A Study on Quality and Quantity of Sleep Disturbances Associated with their Quality of Life in Psychiatric Patients

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ABSTRACT: All India Institute of Medical Sciences (AIIMS) said sleep disturbances at present affects 5-10% of general population in India. 5% Indians aged 50 years and above suffering from sleep problems.Mostly sleep problems are insomnia. A prospective and observational study was conducted, in this study 86 psychiatry patients were examined lively for sleep disturbances and quality of life among them 48% are male and 52% are female cases. Patients divided into three categories based on adult age parameter 25-35years, 36-45years and 46-55years, patients and randomly collected psychiatry disorders cases with an history of 1-15 years duration. Mostly patients present with the symptoms of insomnia (20%), Bad sleep (38%), Good sleep (31%), Your sleep is great (10%) Sleep disturbances are seen in 25 -55 years patients, who's scoring based on sleep revolution questionnaires score. Maximum sleep disturbances are seen in 25- 35 age groups and majorly seen in males compared to females. Major reason for sleep disturbances and quality of life impairment is due to backward life and social, environment and occupational history. The current study highlights the importance of sleep-in psychiatric disorder patients in adult age groups. Basedon our study insomnia should be addressed in psychiatry disorder patients, including its long-term impact on health and quality of life.

Keywords: Sleep quality and quantity, sleep revolution questionnaires scoring, quality of life

I. INTRODUCTION:

Insomnia

Insomnia, also known as sleeplessness, is a sleep disorder in which people have trouble sleeping.[1] They may have difficulty falling asleep, or staying asleep for as long as desired. Insomnia is typically followed by daytime sleepiness, low energy, irritability, and a depressed mood.[1] It may result in an increased risk of motor vehicle collisions, as well as problems focusing and learning.[1] Insomnia can be short term, lasting for days or weeks, or long term, lasting more than a month.[1] The concept of the word insomnia has two possibilities: insomnia disorder and insomnia symptoms, and many abstracts of randomized controlled trials and systematic reviews often underreport on which of these two possibilities the word insomnia refers to.

Insomnia can occur independently or as a result of another problem.[2] Conditions that can result in insomnia include psychological stress, chronic pain, heart failure, hyperthyroidism, heartburn, restless leg syndrome, menopause, certain medications, and drugs such as caffeine, nicotine, and alcohol.[2] Other risk factors include working night shifts and sleep apnea. Diagnosis is based on sleep habits and an examination to look for underlying causes.[3] A sleep study may be done to look for underlying sleep disorders.[3] Screening may be done with two questions: "do you experience difficulty sleeping?" and "do you have difficulty falling or staying asleep?"

Although their efficacy as first line treatments is not unequivocally established, sleep hygiene and lifestyle changes are typically the first treatment for insomnia.[5][7] Sleep hygiene includes a consistent bedtime, a quiet and dark room, exposure to sunlight during the day and regular exercise.[7] Cognitive behavioral therapy may be added to this.[6]While sleeping pills may help, they are sometimes associated with injuries, dementia, and addiction.[5][6] These medications are not recommended for more than four or five weeks.[6] The effectiveness and safety of alternative medicine is unclear.[5][6]

Between 10% and 30% of adults have insomnia at any given point in time and up to half of people

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have insomnia in a given year. About 6% of people have insomnia that is not due to another problem and lasts for more than a month.[9] People over the age of 65 are affected more often than younger people.[7] Women are more often affected than males.Descriptions of insomnia occur at least as far back as ancient Greece.

Types:
Insomnia can be classified as transient, acute, or chronic.

Transient insomnia lasts for less than a week. It can be caused by another disorder, by changes in the sleep environment, by the timing of sleep, severe depression, or by stress. Its consequences – sleepiness and impaired psychomotor performance – are similar to those of sleep deprivation.

Acute: insomnia is the inability to consistently sleep well for a period of less than a month. Insomnia is present when there is difficulty initiating or maintaining sleep or when the sleep that is obtained is non-refreshing or of poor quality. These problems occur despite adequate opportunity and circumstances for sleep and they must result in problems with daytime function. Acute insomnia is also known as short term insomnia or stress related insomnia.

Chronic: insomnia lasts for longer than a month. It can be caused by another disorder, or it can be a primary disorder. Common causes of chronic insomnia include persistent stress, trauma, work schedules, poor sleep habits, medications, and other mental health disorders. People with high levels of stress hormones or shifts in the levels of cytokines are more likely than others to have chronic insomnia. Its effects can vary according to its causes. They might include muscular weariness, hallucinations, and/or mental fatigue.

Relationship between Mental illness and Insomnia [8,9,10]:

Insomnia is a cardinal symptom for many psychiatric disorders, especially depressive disorders because sleep and mental health are closely connected. Sleep deprivation mainly affects your psychological state and mental health. Mental health refers to cognitive, behavioral and emotional wellbeing. About 40% of patients who seek medical help for sleeping problems have a psychiatric condition. To an extent sleep quality can be a barometer of mental health. For this reason, psychiatric always enquire about sleep behavior when making a diagnosis. Sleep disorder often coexist with anxiety, panic disorders, depression, ADHD, schizophrenia, and bipolar disorder [8,9]. Many studies show that patients with mental health disorders experience changes in their sleep architecture, often many individuals spend more time in lighter, less restorative stages of sleep, and less time in critically important deep and REM stages of sleep. Getting less sleep and spending insufficient time in deeper parts of sleep makes the patients so frustrating, anger and discomfort. To initiate sleep the brain will increase feelings of "sleepiness", thereby decreasing a person's ability to concentrate. Lack of good sleep contributes to reduced concentration, short-term memory, learning ability, and behaviouralself-control.[8,10]

PATHOPHYSIOLOGY OF INSOMNIA IN PSYCHIATRIC:

Insomnia is thought to be a disorder of hyperarousal experienced throughout the entire day. This hyperarousal may exhibit itself as a state of hypervigilance during the day and difficulty initiating and maintaining sleep at night. This arousal is currently explained by both cognitive and physiological models of insomnia. The cognitive model suggests that worry and rumination about life stresses disrupt sleep, creating acute episodes of insomnia, especially in initiating sleep and returning back to sleep after an awakening. Then, once an individual begins to experience sleep difficulties, worry and rumination shift from life events to worries about sleep itself and about the daytime consequences of not getting enough sleep. This negatively-toned cognitive activity is further fueled if a sleep-related threat is detected or a sleep deficit is perceived.

In parallel with the cognitive models, another model of the evolution of insomnia proposes that hyperarousal is primarily due to physiologic or neurophysiologic factors. Physiological arousal has been evaluated through measurements of the whole-body metabolic rate, heart rate variability, neuroendocrine measures, and functional neuroimaging. Whole body metabolic rate may be measured by oxygen consumption. Recent studies compared good sleepers with patients diagnosed with insomnia. The insomnia patients exhibited significantly higher metabolic rates (measured at intervals across the 24-hour day) than the healthy controls. Heart rate variability may provide a measure of arousal in that it is regulated by both sympathetic and parasympathetic nervous system activities. A 36-hour study37 found that

average heart rates were increased and variability was decreased in all stages of sleep in insomnia patients compared to healthy normal sleepers.

The neuroendocrine system may also provide evidence of arousal as demonstrated by chronic activation of the stress response system. Several studies measuring 24-hour urinary free cortisol excretion have found high levels in poor sleepers. Urinary free cortisol levels have also been positively correlated with total wake time, and urinary catecholamines have been correlated with stage 1 sleep percentage and wake time after sleep onset.Plasma measures of cortisol and adrenocorricotropic hormone (ACTH) have been evaluated in insomnia patients and healthy normal sleepers. Although the evidence is somewhat mixed, primary insomniacs appear to have higher levels of these compounds in their plasma, with the most significant differences seen in the evening and the first half of the night.Both the urinary and plasma measures of cortisol and ACTH suggest that the HPA axis is associated with the pathology of chronic insomnia.

Finally, positron emission tomography (PET) has been used to assess cerebral glucose metabolism, an indirect measure of whole brain metabolism, in patients with insomnia. Compared to healthy subjects, patients with insomnia exhibited greater cerebral glucose metabolism during waking and non-rapid eye movement (REM) sleep states. Furthermore, the insomnia patients demonstrated smaller reductions in relative metabolism from waking to non-REM sleep in wake-promoting regions of the brain. These findings suggest interacting neural networks involved in the inability to fall asleep, which include a general arousal system, an emotion-regulating system, and a cognitive system.

Relationship between Psychiatric and Quality of life: [12,13]

In psychiatric, quality of life has been considered as important aspects of mental health. It emphasized based on impact of patient's environment and subjective appraisals of psychiatric symptoms and life problems. With the increasing awareness and focusing on treatment outcome and patient satisfaction in health care ,the construct of QOL has become an important area of investigation. It is defined as multidimensional construct of well being and function of individuals pertaining to physical, emotional, social, mental, and behavioural components.

Benefits of lifestyle changes in psychiatric sleep: [14,15]

According to National Institute on Mental Health, healthy lifestyle activities lead to psychological well-being. Having anxiety and depression is harder to for psychiatric patients to wake up and exercise. No specific diet for bipolar disorder. Meditation and intake of melatonin containing foods, vitamins, magnesium contain promote good sleep. cardiovascular and kidney disease, pediatric, geriatric and pregnant patients were excluded in this study. Quality and quantity of sleep along with quality of life was monitored in 86 patients. It is done by through sleep revolution questionnaires by interacting with patients. The questionnaire was translated into patient specific language.The questionnaire consist of 3 section and it contain open-ended and close- ended questions. The first section includes taking information on socio-demographic details (age, gender, occupational, social and normal vitals levels). Second section consists of 1- 14 questions with scoring and third section consist medications. Each questionnaire measures a specific patient sleep disturbances and 9th questionnaire measures quality of life.

Response is categorized as scoring 0 to 9- insomnia, 10 to 18 - bad sleep, 19 to 27- good sleep, 28 to 35 - satisfied sleep. Data was collected by face-to-face interviewing of patients for 15- 30 minutes, during ward round in tertiary hospital.

II. METHODOLOGY
2.1 Materials and Methods:

It is a multicentered prospective and observational study designed to evaluate the quality and quantity of sleep disturbances associated with psychiatric patients. The present study was conducted at manasa goldy hospital, kothagudem, Telangana, India. This study was conducted over a period of 2 months from February 2023 to march 2023 on 86 subjects. After completion literature review on several articles in psychiatric department this study was done. Subject selection of both male and female of age group 1-90 of psychiatric disorders based on inclusion and exclusion criteria. Adult age group with psychiatric disorder patients was included. Subjects with neurodegenerative, cardiovascular and kidney disease, pediatric, geriatric and pregnant patients were excluded in this study. Quality and quantity of sleep along with quality of life was monitored in 86 patients. It is done by through sleep revolution questionnaires by

interacting with patients. The questionnaire was translated into patient specific language.The questionnaire consist of 3 section and it contain open-ended and close- ended questions. The first section includes taking information on socio-demographic details (age, gender, occupational, social and normal vitals levels). Second section consists of 1- 14 questions with scoring and third section consist medications. Each questionnaire measures a specific patient sleep disturbances and 9th questionnaire measures quality of life. Response is categorized as scoring 0 to 9-insomnia, 10 to 18 - bad sleep, 19 to 27- good sleep, 28 to 35 - satisfied sleep. Data was collected by face-to-face interviewing of patients for 15- 30 minutes, during ward round in Manasa goldy hospital.

III.   RESULTS:

• This study provides a unique examination of sleep quality with their impact on quality of life in psychiatric patients. Based on sleep questionnaire scoring psychiatric patients were separated into 4 categories : Insomnia, Bad sleep, Good sleep, Very good sleep.
• A total number of 86 patient were selected and undergone sleep revolution questionnaires out of 41(48%) were female,45(52%) were male.Overall

psychiatric patient experience (36%) of disturbed sleep, (14%) of self talking and laughing and(2%) less symptom of fear and alcohol with drawl symptoms.SRQ scoring from question 3-11 suggest than both gender score in between 0-2 score showing that poor quality of sleep that leading to impair concentration and mood disturbances results in impair quality of life.Sleep disturbances are seen in patients, aged 1-90 years,who's scoring based on sleep revolution questionnaires score were SRQ score > 9 insomnia is (20%), SRQ score > 18 bad sleep is (38%), SRQ >27 good sleep is (31%),SRQ score >35 Very good sleep is (10%).
• The(mean and standard deviation) scoring of 3-11 questionnaire of female patients are found to be 34.3 ± 8.2 for score -0, 13.3 ± 5 for score-1, 23.8 ± 6.8 for score2,24.5 ± 6.9 for score-3, 15.1 ± 5.4 for score-4.
• The (mean and standard deviation) scoring of 3-11 questionnaire of male patients are found to be 57.8 ± 10.7 for score-0, 28.1 ± 7.4 for score-1, 32.5 ± 8.0 for score2, 40.2 ± 8.9 for score-3, 20.8 ± 6.3 for score-4.
• In female and male patients score-0 are found to be higher than the other scores. Scoring of female patients are found to higher than male for questionnaire 3-11. This shows female patients are more prone to sleep disturbances than male.

GENDER WISE DISTRIBUTION

<div align="center">

TABLE 1:

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SLNO:	MALE	FEMALE	OTHERS	TOTAL
01.	41	45	00	86

GRAPHICAL REPRESENTATION OF GENDER WISE DISTRIBUTION
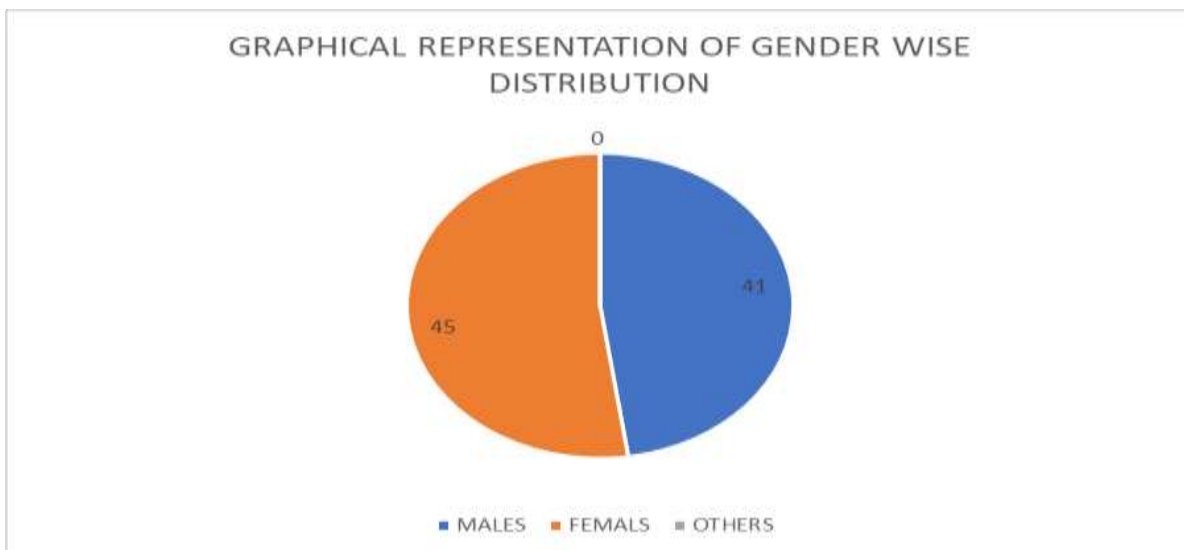
LEFT OF SYMPTOMS:
NO. OF PATIENTS VS SYMPTOMS:

TABLE 02

SI.NO	NO. OF PATIENTS	SYMPTOMS
01.	1-10	No symptoms
02.	11-20	Headache , memory loss
03.	21-30	Memory loss, sleeplessness headache
04.	31-40	Mental disturbance, headache, sleeplessness, angry
05.	41-50	Muscle weakness, nerve problem, sleeplessness
06.	51-60	Shivering, increase heartbeat, sleeplessness
07.	61-70	Depression, jointpains,sleeplessness
08.	71-80	Fear,bodypains,headache,angry
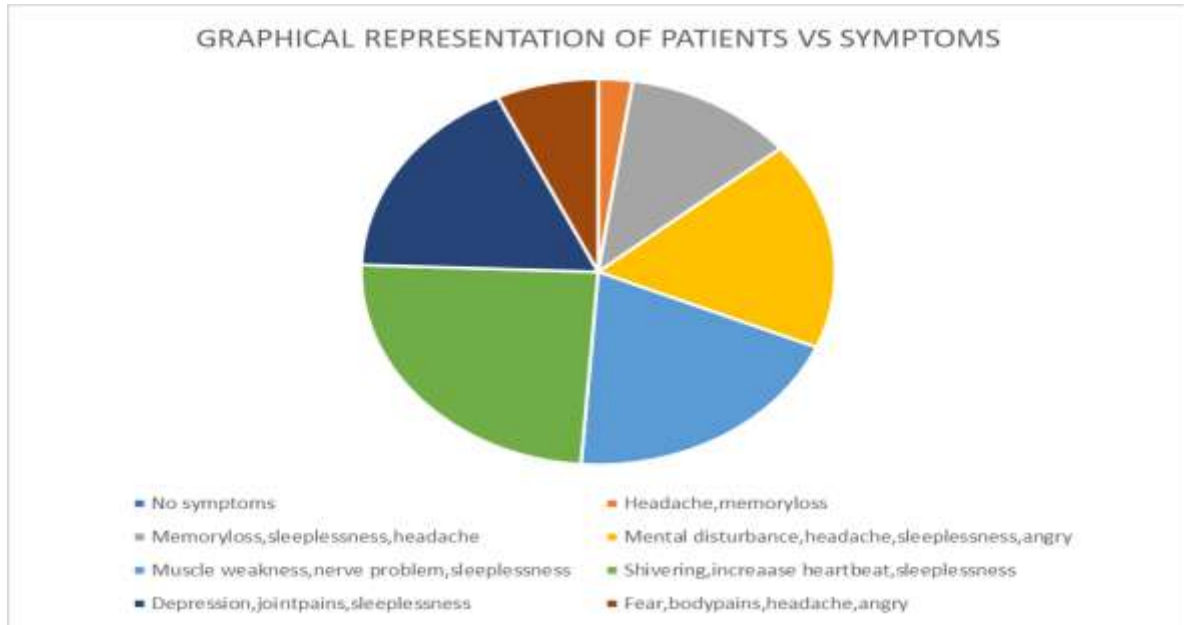
DURATION OF PSYCHIATRIC:
NO. OF PATIENTS VS AGE:

TABLE 03

SLNO	AGE	PATIENTS
01.	01-05	00
02.	06-10	00
03.	11-15	02
04.	16-20	00
05.	21-25	10
06.	26-30	10
07.	31-35	11
08.	36-40	12
09.	41-45	06
10.	46-50	13
11.	51-55	07
12.	56-60	08
13.	61-65	03
14.	66-70	02
15.	71-75	00
16.	76-80	02

GRAPHICAL REPRESERNTATION DURATION OF PSYCHIATRIC
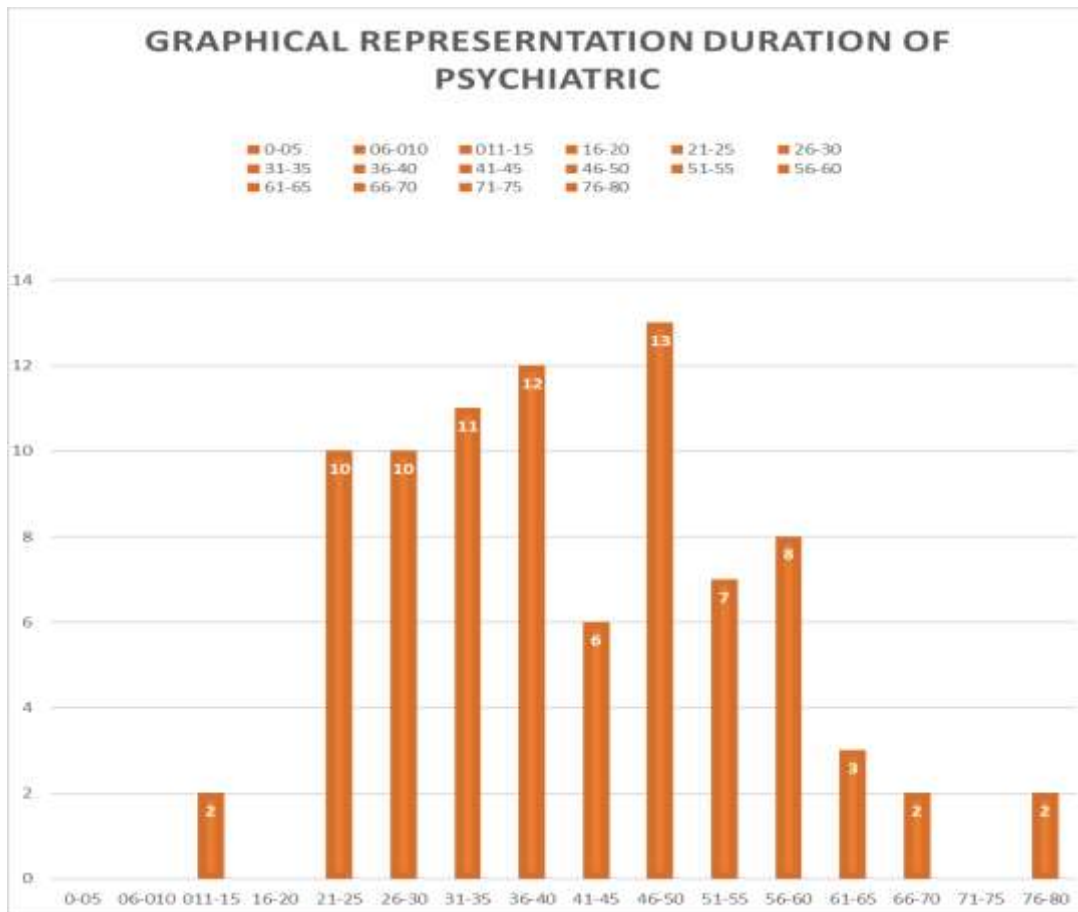
CATEGORY BASED ON GENDER AND OCCUPATION:

TABLE 04

NO. OF PARTICIPANTS	OCCUPATION	MALE	FEMALE	TOTAL
01.	FARMER	15	13	28
02.	GOVT.EMPLOYEE	03	02	05
03.	HOUSE WIFE	00	25	25
04.	TEACHER	03	01	04
05.	BARBER	01	00	01
06.	DRIVER	02	00	02
07.	TAILOR	00	01	01
09.	LABOUR	05	01	06
10.	STUDENT	03	01	04
11.	MEDIA	01	00	01
12.	NONE	07	02	09

graphical represention based on gender and occupation
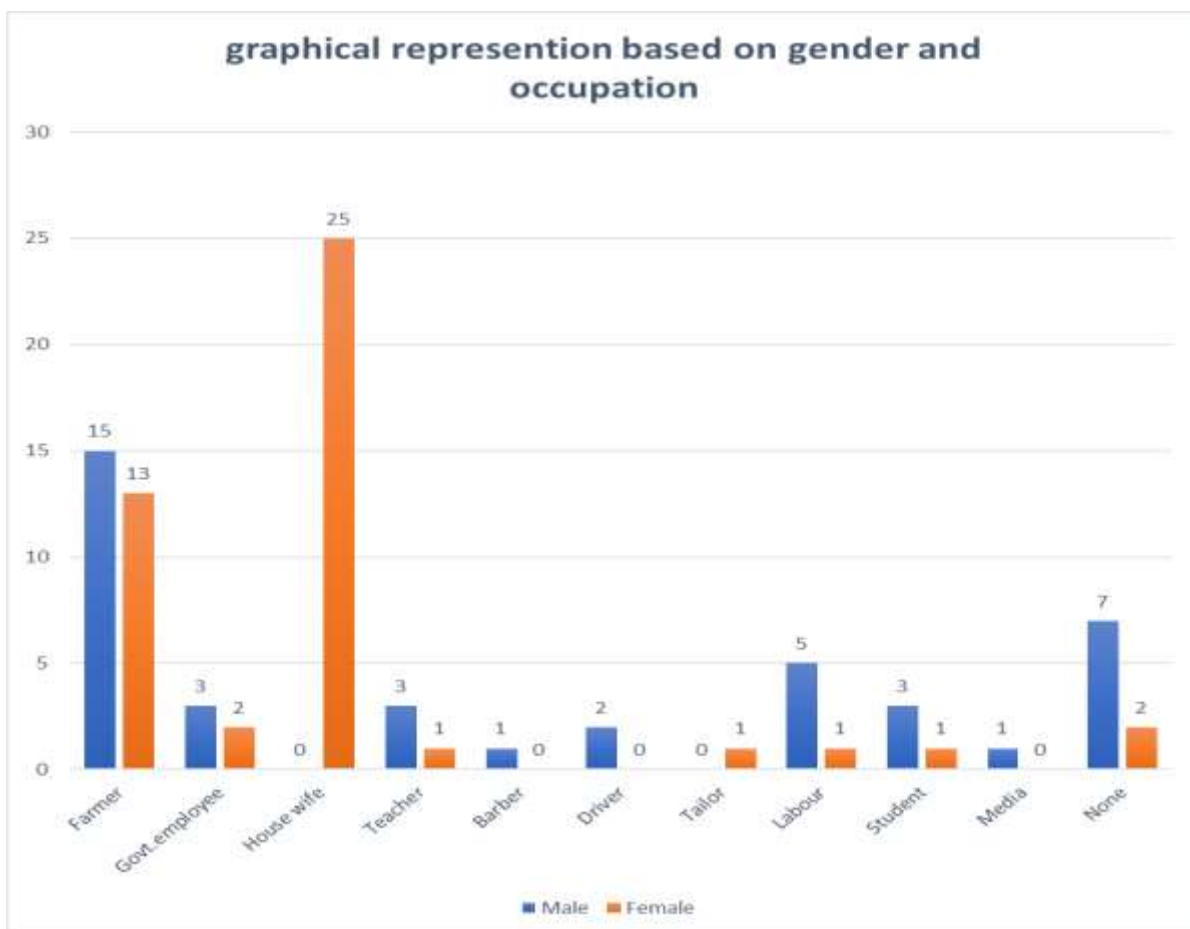
SOCIAL STATUS:

TABLE 05

SOCIAL STATUS	NO. OF MALE PARTICIPANTS	PRESENT HISTORY	PAST HISTORY
SMOKING	12	08	04
ALCOHOL	15	11	04
ALCOHOL&SMOKING	15	11	04
NON-ALCOHOL&SMOKING	26	00	00

GRAPHICAL REPRESENTATION OF SOCIAL STATUS
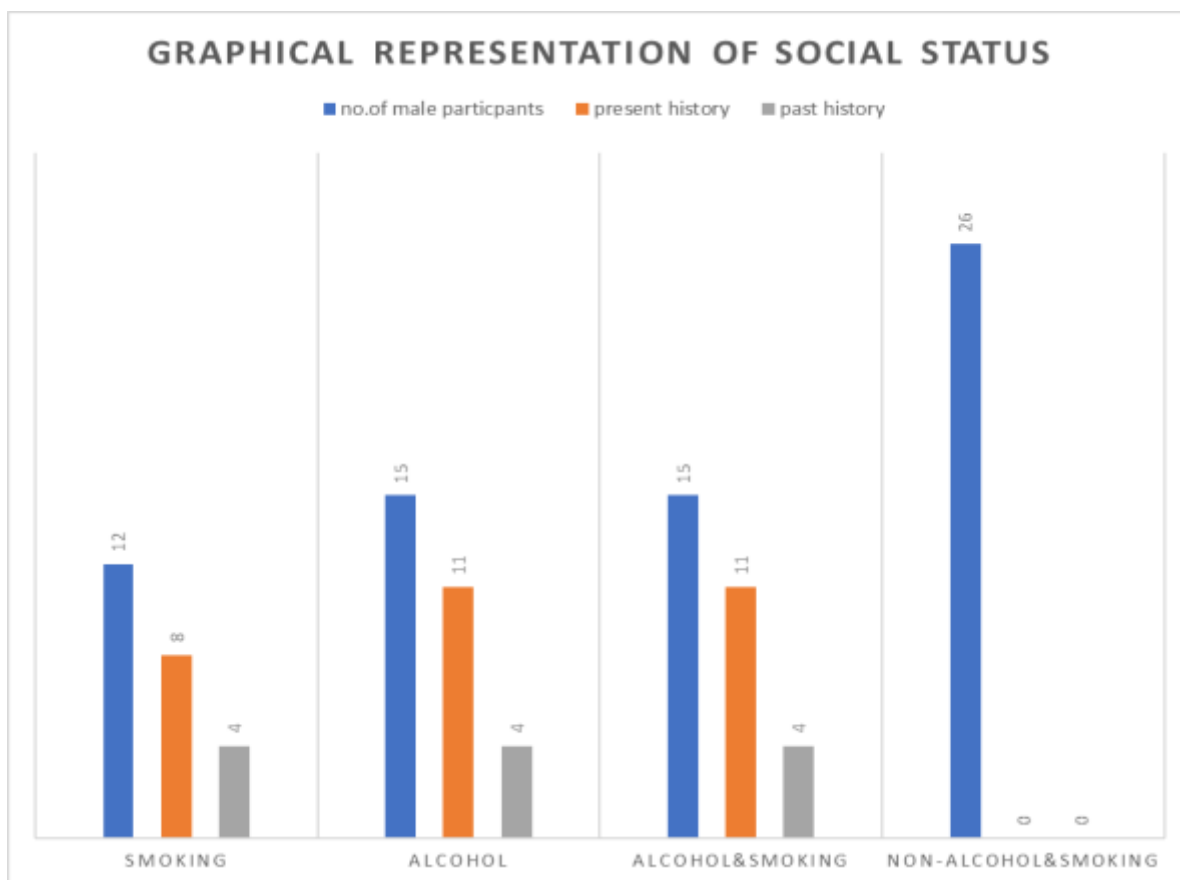
CATEGOTY OF PARTICIPANTS BASED ON QUESTIONAIRES AND SCORE:

TABLE 06

AGE GROUP	SCORE 0-7	SCORE 8-14	SCORE 15-21	SCORE 22-28	SCORE 29-35
1-10	0	0	0	0	0
11-20	0	0	0	02	0
21-30	02	05	05	07	01
31-40	02	05	06	03	02
41-50	03	06	04	04	03
51-60	0	09	08	01	00
61-70	01	02	02	0	0
71-80	01	01	01	0	0
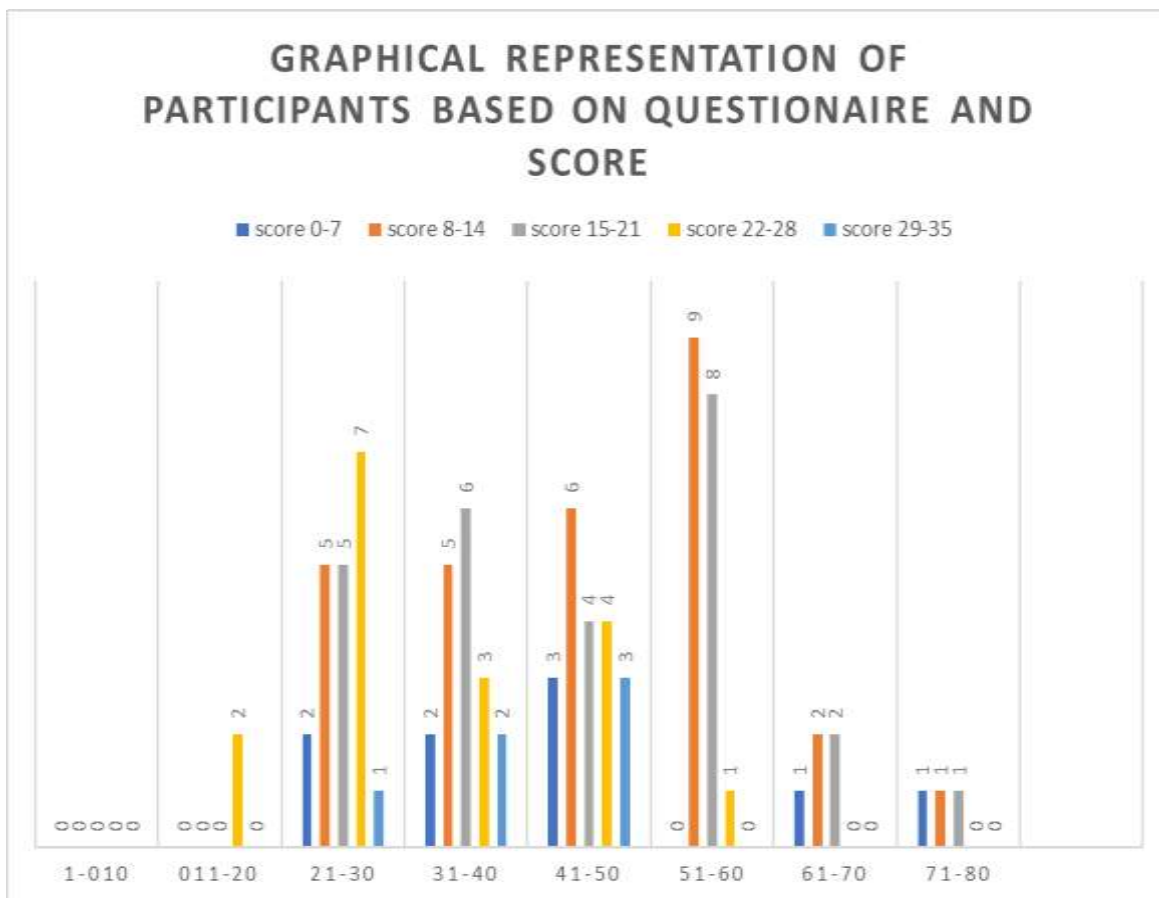
CATEGORY BASED ON SLEEPING CONDITION AND AGE GROUP:

TABLE 07

SLEEP CONDITION	NO OF PARTICIPANTS	AGE GROUP	NO OF PARTICIPANTS OF RESPECTIVE AGE GROUP		
			Male	female	overall
Insomnia	1-86	1-80	9	8	17
Bad sleep	1-86	1-80	15	18	33
Good sleep	1-86	1-80	13	14	27
Your sleep is great	1-86	1-80	3	6	9
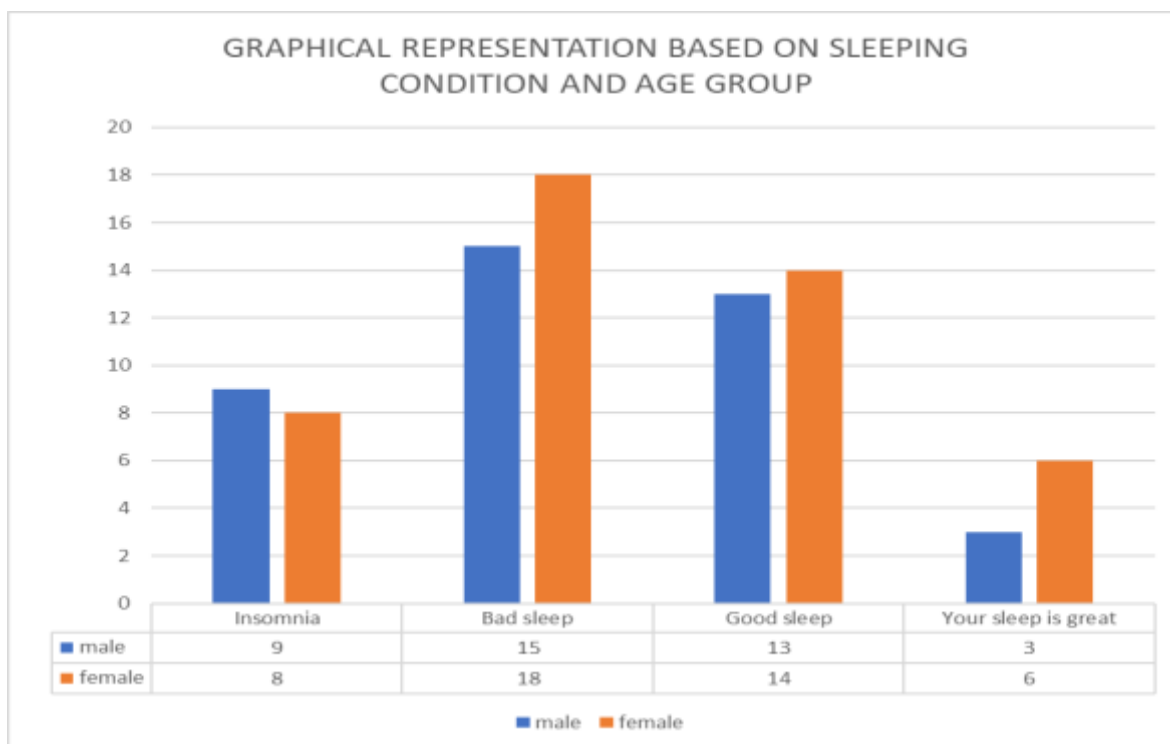
IV. DISCUSSION:

The results of present study show that people aged (46-50 years) age groups are more compensated by the sleep disturbances and sleep quality. Sleep environment has shown to affect sleep quality and duration, factors associated such as noise, light exposure and also social factors like alcohol and smoking and health worries, stress affect sleep quality. Higher average sleep revolution score >9 were significantly associated with poor sleep quality and quantity. Sex difference were evident in analyses that female exhibit significant lower sleep disturbances than male. Relationship between both insomnia quality and quantity were seen with quality of life. However, there was an impact of age on quality of life, as age increases there was increases in risk of quality of life, but in our study, we observed that quality of life was impaired in patients aged 25-35years (44%). Quality of life was affected in 86 patients (47%) who scored scoring-2, occupational and social history was also decreased in patients that examine the impact on patients quality of life. All selected patients were prescribed with medication due to poor economy some patients were not adhering to medication that leading to chronic stages of insomnia. To date there is lack of awareness and support for pharmacological treatment to lower the risk of sleep disturbances.

While non pharmacological interventions for sleep disturbances were outside the scope of this review. It is important to maintain a regular sleep cycle, don't try to make yourself sleepy, go to bed and get up at regular times, avoid heavy meals, consumption of alcohol before going to bed and avoid napping during the day. Based on statistical analysis (Mean and Standard deviation) females are more prone to sleep disturbances that impacting on quality of life. Insomnia should be addressed in wellness programming in psychiatric disorder patients, including its long term impact on health and quality of life.

V. CONCLUSION:

Based on this study, sleep disturbances and quality of life are impaired in (1-90) age groups of psychiatric patients, so not only treating their psychiatric disorder and sleep impairment, they also focus on their life span, social habitual daily life activity etc... Which helps us to improve patient condition. Sleep can be impaired in any age groups compare to older age groups, adults are also affecting more sleep disturbances.so, earlydetection of symptoms and prevention is needed.

Abbreviation:
QOL – Quality of life, SRQ – Sleep Revolution Questionaries, REM – Rapid Eye Movement,

ADHD – Attention Deficit Hyperactive disorder, GABA- Gamma Amino Butryic Acid. M±SD – Mean and Standard deviation.

Acknowledgment:

Conflict of Interest:

The author declares no conflict of interest.

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