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Physiology

IMPACT OF PANDEMIC ON SLEEP DISTURBANCE AMONG ADOLESCENTS AND YOUNG ADULTS

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ABSTRACT The COVID19 pandemic has led to significant changes in daily routines and lifestyle worldwide and mental health issues have emerged consequently. The aim to assess the presence of sleep disturbances before and after the pandemic in the adolescents and young adults age groups in the general population. **Methods:** Survey data were collected by using snowball sampling method in the general populations. Participants included 234 in total, in those 100 subjects were adolescents(13-24years) and 130 subjects were belonging to age group of 25-44years. Cross sectional study was proceeded and the prevalence rate of various components of sleep pattern was assessed using the Pittsburgh sleeping quality index questionaries. **Interpretation:** Although, the quality of sleep doesn't show variation among adolescent, but the other domains of sleep pattern are changed aggressively. The % sleep latency was increased which indicates poor sleep pattern. Sleeping duration are also greatly decreased, which leads to fall in the efficiency of the sleep. Moderate sleep disturbances were greatly affected. Overall good sleeper prevalence rate was drastically falls among adolescents after the pandemic period. The sleep quality and sleep latency among young adults of bad sleepers was improved after the pandemic. while the other components of the PSQI of sleep was drastically affected. The duration of sleep was greatly affected. The efficiency among good sleepers was highly affected. The prevalence rate was doubled on severe sleep disturbance in young adults. Mild daytime dysfunction persistently high in both periods. Overall moderate severely sleep disturbers rate was increased. **Conclusion:** Lifestyle changes and sleep disturbances have been occurring in hand and hand, it's needed to evaluate the psychological aetiology of sleep disorders because sleeping is the most important indicator of mental wellbeing and treat the patients accordingly to prevent the mental illness among adolescents and young adults.

KEYWORDS : Sleep disturbance, pandemic, prevalence, PSQI.

INTRODUCTION:

The worldwide spread of COVID 19 – coronavirus, a causative agent of the viral respiratory diseases. COVID infection causes asymptomatic to severe illness, critical illness leads to lung infiltrates, respiratory failure, septic shock and multiple organ dysfunction and death ultimately.

The attack rate in India by age 50 – 69 years was highest 63.3 / million and lowest affected age group under 10 years 6.1/ million. The attack rate was higher among males 41.6 % than females 24.3%. the estimated prevalence of sleep problem was 52.39% among COVID patients, 46% among children and adolescents, 42.4% among health care workers, 41.5% among general populations.

Changes in the sleeping pattern or habits that can negatively affect health is known as sleep disorder. 5 types of sleep disorders are parasomnias, obstructive sleep apnoea, narcolepsy, restless leg syndrome and associated with physical, emotional and behaviour problems ().

Pandemic situation affects the routine activity of all individual life by falling in sick or killing our loved ones, falls in economy by increasing the needful and absence of daily labour, social distancing, lockdown, work from home etc., this alterations in the lifestyle severely affects the emotion and behaviour pattern of an individual which causes sleep disturbance like parasomnias. Sleep disturbance indicates poor mental health. Sleep disturbance during and immediately after COVID was noted in all age groups of the population.

This study is to estimate the sleeping pattern before and after the pandemic, based on sleep pattern questionnaire among adolescents and young adults.

AIM:

- To assess the quality of sleep pattern before and after the pandemic in the adolescents and young adults age groups in the general population.
- To provide lifestyle modifications for the affected group.

METHODOLOGY:

The study design is cross sectional study and percentage for each domain was assessed. The period of study was from May 2022 to July 2022. The study was conducted in Kurnool district, Andhra Pradesh. Young adults (25 – 44 years) and adolescents (13 – 24 years) were target population. Survey data were collected using snowball sampling method in the general populations. Total sample size is 234 among this participants, 100 subjects were adolescent, and 130 subjects were young adults. The components of sleep pattern were assessed using the Pittsburgh sleeping quality index questionaries assessing sleep patterns by quality, latency, duration, efficiency, mood disturbances, drug usage and dysfunction.

Inclusion Criteria:

Age between 13 - 24 years and 25 – 44 years.
Individual those who are unaffected by the disease.

Exclusion Criteria:

The questionnaire contains questions including regular sleeping pattern to exclude the participants with sleeping disorders.

Proper History taking helped to assess the participants medical history, mental and physical health, this contributes to exclude the Psychological illness, Drugs – antidepressants, etc, Alcohol or other substance abuse, Physically inactive, and subjects With covid symptoms.

Data Collection:

Survey data were collected using snowball sampling method in the general populations using forms applications questionnaire were formulated. A complete response was collected from 230 participants and scored using PSQI scoring.

The scoring was entered in the Xcel sheet and percentage was calculated.

Statistical Analysis:

Cross sectional study was done and prevalence rate (%) of various components of sleep pattern was assessed using the Pittsburgh sleeping quality index questionaries in the Excel sheet.

Table No.: 01 Showing Prevalence Rate Of Sleep Disturbance In Adolescents Before And After COVID.

Sleep Pattern Score For 13 – 24yrs	Before pandemic (%)	After pandemic (%)
Quality	1	1

Latency	25	20
Duration	10	30
Efficiency – Poor	32	55
Moderate Disturbance	15	80
Severe Disturbance	5	10
Medications	-	0.1
Dysfunction	30	20

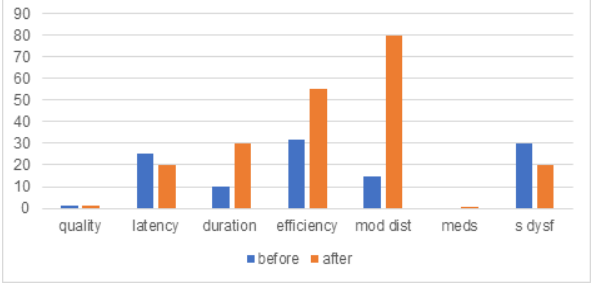

Fig no.:01 Showing Prevalence Rate Of Sleep Disturbance In Adolescents Before And After COVID.

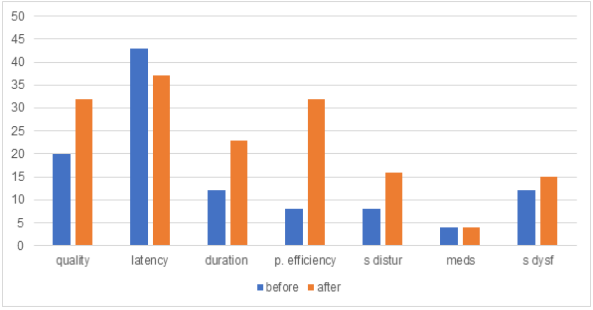

Fig no.02: Showing Prevalence Rate Of Sleep Disturbance In Young Adults Before And After COVID.

Table No.02: Showing Prevalence Rate Of Sleep Disturbance In Young Adults Before And After COVID.

Sleep pattern score for 25 – 44yrs	Before pandemic (%)	After pandemic (%)
Quality	20	32
Latency	43	37
Duration	23	12
Efficiency – Poor	8	32
Severe Disturbance	8	16
Medications	4	4
Dysfunction	12	15

Table No.: 03 Comparing Overall PSQI Sleep Pattern Score For 13 – 24 years

Overall score	Before (%)	After (%)
Good sleepers	25	05
Mild disturbance	35	45
Moderate disturbance	30	50
Severe disturbance	10	0

Table No.: 04 Comparing Overall PSQI Sleep Pattern Score For 25 – 44 Years

Overall score	Before (%)	After (%)
Good sleepers	20	8
Mild disturbance	48	27
Moderate disturbance	32	65

RESULTS:

13-24 YEARS:

Based on the PSQI questionnaire, the sleep quality of poor sleepers was 1% in both before and after pandemic. The poor sleep latency on after pandemic was 20% but among before pandemic adolescents 25% was found.10% subjects were found to be very poor latency sleepers after covid, when compared to before covid situation, very poor sleep latency was 5%. The sleep duration was 10% on before the impact of covid, which was increased to 30% on after covid crisis. The good sleeping efficiency 45% after the pandemic. The good efficiency of adolescents, before the pandemic was 68%.

The minimal sleeping disturbances were occurred, among adolescents was 80% on before covid and 10% was registered after the covid. The moderate sleeping disturbances on before covid was 15% and on after the covid was 80%. The severe sleeping disturbances among adolescents on before covid was 5% and on after covid was 10%. The usage of sleeping pills among adolescents was 0.1% after the pandemic crisis. The subjects without daytime dysfunction on before the pandemic was 50% and after the covid was 10%. The mild daytime dysfunction on before the pandemic was 20% and increased to 70%.

The following results according to the global PSQI questionaries:
The overall good sleepers among adolescents, on before the covid crisis was 25% but after the covid pandemic was 05%.

The overall mildly disturbed sleepers among adolescents, on before the pandemic was 35% and after the covid, 45% of the subjects were affected.

The moderately disturbed sleepers among adolescents, before the pandemic was 30% and after the pandemic was 50%.

25-44 years:

Based on the PSQI questionaries, the poor sleep quality was 32%, after the covid and the poor sleep quality before the pandemic was 20%. The results of poor sleep latency, before the pandemic was 43% and after the pandemic was 37%. The poor duration of sleep of before covid was 23% and 12% showed the effects of after covid.

The good sleep efficiency among adults, on before the covid was 67% and after the covid good sleep efficiency was 31%. The mild sleeping disturbances was noted among young adults before covid is 73% and after the covid was 23%. The moderate sleeping disturbances, before the covid was 19% and after the covid, it was 61%. The severely disturbed sleeping pattern was observed before covid was 8% and after the covid was 16%. 04% of the subjects, who were on medications to induce the sleep in both before and after the pandemic.

33% of subjects were without any daytime dysfunction on before pandemic and 37% were without dysfunction after the pandemic. Mild daytime dysfunction was observed among young adults before covid was 45% and after covid was 48%. Moderately severe daytime dysfunction, before covid was 12% and after covid was 15% found.

The following results according to the global PSQI questionaries:
The overall good sleepers before covid were 20% and 8% after the covid among the young adults.

The overall mildly disturbed sleepers before covid were 52% and after the pandemic was 27%.

The overall moderate severely disturbed sleepers before the pandemic were 32% and 65% was after the crisis.

ADOLESCENTS:

- Although, the quality of sleep doesn't show variation, but the other domains of sleep pattern are changed aggressively.
- Prevalence rate poor sleep latency was decreased which indicates good sleep pattern.
- Very poor sleeping duration was recognised after the pandemic.
- Sleep efficiency was decreased greatly.
- Moderate sleep disturbances were greatly affected.
- Overall good sleeper prevalence rate was falls drastically after the pandemic.

YOUNG ADULTS:

- Sleep quality of bad sleepers was increased after the pandemic.
- Sleep latency of poor sleepers was improved.
- Duration was greatly affected.
- Efficiency of poor sleepers was increased.
- Prevalence rate of severe sleep disturbance was doubled.
- Mild daytime dysfunction persistently high in both periods.

DISCUSSION:

Coronavirus disease is an infectious disease caused by the SARS Cov – 19 virus. The disease progress from mild to moderate severity of respiratory illness. Due to comorbidity such as cardiovascular diseases, diabetes mellitus, chronic renal disease, and malignancy are more likely to develop serious illness. Covid 19 pandemic shows various difficulties in the form of physical, mental, and economic health for many individuals, in turn affects the sleep pattern. The highest level of mental health difficulties were found approximately

10% in the population. The pandemic was experienced moderately and high stressful for adults 56% and 11% respectively [9].

Sleep deprivation causes prominent psychological symptoms. Initially, there is a decrease in attention span, with easy distractibility, drowsiness, decreased initiative to perform and 'micro-sleeps' lasting but a few seconds. 5 types of sleep disorders are parasomnias, obstructive sleep apnoea, narcolepsy, restless leg syndrome and associated with physical, emotional and behaviour problems [8].

This study assessed the sleep pattern before and after pandemic using Pittsburgh sleep quality index, which consists of sleep quality, sleep latency, duration, efficiency, disturbance, medications, and dysfunction. The use of the PSQI questionnaire allowed us to study the impact not only of sleep quality in general but also on each specific component.

Sleep disturbances are more in young adult (25 – 44 years) than other age group subjects. the poor sleep quality was 32%, after the covid and the poor sleep quality before the pandemic was 20%. The results of poor sleep latency, before the pandemic was 43% and after the pandemic was 37%. The poor duration of sleep of before covid was 23% and 12% showed the effects of after covid. The overall moderate severely disturbed sleepers before the pandemic were 32% and 65% was after the crisis.

The associations between sleep problems and psychological distress provide the empirical evidence that healthcare providers should start treating sleep problems and psychological distress. Consequently, psychological distress can be reduced when an individual's sleep is improved and vice versa. The link between inadequate sleep and frequent mental distress has been viewed historically as a symptom–disease association with sleep inadequacies deriving from preexisting mental distress [10]. However, at least 1 study researched the opposite hypothesis, evaluating frequent mental distress leading to a lack of sleep.

CONCLUSION:

The lifestyle modification (proper nutritious diet, and practising yoga or meditation) is suggestive for sleep disturbances even though, lifestyle changes and sleep disturbances have been occurring in hand and hand, many corrective measures are taken by own (intake of medications), to overcome sleep disturbance but, corrective measures for long term requires mental health care, so it is necessary to address this problem by evaluating the psychological aetiology of sleep disorders and to prevent the psychiatric illness among adolescents and young adults. Treating the psychiatric illness brings peaceful sleep and help lead an enthusiastic life.

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