±SD	Sleeping medication use n (%)	Sleep time (hours) Mean±SD
Sex				
Male	55 (40.4)	2.35±1.48	41 (74.5)	8.2±2.1
Female	81 (60.6)	2.39±1.47	61 (75.3)	7.8±1.8
Age (years)				
<30	11 (8.1)	2.45±1.51	8 (72.7)	9.1±2.1
31 to 40	18 (13.2)	3.00±1.53	13 (72.2)	8.4±2.6
41 to 50	40 (29.4)	2.38±1.46	32 (80.0)	8.3±1.7
51 to 60	31 (22.8)	2.06±1.34	25 (80.6)	7.8±2.1
>61	36 (26.5)	2.28±1.52	24 (66.7)	7.6±1.7
Diagnosis				
GAD	38 (27.9)	1.68±1.28	33 (86.8)	7.8±1.9
Schizophrenia	27 (19.9)	3.33±1.00	13 (48.1)	8.8±1.8
Depression	24 (17.6)	2.21±1.32	20 (83.3)	7.5±1.5
Panic disorder	12 (8.8)	1.67±1.23	8 (66.7)	7.5±1.6
Primary insomnia	11 (8.1)	1.45±1.04	10 (90.9)	7.0±1.7
Bipolar disorder	9 (6.6)	2.56±1.51	7 (77.8)	9.4±2.3
Other	15 (11.0)	3.73±1.53	11 (73.3)	8.6±2.7
Total	136 (100)	2.37±1.47	102 (75.0)	8.0±2.0

SD=standard deviation; CGI-S=Clinical Global Impression-Severity scale; GAD=generalized anxiety disorder

representatives accepted to participate in the study, and all procedures were approved by the Faculty Ethics Committee (COA No.490/2018).

Quality of sleep were evaluated with the Pittsburgh Sleep Quality Index (PSQI) as routine outpatient service. PSQI has demonstrated good psychometric properties to measure the sleep quality and impairment within psychiatric patients<sup>(7,8)</sup>. The severity of the symptoms was rated with the Clinical Global Impression-Severity scale (CGI-S), which is widely used in clinical psychiatric researches<sup>(9-12)</sup>. Benzodiazepines were prescribed to the patients for insomnia.

The 19-question of PSQI measures the sleep quality within 30 days. The seven PSQI components were calculated, which were sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbance, use of sleep medications, and daytime dysfunction (each scored from 0 to 3). The global PSQI score was calculated (total score from 0 to 21). A patient with a global PSQI score more than 5 was considered as a bad sleeper and a patient with a score less than 5 was considered as a good sleeper.

### Statistical analysis

The continuous variables were shown as mean ± standard deviation (SD). Statistical analysis was performed using chi-square for non-parametric data. All statistical tests were determined by using the IBM SPSS software suite (version 22 for Windows, SPSS Inc., Chicago, IL, USA). Statistical significance was defined as p-value of less than 0.05. The proportion for sleep problem from previous studies was 0.095 to 0.1<sup>(13,14)</sup>. Thus, the suitable sample size should be 138 to 152.

### Results

One hundred thirty-six psychiatric outpatients were included in the present study. Sixty-five (40.4%) patients were males. The age range was 17 to 87 years, with a mean age of 51.1±14.0 years (median 50.0). The severity of the symptoms assessed with CGI-S was 2.37±1.47 (median 2.0). Average sleep times were 8.0±2.0 hours (median 8.0) (Table 1).

The mean (SD) global and component PSQI scores are shown in Table 2 and Figure 1. The mean global PSQI score was 5.89±3.11, and 64 (47.1%)

**Table 2.** Quality of sleep: PSQI components and global PSQI

	Mean±SD	Range
PSQI components		
Subjective sleep quality	0.99±1.04	0 to 3
Sleep latency	0.73±1.11	0 to 3
Sleep duration	0.31±0.76	0 to 3
Habitual sleep efficiency	0.74±0.44	0 to 3
Sleep disturbance	0.16±0.60	0 to 3
Use of sleeping medication	2.21±1.31	0 to 3
Day time dysfunction	0.74±0.86	0 to 3
Global PSQI	5.89±3.11	0 to 21

SD=standard deviation; PSQI=Pittsburgh Sleep Quality Index

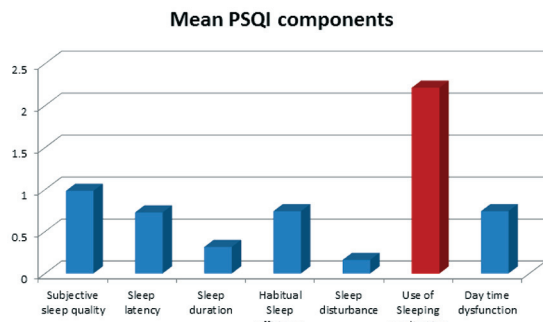
patients were “poor sleepers” (global PSQI >5). For 102 (75%) patients who used sleeping medications, 42 were defined as good sleeper and 60 were defined as bad sleeper.

Table 3 and Figure 2 shows the relationship between the different mental disorders and quality of sleep. Specific psychiatric diagnosis was significantly associated with the quality of sleep. Generalized anxiety disorder (GAD) had the highest ratio for poor sleep. There were no significant differences between PSQI scores and the patients’ gender, age, and CGI-S score (Table 3, Figure 3). There was a significant difference in the quality of sleep between the GAD and the non-GAD group. In addition, there was significant difference in the quality of sleep between those that used sleeping medication and those who did not.

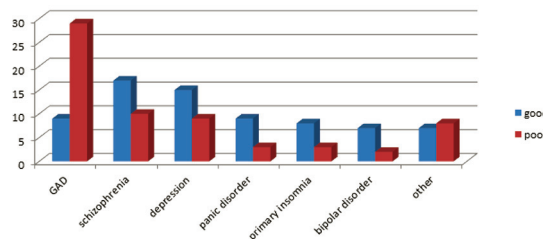
## Discussion

The gender of the patient usually affects the quality of sleep. Females usually have sleep problems that include quality of sleep and duration of sleep. Women were more likely than men to frequently have trouble falling asleep and staying asleep, and frequently wake up feeling not well-rested<sup>(15)</sup>. Unlike the author’s findings, the present study did not find any significant differences between the genders for sleep quality score. It was possible that this discrepancy may be due to the fact that the females from the present study were psychiatric outpatients and not from the general population.

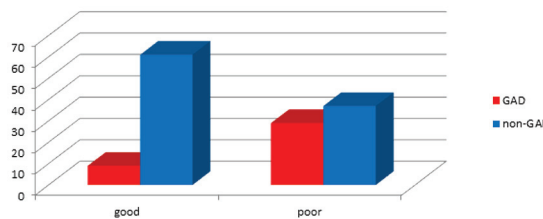
There is a relationship between age and quality of sleep. Age was directly and significantly associated with poor quality of sleep<sup>(16)</sup>. However, in the present study, there was no significant difference between age and quality of sleep. The average age was 51.1±13.9



**Figure 1.** Mean of PSQI components.



**Figure 2.** Diagnosis and the quality of sleep.



**Figure 3.** The sleep quality of GAD compared to non-GAD.

years, which represents middle to old age.

The severity of the illness may affect the quality of sleep. Sleep complaints and sleep disturbances are highly prevalent in patients with psychiatric disorders. A great proportion of patients reported poor subjective sleep quality during hospitalization, regardless of age, gender, and psychiatric diagnosis<sup>(17)</sup>. However, the author’s outpatient study showed that there were no significant differences between severity of the diagnosis measured by CGI-S and quality of sleep.

GAD had the highest proportion of poor sleep quality. Insomnia in GAD may be primary symptom that can be caused by common medications, and psychological events like loneliness and bereavement. Negative metacognition and worry processes in GAD patients lead to problems falling or staying asleep and

**Table 3.** Diagnosis and factors associated with quality of sleep

Diagnosis	n (%)	Sleep time (hours) Mean±SD	Sleep quality, n (%)		p-value
			Good	Poor	
GAD	38 (27.9)	7.8±1.9	9 (23.7)	29 (76.3)	0.003*
Schizophrenia	27 (19.9)	8.8±1.8	17 (63.0)	10 (37.0)	
Depression	24 (17.6)	7.5±1.5	15 (62.5)	9 (37.5)	
Panic disorder	12 (8.8)	7.5±1.6	9 (75.0)	3 (25.0)	
Primary insomnia	11 (8.1)	7.0±1.7	8 (72.7)	3 (27.3)	
Bipolar disorder	9 (6.6)	9.4±2.3	7 (77.8)	2 (22.2)	
Other	15 (11.0)	8.6±2.7	7 (46.7)	8 (53.3)	
Total	136 (100)	8.0±2.0	72 (52.9)	64 (47.1)	
<b>Factors</b>					
Sex					0.132
Female	81 (59.6)		46 (56.8)	35 (43.2)	
Male	55 (40.4)		24 (43.6)	31 (56.4)	
Age (years)					0.119
<30	11 (8.1)		7 (63.6)	4 (36.4)	
31 to 40	18 (13.2)		6 (33.3)	12 (66.7)	
41 to 50	40 (29.4)		26 (65.0)	14 (35.0)	
51 to 60	31 (22.8)		16 (51.6)	15 (48.4)	
>61	36 (26.5)		15 (41.7)	21 (58.3)	
CGI-S					0.143
1	65 (47.8)		28 (43.1)	37 (56.9)	
2	9 (6.6)		5 (55.6)	4 (44.4)	
3	20 (14.7)		15 (75.0)	5 (25.0)	
4	32 (23.5)		16 (50.0)	16 (50.0)	
5	9 (6.6)		6 (66.7)	3 (33.3)	
6	1 (0.7)		0 (0.0)	1 (100)	
GAD	38 (27.9)		9 (23.7)	29 (76.3)	<0.001*
Non-GAD	98 (72.1)		61 (62.2)	37 (37.8)	
Use of sleeping medication	102 (75.0)		42 (41.2)	60 (58.8)	<0.001*
Not use of sleeping medication	34 (25.0)		28 (82.4)	6 (17.6)	

SD=standard deviation; CGI-S=Clinical Global Impression-Severity scale; GAD=generalized anxiety disorder

result in poor sleep quality<sup>(18)</sup>. When treatments reduce anxiety-related symptoms and insomnia, patients report a restoration of social functioning, probably because of improved decision-making, cooperative skills, and risk assessment<sup>(19)</sup>.

According to a previous study, patients with GAD can have a better quality of sleep after one month of treatment for their anxiety at the King Chulalongkorn Memorial Hospital. The investigation showed that

there was a statistically significant decrease in the score of the Hamilton Anxiety Rating Scale after treatment (p-value less than 0.01). The common symptoms of GAD that decreased were insomnia, somatic sensory, and gastrointestinal symptoms. The favorable responsive symptoms were autonomic nervous system hyperactivity, somatic sensory, and insomnia. These findings suggest that improved sleep may be associated with reduced clinical severity

among GAD patients<sup>(20)</sup>.

As for patients with schizophrenia, there were no significant differences between those with schizophrenia and non-schizophrenia when it came to the quality of sleep. Recently, schizophrenias treated as outpatient had very mild to mild symptoms. Hallucination, depression, guilt, and anxiety were more common presentations than sleep problems<sup>(21)</sup>. Unlike other studies, schizophrenia outpatients with sleep disturbances usually show more severity of symptoms. Furthermore, they have poor adherence to treatment<sup>(22)</sup>. CGI-S may reflect negative symptoms rather than more severely positive symptoms in other studies<sup>(23)</sup>. Moreover, there is an association between poor sleep and higher body weight possibly indicating that schizophrenia outpatients liked to eat at night<sup>(24)</sup>.

Older women with few or no depression at baseline tend to report more sleep disturbances and fragmented sleep. It has been shown that five years later, if the quality of sleep does not improve, the depression in these women worsen<sup>(25)</sup>. As for patients with obsessive compulsive disorder with intrusive thought, it has been shown that the disorder is associated with insomnia<sup>(26)</sup>.

Although, the diagnosis of primary insomnia did not affect the quality of sleep with statistical significance, patients may need their medication only, and they do not complain. The use of benzodiazepine can be addictive so caution should be advised when prescribing such a medication to the patients for insomnia. Short-term exercise training improves sleep outcomes among young women with GAD<sup>(27)</sup>. Regular exercise recommendation may improve sleep quality in chronic primary insomnia<sup>(28)</sup>. In a recent study of non-pharmacological management study, it was shown that patients with anxiety disorder could improve their sleep quality with cognitive behavioral therapy<sup>(29)</sup>. Several factors can influence the quality of sleep such as comorbid physical diagnosis and treatments.

There were some limitations in the present study. The sample size was small, and the demographic data of our subjects may not be applicable to other psychiatric disorders from different geographical area. In addition, subjective reports of sleep quality in the absence of polysomnographic data may not accurately evaluate the exact causes of insomnia and sleep disturbance. Lastly, the present study did not have any information on the medications used for each disorder.

## Conclusion

Almost half of the psychiatric outpatient had poor

quality of sleep. Factors associated with poor sleep quality were psychiatric diagnosis and the recent use of sleep medication. Therefore, psychiatrists should be aware that the quality of sleep can affect the severity of the mental disorder and hence quality of sleep should be measured intermittently in every case.

## What is already known on this topic?

The prevalence of sleep disorders in mental disorder patients was high. The most common diagnosis were depression and anxiety. The factors that can influence the quality of sleep are the patients' demographic data, psychiatric diagnosis, comorbid diagnosis, and medications.

## What this study adds?

This study confirmed that the psychiatric outpatients had poor quality of sleep. Factors associated with poor quality of sleep were psychiatric diagnosis of GAD and recent use of sleeping medications.

## Conflicts of interest

The author declares no conflict of interest.

## References

1. Goldman-Mellor S, Gregory AM, Caspi A, Harrington H, Parsons M, Poulton R, et al. Mental health antecedents of early midlife insomnia: evidence from a four-decade longitudinal study. *Sleep* 2014;37:1767-75.
2. Soehner AM, Kaplan KA, Harvey AG. Insomnia comorbid to severe psychiatric illness. *Sleep Med Clin* 2013;8:361-71.
3. Bernert RA, Turvey CL, Conwell Y, Joiner TE Jr. Association of poor subjective sleep quality with risk for death by suicide during a 10-year period: a longitudinal, population-based study of late life. *JAMA Psychiatry* 2014;71:1129-37.
4. Malik S, Kanwar A, Sim LA, Prokop LJ, Wang Z, Benkhadra K, et al. The association between sleep disturbances and suicidal behaviors in patients with psychiatric diagnoses: a systematic review and meta-analysis. *Syst Rev* 2014;3:18.
5. Lunsford-Avery JR, Orr JM, Gupta T, Pelletier-Baldelli A, Dean DJ, Smith Watts AK, et al. Sleep dysfunction and thalamic abnormalities in adolescents at ultra high-risk for psychosis. *Schizophr Res* 2013;151:148-53.
6. Lijun C, Ke-Qing L, Xiuli S, Ze C, Qimpu J, Yanchao H, et al. A survey of sleep quality in patients with 13 types of mental disorders. *Prim Care Companion CNS Disord* 2012;14. doi: 10.4088/PCC.11m01173.
7. Hamera E, Brown C, Goetz J. Objective and subjective sleep disturbances in individuals with psychiatric disabilities. *Issues Ment Health Nurs* 2013;34:110-6.

8. Bush AL, Armento ME, Weiss BJ, Rhoades HM, Novy DM, Wilson NL, et al. The Pittsburgh Sleep Quality Index in older primary care patients with generalized anxiety disorder: psychometrics and outcomes following cognitive behavioral therapy. *Psychiatry Res* 2012;199:24-30.
9. Turkoz I, Fu DJ, Bossie CA, Sheehan JJ, Alphs L. Relationship between the clinical global impression of severity for schizoaffective disorder scale and established mood scales for mania and depression. *J Affect Disord* 2013;150:17-22.
10. Sawamura J, Morishita S, Ishigooka J. Is there a linear relationship between the Brief Psychiatric Rating Scale and the Clinical Global Impression-Schizophrenia scale? A retrospective analysis. *BMC Psychiatry* 2010;10:105.
11. Bourredjem A, Pelissolo A, Rotge JY, Jaafari N, Macheaux S, Quentin S, et al. A video Clinical Global Impression (CGI) in obsessive compulsive disorder. *Psychiatry Res* 2011;186:117-22.
12. Hedges DW, Brown BL, Shwalb DA. A direct comparison of effect sizes from the clinical global impression-improvement scale to effect sizes from other rating scales in controlled trials of adult social anxiety disorder. *Hum Psychopharmacol* 2009;24:35-40.
13. Morin CM, LeBlanc M, Daley M, Gregoire JP, Mérette C. Epidemiology of insomnia: prevalence, self-help treatments, consultations, and determinants of help-seeking behaviors. *Sleep Med* 2006;7:123-30.
14. Ford DE, Kamerow DB. Epidemiologic study of sleep disturbances and psychiatric disorders. An opportunity for prevention? *JAMA* 1989;262:1479-84.
15. Nugent CN, Black LI. Sleep duration, quality of sleep, and use of sleep medication, by sex and family type, 2013-2014. *NCHS Data Brief* 2016;(230):1-8.
16. Madrid-Valero JJ, Martinez-Selva JM, Ribeiro do CB, Sanchez-Romera JF, Ordonana JR. Age and gender effects on the prevalence of poor sleep quality in the adult population. *Gac Sanit* 2017;31:18-22.
17. Müller MJ, Olschinski C, Kundermann B, Cabanel N. Subjective sleep quality and sleep duration of patients in a psychiatric hospital. *Sleep Sci* 2016;9:202-6.
18. Thielsch C, Ehring T, Nestler S, Wolters J, Kopei I, Rist F, et al. Metacognitions, worry and sleep in everyday life: Studying bidirectional pathways using Ecological Momentary Assessment in GAD patients. *J Anxiety Disord* 2015;33:53-61.
19. Allgulander C. Novel approaches to treatment of generalized anxiety disorder. *Curr Opin Psychiatry* 2010;23:37-42.
20. Lalitanantpong D. A study of 1 month clinical response in generalized anxiety disorder treatment. *Chula Med J* 2002;46:549-54.
21. Lalitanantpong D. Clinical symptoms and global function study of outpatient schizophrenia at King Chulalongkorn Memorial Hospital, Thai Red Cross Society. *Chula Med J* 2005;49:447-57.
22. Afonso P, Brissos S, Canas F, Bobes J, Bernardo-Fernandez I. Treatment adherence and quality of sleep in schizophrenia outpatients. *Int J Psychiatry Clin Pract* 2014;18:70-6.
23. Lalitanatpong D. Does quality of life of schizophrenia differ from other mental disorder? Quality of life: a study in outpatient psychiatric disorders at King Chulalongkorn Memorial Hospital, Thai Red Cross Society. *Chula Med J* 2012;56:163-76.
24. Palmese LB, DeGeorge PC, Ratliff JC, Srihari VH, Wexler BE, Krystal AD, et al. Insomnia is frequent in schizophrenia and associated with night eating and obesity. *Schizophr Res* 2011;133:238-43.
25. Maglione JE, Ancoli-Israel S, Peters KW, Paudel ML, Yaffe K, Ensrud KE, et al. Subjective and objective sleep disturbance and longitudinal risk of depression in a cohort of older women. *Sleep* 2014;37:1179-87.
26. Timpano KR, Carbonella JY, Bernert RA, Schmidt NB. Obsessive compulsive symptoms and sleep difficulties: exploring the unique relationship between insomnia and obsessions. *J Psychiatr Res* 2014;57:101-7.
27. Herring MP, Kline CE, O'Connor PJ. Effects of exercise on sleep among young women with generalized anxiety disorder. *Ment Health Phys Act* 2015;9:59-66.
28. Passos GS, Poyares D, Santana MG, Teixeira AA, Lira FS, Youngstedt SD, et al. Exercise improves immune function, antidepressive response, and sleep quality in patients with chronic primary insomnia. *Biomed Res Int* 2014;2014:498961.
29. Ramsawh HJ, Bomyea J, Stein MB, Cissell SH, Lang AJ. Sleep quality improvement during cognitive behavioral therapy for anxiety disorders. *Behav Sleep Med* 2016;14:267-78.