A study of sleep problems and its associated factors among patients presenting in psychiatry OPD at tertiary-level hospital in Nepal.

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Abstract

Background:

Sleep disturbances amongst those with psychiatric disorders are quite common and may occur as a primary disorder or in association with any psychiatric disorders. The aim of this study is to find out the prevalence of sleep disorders and its associated factors in psychiatric outpatients.

Material & Methods:

This cross- sectional study was conducted among the patients presenting in the psychiatric opd, from 1st Feb 2022 to 30th July, 2022 in tertiary level hospital in Nepal. Total 217 samples were included and purposive sampling technique was applied for sample collection. After written informed consent from participants socio-demographic data were collected. Athens Insomnia scale (ASI) and Screening symptoms of sleep disorder(s) were the tools applied to the participants to find out types of sleep disorders.

Results:

In our study, sleep disorders were found in 66.8% of the patients presenting to psychiatric opd. Insomnia was the most common finding accounting for 59.4 % of the participants. Narcolepsy was found in 2.3% whereas parasomnia was found in 5.1 %; periodic limb movement disorder/Restless leg syndrome (PLMD/RLS) in 5.1%; disturbed circadian rhythm was found in 3.7% and Sleep Related Breathing Disorder was found in 5.1% of the participants. Patients diagnosed with mood disorder (80.4%) and primary headache disorders (82.9%) had more sleep problems compared to other diagnosis.

Conclusion:

This study was the first in Nepal to assess the prevalence of sleep disorders in psychiatric outpatients. Our study emphasis importance of careful evaluation of sleep problems for proper management of the psychiatric patients.

Key words:

Sleep; Psychiatric disorders; Insomnia; ASI

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INTRODUCTION

Behaviorally, sleep is a reversible state of reduced awareness of and responsiveness to the environment. Its disruption can lead to undesirable consequences on overall human well-being. [1]. The most obvious observation is that both physical and psychological impairment follows persistent sleep disturbance.[1] Sleep deprivation also increases mortality, decrease in production and deterioration of personal and professional relationships. [2] Despite these facts sleep problems continue to remain considerable burden across the globe. [3,4]

Previous prevalence studies on sleep in psychiatric patients has showed that sleep complaints are commonly reported by psychiatric patients, and polysomnographic studies show objective evidence of disturbed sleep associated with all major psychiatric disorders.[5] However researches on the prevalence of sleep problems in psychiatric patients have revealed diverse results. Kaufmann et al. (2011), found 78% of their study population to have some sleep problem. [6] while Kamphuis et al., (2013) showed the prevalence 30% [4].

Considering the larger differences in prevalence in previous studies and no published data on the prevalence of sleep disorders in the psychiatric population till date found in Nepal, this study aims at exploring the prevalence of sleep disorders among the adult psychiatric patients in the out-patient clinic and find out the socio-demographic corre-

lates in the hope that an improved understanding of the prevalence and correlates, could provide useful guidance for targeted treatments and management.

MATERIALS AND METHODS

This was an observational, cross sectional study done over a period of Six months from 1st February 2022 to 30th July, 2022 in psychiatry department at a private medical college in Bhairahawa. Approval for the study was taken from the Institutional Review Committee (UCMS/IRC/049/21) Universal College of medical sciences. Inclusion criteria were subjects aged 18 years and above attending psychiatry opd for the 1st time irrespective of the diagnosis and exclusion criteria were being mentally retarded, having dementia, patients with language barrier, patient who refuse to participate in study, exclusion was done considering their comprehensive capacity. Calculated sample size = z2pq/E2 = 217, prevalence of sleep disorder (p) = 83.4% [7], q (1-p), z=1.96 (95% confidence interval), E (allowable error) =5%.

Data collection was carried out with a) semi- structured questionnaire to collect socio demographic and clinical variables detail (age, gender, education, employment, marital status, type of family, BMI, presenting complains, past illness, use of any substances)b) Athens Insomnia scale (ASI) tool was applied.[8] The AIS is a self-assessment psychometric instrument designed for quantifying insomnia based on the ICD-10 criteria. The high measures of consistency, reliability, and validity of the AIS make it an invaluable tool in sleep research and clinical practice.[8] It was converted into Nepali language. Backward and forward translation was done to check the reliability of questionnaire with the help of English and Nepali language experts. It consists of eight items. A score of six or more is diagnosed as insomnia.

c) Screening symptoms of sleep disorder(s): As a part of a structured interview the questions specific to narcolepsy, circadian sleep rhythm disorder, parasomnia, sleep breathing disorder, and restless leg syndrome/periodic limb movements of sleep (RLS/PLMS) were asked to the patients for appropriate diagnosis of sleep disorders following the clinical guidelines for clinicians by the British Association of Psychopharmacology [9]. Clinical diagnosis of psychiatric illnesses was done by consultant psychiatrist using ICD-10 diagnostic criteria.

Participants were asked questions specific questions: 'do you sometimes fall asleep in the daytime completely without warning?' (narcolepsy); 'are you a heavy snorer?' (obstructive sleep apnea); 'do your legs often twitch or can't keep still in bed?' (restless leg syndrome/periodic limb movements in sleep); 'do you tend to sleep well but just at the "wrong times"?' (circadian rhythm sleep disorder); 'do you have unusual behaviours associated with your sleep that trouble you or that are dangerous?' (parasomnia); if patients responded positive to any of the questions, additional questions were asked for more information about their symptoms of sleep disorder. Several other studies have used this standard questionnaire in the researches [7]. Data were coded and entered into Microsoft Excel sheet and was exported and analyzed using Statistical Package for Social Science (SPSS) version 16. Descriptive statistics like frequency, percentage were used to find the descriptive information of variables. In inferential Statistics, Chi-square test was used to find the association between significant sleep disorder types and socio demographic-clinical variables. P value less than 0.05 is considered as statistically significant.

RESULTS

Out of 217 patients enrolled for the study, majority were female 118 (54.4%). Most patients 116(53.5%) were between 40 and 65 years of age. Majority of the patients were married 99(45.6%) whereas 64(29.5%) were unmarried and 54(24.9%) were either separated / divorced from spouse or were widowed. 21.2% of the patients were illiterate whereas primary level education was completed by 41.9% of the patients. 129 (59.4%) of patients belonged from joint family whereas only 88(40.6%) of patients were from nuclear family. Only 93(42.9%) patients included in study were obese and majority of patients (57.1%)fall under non-obese category. In majority of patients 129(59.4%) presenting to opd had sleep disturbance as one of the presenting complains. 55.3% of patients were not having similar or any other psychiatric illnesses in past. Most respondents 138(63.6%) consumed nicotine followed by alcohol in 73(33.6%) patients whereas 55(25.3%) of patients consumed over the counter (OTC) drugs for sleep.While109 (50.2%) of patients had not consumed any substance. A large proportion of the participants were diagnosed with either schizophrenia spectrum disorder (25.3%) and mood disorders (23.5%), followed by anxiety disorder (16.6%), Primary headache disorder (16.1%) and substance use disorder(11.5%) [Table-1]

Table no. 1 : Socio-demographic and clinical variables

Characteristics	Category	Frequency	Percent
Gender	Male	99	45.6
	Female	118	54.4
Age group(years)	18-39	101	46.5
	40-65	116	53.5
Marital Status	Unmarried	64	29.5
	Married	99	45.6
	Separated/Widowed/Divorce	54	24.9
Education level	Illiterate	46	21.2
	Primary	91	41.9
	Secondary and above	80	36.9
Type of Family	Nuclear	88	40.6
	Joint	129	59.4
BMI	Not obese	124	57.1
	Obese	93	42.9
Presenting Complains	Sleep disturbance	129	59.4
	Others	88	40.6
Diagnosis	Substance disorder	25	11.5
	F20	55	25.3
	Mood disorder	51	23.5
	Anxiety	36	6.9
	Primary headache disorders	35	16.6
	Others	15	16.1
Past History	Psychiatric	97	44.7
	No Psychiatric	120	55.3
Substance use	Alcohol	73	33.6
	OTC drugs	55	25.3
	Nicotine	138	63.6
	None	109	50.2

In our study, sleep disorders were found in 66.8% of the population. Insomnia was the most common finding accounting for 59.4% of the participants. Narcolepsy was found in 2.3% whereas parasomnia was found in 5.1% ; periodic limb movement disorder/Restless leg syndrome (PLMD/RLS) in 5.1%; disturbed circadian rhythm was found in 3.7% and Sleep Related Breathing Disorder was found in 5.1% of the patients. Two co-morbid sleep disorders were found in 19.4% of the patients. [Table:2,3]

Table : 2 Types of sleep disorders

Types of sleep disorders	Frequency	Percent
Narcolepsy	5	2.3
Sleep breathing disorder	11	5.1
Periodic MLS	11	5.1
Circadian Rhythm sleep disorder	8	3.7
Parasomnia	11	5.1
Others	12	5.5
Total	**58**	**26.7**

Table 3: Frequency of Insomnia

Insomnia	Frequency	Percent
Yes	129	59.4
No	88	40.6
Total	**217**	**100.0**

Table 4: Frequency of Insomnia and psychiatric disorders

		Substance disorder	F20	Mood disorder	Anxiety	Others	Primary headache disorders
Insomnia	Yes	13(52)	23(41.8)	36(70.6)	20(55.6)	8(53.3)	29(82.9)
	No	12(48)	32(58.2)	15(29.4)	16(44.4)	7(46.7)	6(17.1)

Table 5: Frequency of types of sleep disorders and psychiatric disorders

Types of sleep disorders	Substance disorder	F20	Mood disorder	Anxiety	Others	Primary headache disorders
Narcolepsy	0(0)	1(7.7)	1(6.7)	1(10)	1(33.3)	1(7.1)
Sleep breathing disorder	1(33.3)	1(7.7)	3(20)	1(10)	0(0)	5(35.7)
Periodic MLS	1(33.3)	2(15.4)	4(25.7)	2(20)	1(33.3)	1(7.1)
Circadian Rhythm sleep disorder	0(0)	3(23.1)	2(13.3)	2(20)	0(0)	1(7.1)
Parasomnia	0(0)	2(15.4)	3(20)	2(20)	1(33.3)	3(21.4)
Others	1(33.3)	4(30.8)	2(13.3)	2(20)	0(0)	3(21.4)

70.6% of patients with mood disorder (depression / Mania) had insomnia, also 82.9% of patients with primary head-ache complained of insomnia.

Further, the study showed that there was statistically signif-icant association between sleep disorder with type of family, psychiatric diagnosis and nicotine use. The results showed that patients staying in joint family (73.6%) had more sleep disorder as compared to those living in nuclear family (56.8%).Similarly, Patients diagnosed with mood disorder (80.4%) and primary headache disorders (82.9%) had more sleep problems compared to other diagnosis. Patients who use nicotine had significant sleep problems as compared to other substance use. [Table 4,5]

Table 5: Association between variables and sleep disorders

Characteristics	Category	Prevalence of sleep disorder		P value
		No	Yes	
Gender	Male	34(34.3)	65(65.7)	0.739
	Female	38(32.2)	80(67.8)	
Age group(years)	18-39	37(36.6)	64(63.4)	0.313
	40-65	35(30.2)	81(69.8)	
Education Level	Illiterate	15(32.6)	31(67.4)	0.553
	Primary	27(29.7)	64(70.3)	
	Secondary and above	30(37.5)	50(62.5)	
Marital Status	Unmarried	20(31.3)	44(68.8)	0.778
	Married	32(32.3)	67(67.7)	
	Separated/Widowed/Divorce	20(37)	34(63)	
Type of Family	Nuclear	38(43.2)	50(56.8)	0.01
	Joint	34(26.4)	95(73.6)	
BMI	Not obese	41(33.1)	83(66.9)	0.967
	Obese	31(33.3)	62(66.7)	
Past History	Psychiatric	32(33)	65(67)	0.957
	No Psychiatric	40(33.3)	80(66.7)	
Diagnosis	Substance disorder	12(48)	13(52)	0.01
	F20	25(45.5)	30(54.5)	
	Mood disorder	10(19.6)	41(80.4)	
	Anxiety	14(38.9)	22(61.1)	
	Others	5(33.3)	10(66.7)	
	Primary Headache disorders	6(17.1)	29(82.9)	
Substance use	Alcohol	25(34.2)	48(65.8)	0.812
	OTC drugs	20(36.4)	35(63.6)	0.562
	Nicotine	57(41.3)	81(58.7)	0.001
	None	31(28.4)	78(71.6)	0.136

DISCUSSION

The study aimed to find the prevalence and correlates of sleep disorders in patients seeking treatment for mental illness in a tertiary psychiatric hospital. The study showed that the prevalence of sleep disorder was 66.85% of the out-patients studied. This implies that sleep problems are a common feature of psychiatric disorders. The finding also hints at a possibly strong link between sleep problems and psychiatric disorder, which has been studied by many. Previous studies has also shown similar results. A study of prevalence by done by Homboli et al showed the overall prevalence of symptoms of sleep disorders in the psychiatric outpatient sample was 40.75% and another prevalence study showed 83.4% of the study population had some type of the sleep disorder.[7,10] Previous research suggests also that individuals with an underlying psychiatric disorder are at a higher risk of presenting with sleep symptoms as compared to the general population.[11,12]

The most commonest type of sleep disorder found in the study was insomnia accounting for 59.4 % of the total patients enrolled. The study showed Narcolepsy was found

in 2.3% whereas parasomnia and periodic limb movement disorder/Restless leg syndrome (PLMD/RLS) in 5.1%; disturbed circadian rhythm was found in 3.7% and Sleep Related Breathing Disorder was found in 5.1% of the participants, Similar results were found in others studies with some variation which could be because of differences in sample size. The prevalence for symptoms of narcolepsy, sleep breathing disorder, PLMS/RLS, circadian rhythm disorder and parasomnia were 12.5%, 14.5%, 14.8%, 4.5%, and 13.8% respectively in a study.[10] Such high prevalence of sleep disorders in psychiatric patients emphasizes the need for independent assessment of sleep disorders regardless of the underlying other psychiatric /medical conditions. Sleep disorders had established a bi-directional relationship with psychiatric disorders. These findings could be of utmost importance in psychiatric practice as it could aid in early recognition as well as in planning and management of sleep disorders to ensure optimal outcomes.

The study results showed that patients staying in joint family (73.6%) had more sleep disorder as compared to those living in nuclear family (56.8%). Though previous studies relating family type and sleep disorders were not commonly found in literature however family strain and related issues study showed that having strained family relationships and lack of personal space in families living together is associated with more troubled sleep, while supportive family relationships are associated with less troubled sleep.[13] Similarly, Patients diagnosed with mood disorder (80.4%) and primary headache disorders (82.9%) had more sleep problems compared to other diagnosis. Research suggests that sleep plays an important role in the development, progression, and maintenance of mood disorder symptoms.[14] It could be a cause as well as effect as mentioned above. The study found 70.6% of patients with mood disorder had insomnia which was consistent with other studies as well.[7] Another fact finding in the study was 82.9% of patients with primary headache syndrome (Migraine, Tension-Type, cluster) had any sleep disorder which was statistically significant. Literature showed that pathophysiology of headache and sleep disorders shares the same brain structures and pathways, dysregulation in thalamocortical circuits may be predisposing to sleep and headache disorders both. [16, 17] Despite such significant relationship, sleep disturbances are commonly underestimated and underdiagnosed in headache patients [18,19]. Patients who used nicotine had significant sleep problems as compared to other substance. Study also showed that 25.3 % of patients had taken any over- the –counter (OTC) drug by themselves. Similar results were found in few other

studies, 17.5% of patients with insomnia symptoms report-ed to taking sleeping pills showed by a study done in china at outpatient department of general hospital [20].

Sleep disorders are highly prevalant in psychiatric patients as a co-morbid diagnosis and not merely as an isolated symptom. This comorbidity may induce the chronification of both of the syndromes so, a detailed history of both disturbances must be taken, and clinicians should consider and behold the treatment of accompanying sleep complaints for an effective management of psychiatric diagnosis and a better quality of life.

This study was a cross- sectional study conducted among outpatients at a tertiary hospital in Bhairahawa; and adopt-ed a convenient sampling strategy. Hence this study finding is not generalizable to a large proportion of psychiatric population. Further, the questionnaire that was adminis-tered by the researcher was apt for screening the mere presence or absence of symptoms of sleep disorders in the past so recall bias might be a issue. Lastly questionnaire used were comprehensive and has clinically relevant screening questions yet psychometric properties of this questionnaire are not well established.So, inclusion of polysomnographic evaluation would have ruled out false-positive responses and improved the rigor of the methodology.

CONCLUSION

Our study has highlighted that the symptoms of sleep disor-ders are not uncommon in psychiatric patients. Identifying and addressing sleep disorders in early stages may have a positive impact on the management and quality of life of a psychiatric patient. Further we recommend large-scale prospective studies to confirm the findings of this study.

ACKNOWLEDGEMENT

None

CONFLICT OF INTEREST

None

References

1. Gelder, M., Gath, D., & Mayou, R. (1989). Oxford textbook of psychiatry (2nd ed.).
2. Kim JY, Kim JH, Lee HW, Choi KG. Prevalence of shift work sleep disorder and its impact on health and working. J Korean sleep Res Soc 2005; 2: 39-46.
3. Ram S, Seirawan H, Kumar SKS, Clark GT. Prevalence and impact of sleep disorders and sleep habits in the United States. Sleep breath 2010; 14: 63-70.
4. Kamphuis J, Karsten J, de Weerd A, Lancel M. Sleep disturbances in a clinical forensic psychiatric population. Sleep Medicine. 2013 Nov 1;14(11):1164-9.
5. Benca, R.M., Obermeyer, W.H., Thisted, R.A., and Gillin, J.C. (1992). Sleep and psychiatric disorders: a meta-analysis. Archives of General Psychiatry, 49, 651–68.
6. Kaufmann CN, Spira AP, Rae DS, West JC, Mojtabai R. Sleep problems, psychiatric hospitalization, and emergency department use among psychiatric patients with Medicaid. Psychiatric Services. 2011 Sep;62(9):1101-5.
7. Mondal G, Bajaj V, Goyal BL, Mukherjee N. Prevalence of sleep disorders and severity of insomnia in psychiatric outpatients attending a tertiary level mental health care facility in Punjab, India. Asian journal of psychiatry. 2018 Feb 1;32:8-13.
8. Soldatos CR, Dikeos DG, Paparrigopoulos TJ. Athens Insomnia Scale: validation of an instrument based on ICD-10 criteria. J Psychosom Res. 2000 Jun;48(6):555-60.
9. Wilson, S.J., Nutt, D.J., Alford, C., Argyropoulos, S.V., Baldwin, D.S., Bateson, A.N., et al., 2010. British association of psychopharmacol-ogy concensus statement on evidencebased treatment of insomnia, parasomnias and circadim rhythm disorders. J. Psychop-harmacol. 24 (11), 1577–1600.
10. Hombali A, Seow E, Yuan Q, Chang SH, Satghare P, Kumar S, Verma SK, Mok YM, Chong SA, Subramaniam M. Prevalence and correlates of sleep disorder symptoms in psychiatric disorders. Psychiatry research. 2019 Sep 1;279:116-22
11. Benca, R.M., Obermeyer, W.H., Thisted, R.A., Gillin, J.C., 1992. Sleep and psychiatric disorders. A meta-analysis. Arch. Gen. Psychiatry 49 (8), 651–668 discussion 669- 670.
12. Fuller, K.H., Waters, W.F., Binks, P.G., Anderson, T., 1997. General-ized anxiety and sleep architecture: a polysomnographic investiga-tion. Sleep 20 (5), 370–376
13. Ailshire JA, Burgard SA. Family relationships and troubled sleep among U.S. adults: examining the   influences of contact frequency and relationship quality. J Health Soc Behav. 2012;53(2):248-62..
14. Johnson EO, Roth T, Breslau N. The association of insomnia with anxiety disorders and depression: exploration of the direction of risk. Journal of psychiatric research. 2006 Dec 1;40(8):700-8.
15. Mayda Domaç F, Uludüz D, Özge A. Sleep Patterns Changes Depending on Headache Subtype and Covariates of Primary Headache Disorders [Internet]. Neurophysiology - Networks, Plasticity, Pathophysiology and Behavior. IntechOpen; 2022.
16. Burstein R, Jakubowski M, Garcia-Nicas E, et al. Thalamic sensitiza-tion transforms localized pain into widespread allodynia. Annals of Neurology. 2010;68:81-91
17. Özge A, Genç H, Güler Aksu G, Uludüz D. Migraine and frontostriatal circuit disorders: What have we learned until now? Neurological Science Neurophysiology. 2021;38(2):81-89
18. Zhu Z, Fan X, Li X, Tan G, Chen L, Zhou J. Prevalance and predictive for poor sleep quality among migraneurs in a tertiary hospital headache clinic. Acta Neurologica Belgica. 2013;113:229-235
19. Sateia MJ. International classification of sleep disorders-third edition: Highlights and modifications. Chest. 2014;146(5):1387-1394
20. Zheng W, Luo XN, Li HY, Ke XY, Dai Q, Zhang CJ, et al. Prevalence of insomnia symptoms and their associated factors in patients treated in outpatient clinics of four general hospitals in Guangzhou, China. BMC psychiatry. 2018 Dec;18:1-7.