COVID-19 PANDEMIC LOCKDOWN: THE CAUSE OF SLEEP DISTURBANCE AND PSYCHOLOGICAL PROFILES AMONG OFFICE WORKERS IN CHENNAI

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ABSTRACT:
The current COVID-19 pandemic has caused a global threat and brought the world under lockdown. As a consequence, it has put the world economy into trouble, affecting everyone’s physical and mental wellbeing. The home confinement and social distancing has brought unpredicted changes in daily routine thus affecting the general health, quality of life, sleep pattern and possessed depression and stress in individuals thus increasing the smart screen exposure. The aim of the present study is to measure the psychosomatic effects of COVID-19 pandemic on the office workers in Chennai, Tamil Nadu. An online survey using a structured questionnaire was conducted for 350 office workers between June 10 and July 28, 2020. The baseline characteristics, Pittsburgh Sleep Quality Index (PSQI), and Hospital Anxiety and Depression Scale (HADS) data score was collected among the swift office workers. The results showed that about 64.8% of the participants stated sleep problems, 34% felt anxiety, and 38% revealed symptoms associated with depression. The sleep disorders were common among the shift workers than the non-swift workers, while anxiety and depression occurred in both groups. Regression analysis showed the association between the depression and poor sleep quality, making it as a common risk factor. The shift workers are more susceptible to sleep disorders and psychosocial counseling are needed to help the workers cope up with the COVID-19 situation and future outbreaks.

Keywords: Pittsburgh sleep quality index, Hospital Anxiety and Depression Scale, Stress scale, Coronavirus Disease 2019, pandemic
INTRODUCTION

India with a second world largest population has been facing a great challenge with the existing COVID-19 pandemic condition. The COVID-19 cases were first reported on January 30, 2020 and as of 20th October 2020, the total number of confirmed cases were 75, 96,667. The total death in the country has been reported as 1, 15,252 (1). The government of India announced a complete lockdown across the country on the month of March 2020 to control the spread of infection and to moderate the burden on the healthcare system. Hence, the people were limited to stay at home with restriction to most of the services producing lot of stress and panic (2).

The pandemic lockdown followed to reduce the disease outbreak can drastically affect the physical and mental well-being of an individual (3). The Social isolation pursued to reduce infection restricts an individual’s contact with family and friends. This has subsequently led to stress and depression (4). There are reports stating that shift workers are under the risk of physiological and psychological problem in China (5). The post-traumatic stress symptoms related to COVID-19 is also related sleep disturbances and depression (6). As a result, people were provoked to use more digital devices such as laptops, mobile phone and smart TV which has known to cause more disturbed sleep with restlessness. It also causes a sedentary lifestyle with reduced physical activity. In a study it was reported that young adults who got exposed to the daily news update on COVID-19 has shown elevated anxiety (7).

The routine exposure of social media has paved a way for social isolation during the pandemic, however earlier study has proven that bedtime usage of mobile has caused disturbed sleep patterns in young adults (8). It has also caused adverse effect in case of adolescent using mobile phones before going to sleep (9). Moreover, extreme use of digital devise is associated with behavioral problem, sleep abnormality and cognitive decline (10).

The current study was conducted to investigate sleep quality, stress level and depression and quality of life in the office shift workers and non-shift workers during the pandemic home confinement. The study was conducted as a web based questionnaire to analyzed the effect of the home confinement and social distancing due to COVID-19 pandemic on the physical and mental wellbeing and lifestyle behaviors of shift workers.

MATERIALS AND METHODS

Study design and study population

The study was conducted based on online questionnaire survey posted on social media and WhatsApp during the month of July 2020 in Chennai. The survey was done in individuals who were working in the corporate sector, performing a ‘9–5’ work while confined at home (N = 350). All the individuals who meet the above criteria and gave
consent were included for the study. The survey was conducted after getting ethical approval from Saveetha medical college, Chennai (SMC/IEC/2020/08/040). The online recorded data were collected between July 2020 and August 2020.

**Socio-demographic details:**

The sociodemographic details such as age, sex, residence, marital status, presence or absence of children, were collected through a telephonic questionnaire. The other details such as work experience, health behaviors, like alcohol intake and smoking habits were also collected. The earlier history of diseases and medicine used before or during the pandemic phase was also noted. They were also interrogated about the total time spent on seeing the digital screen in a day during the pandemic lockdown.

**Sleep Quality Index**

The Pittsburgh Sleep Quality Index (PSQI) score was used to assess the sleep quality based on various factors. The questionnaire includes general sleep quality, sleep latency, duration of sleep, effectiveness of sleep, interruptions during sleep and use of sleeping pills. The score of PSQI ranges from 0–21, with higher scores indicating lower sleep quality (11).

**Assessment of Depression& Anxiety**

The Hospital Anxiety and Depression Scale (HADS) is a self-administered questionnaire with two components. The first part comprises of 7 items with anxiety scale (HADS-A) and second part with 7 items for depression (HADS-D). The HADS & HADS-A is rated from 0–3 and higher scale indicate severe anxiety and depression (12).

**Statistical analysis**

Data were entered using Microsoft Excel 2010 and analyzed using Statistical Package for Social Sciences version 18 (PASW Statistics for Windows, Chicago: SPSS Inc.). Descriptive statistics were used, and results were expressed frequencies and percentages. Categorical variables were compared using the Pearson Chi-Square test. Odds ratio (OR) and 95% confidence interval (CI) were calculated for all risk factors. Multiple logistic regressions were done to identify significant independent risk factors for people with sleep disturbance.

**RESULTS**

**Socio-demographic characteristics of participants**

A total of 350 participated, and more than half of 245(70%) were males. Most of them were belongs to the age group of 30-45 years (60.8%). The majority of them (68.5%) were married and living with their children (58.5%), while 25.1% was living only with their spouse. Nearly 74.2% of the participants were graduates and only 16.6% had
a secondary level of education. The majority (85.6%) of these participants had work experience of more than 10 years. In addition, 225 (64.2%) were married, 140 (40%) had underlying comorbidities, 280 (80%) stated the shortage of supplies, 98 (28%) had family members affected with COVID-19, and 30 (8.5%) were confirmed cases of COVID-19. Among the office workers, 290 (82.8%) had the responsibilities of taking care of dependents like elderly people or children. The prevalence of the sleep disturbance among the older adults was found to be 64.8% (95% CI= 0.62-0.72)

Factors associated with sleep disturbance

Our study showed (Table:2) that office workers of age group above 35 years, male, graduates, with co-morbidities, with family burden and covid-19 positive patients in the family and anxiety and depression were significantly and independently associated with sleep disturbance. However, sleep disturbances had no significant association with marital status. Office workers between 35-45 years and above 45 years of age were 3.2 and 2.5 times more likely to have disturbed sleep compared to counterparts. Officer male workers were 2.75 times more likely to have disturbed sleep than the female workers. Graduates were 2.1 times more likely to have disturbed sleep than secondary schooling. Workers with comorbidities were 1.2 times more likely to have depression than their counterparts. Individuals with shortage of food and essential supply were 1.03 times more likely to have sleep disturbance than the others. Those who had covid-19 patient or elderly or with children were 1.4 and 1.3 times more likely to have sleep disturbance than the others. Office workers with anxiety and depression were 1.1 times higher chance of getting sleep disturbance than other workers.

Table: 1 Frequency distribution of Socio-Demographic Profile:

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency(n=350)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-35 years</td>
<td>51</td>
<td>14.5</td>
</tr>
<tr>
<td>35-45 years</td>
<td>213</td>
<td>60.8</td>
</tr>
<tr>
<td>Above 45</td>
<td>86</td>
<td>24.5</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>245</td>
<td>70</td>
</tr>
<tr>
<td>Female</td>
<td>105</td>
<td>30</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>240</td>
<td>68.5</td>
</tr>
<tr>
<td>Unmarried</td>
<td>110</td>
<td>1</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>260</td>
<td>74.2</td>
</tr>
<tr>
<td>Secondary School</td>
<td>90</td>
<td>25.7</td>
</tr>
</tbody>
</table>
Comorbidities
Yes 140 40
No 210 60

Shortage of supplies
Yes 280 80
No 70 20

Covid 19 patients in Family
Yes 98 28
No 252 72

Caring of elders or children’s
Yes 290 82.8
No 60 17.2

Sleep disturbance
(PSQI score)
Yes 225 64.2
No 125 35.8

HADS
HADS-A>7 121 34.5
HADS-D>7 135 38.5

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Sleep disturbance Present</th>
<th>Sleep disturbance Absent</th>
<th>OR</th>
<th>95% C.I</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-35 years</td>
<td>31(60.7%)</td>
<td>20 (39.3%)</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>35-45 years</td>
<td>160 (75.1%)</td>
<td>53(24.8%)</td>
<td>3.0</td>
<td>2.10-4.12</td>
<td>0.001</td>
</tr>
<tr>
<td>Above 45</td>
<td>40(71.4%)</td>
<td>16(28.8%)</td>
<td>2.5</td>
<td>1.44-4.48</td>
<td></td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>165 (67.3%)</td>
<td>80 (23.7%)</td>
<td>2.75</td>
<td>1.70-4.94</td>
<td>0.01</td>
</tr>
<tr>
<td>Female</td>
<td>45 (42.8%)</td>
<td>60 (57.2%)</td>
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<td></td>
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<tr>
<td><strong>Marital status</strong></td>
<td></td>
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</tr>
<tr>
<td>Married</td>
<td>98(40.8%)</td>
<td>142(59.2%)</td>
<td>0.87</td>
<td>1.20-3.42</td>
<td>0.01</td>
</tr>
<tr>
<td>Unmarried</td>
<td>45(50%)</td>
<td>55(50%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate</td>
<td>140(53.8%)</td>
<td>120(46.2%)</td>
<td>2.11</td>
<td>1.52-4.22</td>
<td>0.05</td>
</tr>
</tbody>
</table>
### DISCUSSION

The present study was an attempt to assess the prevalence of sleep disturbance and its associated risk factors among the office workers. In this study, the prevalence of sleep disturbance among the office workers was found to be 64.8%. Additionally, 34.5% respondents suffered from anxiety and 38.5% suffered from depression. We found that the COVID-19 pandemic with lockdown has significant impact on sleep quality and psychological health among the office workers. The impact is greater in male workers with co-morbidities, living with elders or children or covid19 positive patients, shortage of essential services. Regarding psycho-emotional aspect, 34.5% of workers showed severe anxiety symptoms, while 38.5% of them showed depressive symptoms. Similar results are reported in the literature about COVID-19 and psycho-emotional distress [13-16]. The effect of COVID-19 lockdown, with shift work may have led the workers to feel less capable of overcoming the problem, causing more anxiety and depression. These anxious feelings with fear due to the presence of co-morbidities, family burdens would increase the cortisol level and reduced melatonin synthesis. It has caused the worsening in sleep quality with increased cortisol levels and change in the biological rhythms [17, 18].

Earlier studies have reported that sedentary lifestyle has caused destructive health issues (19, 20). Lack of Physical activity and obesity are considered to be most important risk factors for the development of metabolic disorders like diabetes mellitus and hypertension (21). Our study results also show that the physical inactivity and stress due to...
home confinement among the office workers resulted in hormonal imbalances similar to earlier studies (22). It has also caused harmful effect on mental health with increased usage of digital technology to overcome the isolation. Use of smart phones among the office workers has hugely increased and most significantly desktop or laptop use among office workers increased to manage work from the home. The overexposure to screen will have a dangerous impact on health by disturbing the sleep cycle and duration of sleeping hours. The major cause is due to reduced melatonin synthesis which is required for good quality sleep. The blue light emitted by the digital phone during night will suppress the melatonin which produces sleep (23). Earlier studies have shown that blue light exposure before bedtime is related with lack of sleep and reduced sleeping hours in adults as well as children (24, 25). Our findings revealed an interesting correlation among office workers with prolonged usage of desktop/laptop with sleep duration.

CONCLUSION

The authors have concluded that the protective measure of home confinement to stop the transmission of COVID-19 infection has caused dangerous effects on our population, especially those who are corporate shift workers. The physical and psychological health is disturbed due to increased screen exposure and alteration in sleep pattern and duration. Sleep is required for proper physical health and boosting of immune system. It also helps in decreasing the symptoms associated with depression and anxiety. Our study provides scientific evidence on the effect of lockdown on general public health and recommends proper ameliorative methods.

Ethical clearance- Institutional Human ethical committee were obtained from Saveetha medical college, Chennai (SMC/IEC/2020/08/040).

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Conflict of Interest – The authors declared no conflict of interest.

REFERENCES


