



SLEEP QUALITY, DAYTIME SLEEPINESS AND OSA RISK AMONG GENERAL POPULATION DURING COVID-19 PANDEMIC IN MANIPUR.

Physiology

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ABSTRACT

COVID – 19 pandemic disrupts normal life routines which are important for human survival. The pandemic is associated with uncertainties and fear, disrupting regular routines, economic security which are likely to affect sleep. Insufficient sleep or irregular sleep wake cycle has important implications as it is reported to impair health and immunity. This study was conducted using standard questionnaire Pittsburgh Sleep Quality Index (PSQI), Epworth Sleepiness Scale (ESS) and Obstructive Sleep Apnea risk (OSA) to assess sleep quality among the general resident population of Manipur during second wave of COVID – 19 pandemic. Out of 200 participants (M:92; F:108), in age range 18 – 60 years studied, 48% reported good sleep quality in the Global PSQI survey while 52% had poor sleep quality. The ESS score showed severe daytime sleepiness in 21%, moderate sleepiness in 36%, and 43% being normal. Females reported slightly poorer sleep quality and abnormal daytime sleepiness than males. Our study also found high OSA risk of 17% which was comparable in both genders. Thus, we conclude that COVID – 19 pandemic adversely affected sleep quality in more than half of the study population, increases Daytime sleepiness in almost 2/3rd and OSA risk in 1/4th of the participants.

KEYWORDS

COVID – 19 Pandemic, second wave, Sleep quality, general population, Manipur

INTRODUCTION

The COVID-19 pandemic has posed a significant challenge across multiple sectors from governments, healthcare systems, educational institutions and the general public¹. Several measures were taken to contain the spread of COVID – 19 various period of lockdown, closing of schools, universities, home schooling, work from home, reduction in outdoor activities and social interactions². The pandemic is associated with uncertainties, fear, negative emotion, psychological distress, disrupting regular routines, economic security which are likely to affect sleep³. Disruptions to normal daily routines during the pandemic, can disrupt circadian rhythms that has huge impact on sleep patterns in the general population⁴.

Sleep is a vital process for maintaining homeostasis and has impacts on well-being, mental health, immune response, and cognition⁵. Sleep can reduce infection risk, improve the infection outcome and vaccination response. Prolonged sleep deprivation can lead to chronic, systemic low-grade inflammation associated with diabetes, atherosclerosis and neurodegeneration⁶.

Stress and anxiety due to COVID-19 pandemic is reported to low level of sleep quality⁷. Therefore, it will be of much interest to assess the changes in sleep quality in the people of Manipur. Thus, the present study can provide a valuable insight on how a new pandemic alters sleep quality and this information can be utilized to optimize healthcare among the vulnerable people.

MATERIALS AND METHODS

This study is a cross sectional study done, after obtaining Ethical approval, at Department of Physiology, RIMS Imphal, on 200 participants living in Manipur during the second wave of COVID-19 pandemic, between Sep 2021– Feb 2022. Standard questionnaires PSQI, ESS and OSA were used to assess the sleep quality, daytime time sleepiness and Obstructive Sleep Apnoea risk.

Inclusion Criteria

Apparently healthy volunteers 18 to 60 years, living in Manipur during the said period.

Exclusion Criteria

I. Those with insomnia, diagnosed psychiatric illness

II. Those under sleeping medication.

III. Those with thyroid dysfunctions, Diabetes mellitus.

IV. Women pregnant at time of study.

COLLECTION OF DATA:

Participants for the study were selected according to the inclusion and exclusion criteria. A structured Proforma was used to collect the background profile of the subjects which include age, sex, address, personal and family history and record their general and systemic examinations. Informed written consent was taken from all the participants. Standard self- reported questionnaire PSQI to measure sleep quality index, ESS to assess daytime sleepiness and OSA risk were distributed to the consented participants.

RESULTS:

A total of 200 participants (92 Male: and Female:108) as shown in Table 1, in the age group of 18- 60 years were included in the study. The average age of males was 39.2 ± 13.2 years and females, 37.38 ± 12.19 years respectively as depicted in Table 1.

Table 1: Gender Wise Respondents

Sex	N(%)	Age in years ($\mu \pm SD$)
Male	92 (46%)	39.2 ± 13.2
Female	108 (54%)	37.3 ± 12.19
Total	200	

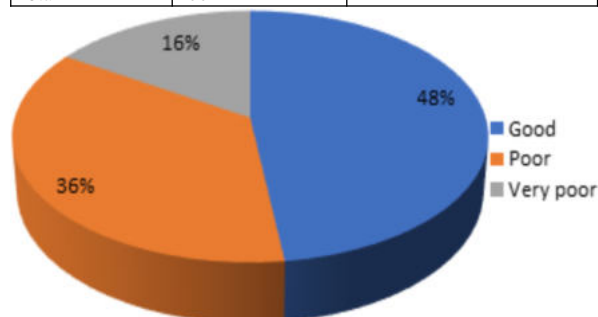


Fig: 1. PSQI Of The Participants

The figure shows sleep quality as determined by global Pittsburgh Sleep Quality Index (PSQI) was 48% shows good sleep quality, 36% shows poor sleep quality and 16% shows very poor sleep quality.

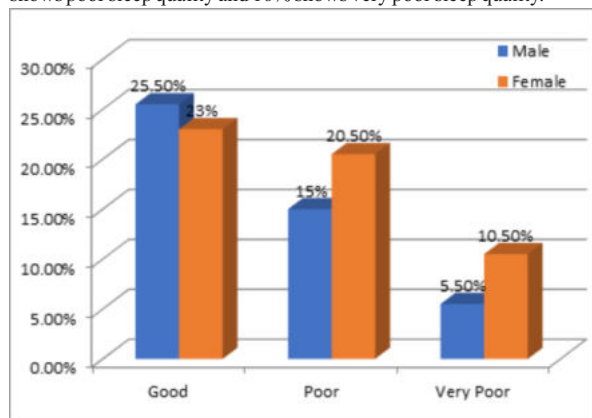


Fig: 2. Sleep Quality Based On Gender With PSQI

PSQI:

It is observed that (Male: 25%; Female: 46%) of participants shows good sleep quality, (Male: 15%; Female 20.50%) shows poor sleep quality and (Male: 5.50%; Female: 10.50%) shows very poor sleep quality.

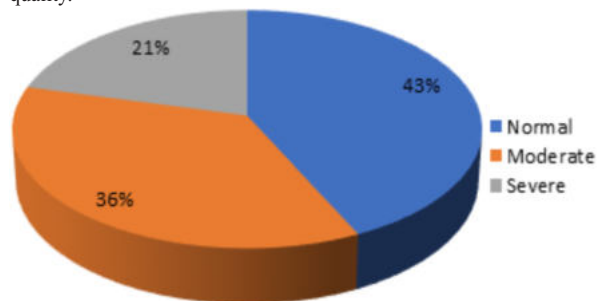


Fig: 3. ESS Score Of The Participants

The figure shows daytime sleepiness as determined by Epworth Sleepiness Scale (ESS) was 43% shows normal daytime sleepiness, 36% shows moderate daytime sleepiness and 21% shows severe daytime sleepiness.

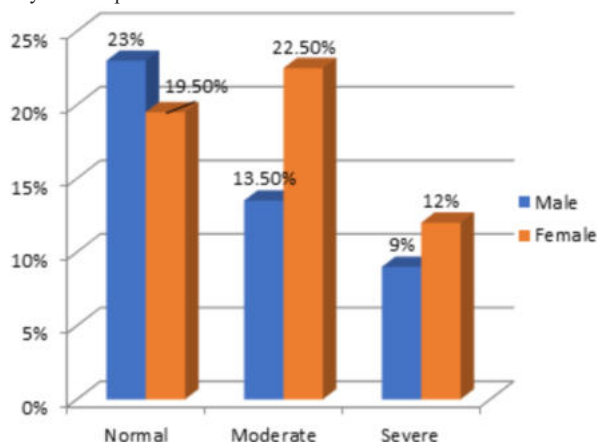


Fig: 4. Sleep Quality Based On Gender With ESS

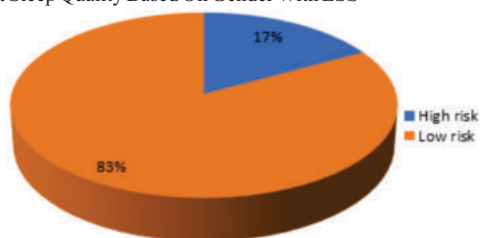


Fig 8 OSA Risk (Obstructive Sleep Apnea)

ESS:

It is observed that (Male:23%;Female19%) shows normal daytime sleepiness, (Male: 13.5%; 22.5%) shows moderate daytime sleepiness and (Male:9%; Female: 12%)43% shows severe daytime sleepiness.

The figure shows Obstructive Sleep Apnoea (OSA) risk 83% shows low risk of OSA and 17% shows high risk of OSA.,

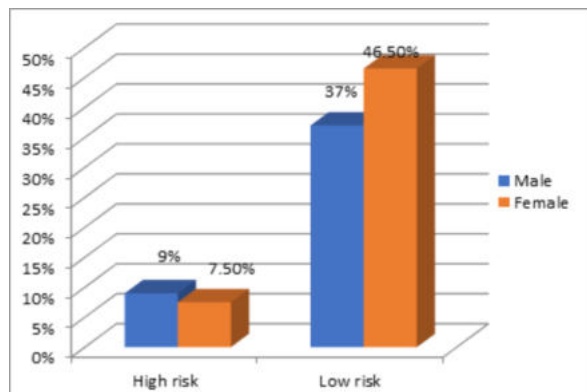


Fig: 8 Sleep Quality Based On Gender With OSA

OSARisk:

OSA risk is found to be high 17% and comparable in both gender (Male:9%; Female7.5%) shows high risk and (Male:37%; Female 46.50%) shows low risk of OSA.

DISCUSSION

Globally, poor sleep quality has emerged among various groups of people. This study investigated sleep quality by using the PSQI, ESS, OSA risk among population of Manipur during the second wave COVID-19 Pandemic. Our present study shows PSQI that 52% of participants shows poor sleep quality, 48% shows good sleep quality which is comparable to studies done by Banthiya S⁸ et al which shows 57.2% has poor sleep quality and 42.8% has good sleep quality. These findings contrast with those of a recent study done by Jahrami¹³ et al which reported that nearly 35.7% of participants had poor sleep quality during COVID-19 outbreak. And study done by Yadav⁷ et al shows 62% of participants shows poor sleep quality which were done on COVID-19 positive patients which is slightly higher from our study.

Our study showed that during COVID – 19 pandemic participants had adversely affected daytime sleepiness which is assessed by ESS: 21% shows severe, 43% moderate, 36% normal daytime sleepiness which is comparable to study done by Bajaj S¹² et al which shows 19.7 % has severe daytime sleepiness. It is also observed that OSA risk is high and is positively associated with increased BMI. The present study shows high risk of OSA in 17% of participants which has poor sleep quality which is also seen in study done by Spiccuza L¹¹ et al.

Among the age group those who are between 46 to 60 years had found to have poor sleep quality and females shows poor sleep quality as compare to males. Poor sleep quality maybe due to pandemic has changed people's lives drastically psychological stress, fear of getting infected and their love ones, confinement, work from home, financial suffering.

CONCLUSION

COVID – 19 pandemic causes poor sleep quality in the study population 48% reported good sleep quality in the Global PSQI survey while 52% had poor sleep quality. The ESS score showed severe daytime sleepiness in 21%, moderate sleepiness in 36%, and 43% being normal. Females reported slightly poorer sleep quality and abnormal daytime sleepiness than males. Our study also found high OSA risk of 17% which was comparable in both genders. Thus, we conclude that COVID – 19 pandemic adversely affected sleep quality in more than half of the study population, increases Daytime sleepiness in almost 2/3rd and OSA risk in 1/4th of the participants.

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