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A Study on Human Behaviour during Covid-19 Pandemic among Indians

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Abstract: ***COVID-19 (SARS-CoV-2) was the reason for causing a pandemic all over the world which created many problems and challenges for all countries. Increasing number of cases in every nation led the authorities of each country to put lockdown measures all over the nation. Although the lockdown implemented was to prevent the community from the spread of infection, but it had its own effect on mental as well as physical health and lifestyle of people. We devised a survey to focus on the physiological, psychological, and behavioural changes witnessed during the lockdown and to establish a correlation between the lockdown attributing to the negative changes developed during this period such as weight gain, increase in sleeping hours and screen time. All the data was gathered through a questionnaire via Google forms which was distributed to a substantial amount of people through social networking platforms. The responses received were 421 in total, which on analysis and comparison of the pre-lockdown and post-lockdown periods, showed trends like 58.5% people had increase in BMI, 33.9% people had increased more than 7 hours of daily screen time whereas 46.5% had a reduction of working hours down to less than 6 hours.***
Keywords: COVID-19, lockdown, BMI, working hours, screen time, sleeping time

I. INTRODUCTION

Novel strain of severe acute respiratory syndrome coronavirus (SARS-cov-2) species that widely caused a pandemic disease in 2020 across the globe, known as coronavirus disease-2019 (Covid-19). It is a respiratory disease-causing virus belonging to the coronaviridae family, which has a distinguishable feature of club-shaped spike protein on its surface. To combat the rapidly escalating scenario of COVID-19 cases, the governments all over the world started imposing nation-wide lockdowns. India began by imposing a nation-wide public curfew (Janta Curfew) for 14 hours on March 22, 2020 [1]. But the 3-week long lockdown started on 24 March,2020 by the Government of India [1]. This lockdown was achieved by temporarily closing all services except essential services.[1]

Although this lockdown is primary measure of controlling this pandemic, recent research shows that there are also some negative impacts of lockdown on people's health and behaviour. This includes the following aspects of daily life which are being affected by lockdown like eating habits, sleeping pattern, mental well-being, physical activity, medical morbidities.

Eating habits includes the timing of intake, quantity, and choice of diet is under the risk of alteration during the self-isolation. People are staying in their homes therefore it is making them lean towards a more sedentary lifestyle; it has adverse effects on human health, and there is increase in the body fat of an individual [20]. During the COVID-19 lockdown a lot of stress was incurred owing to the sudden changes in lifestyle and socio-economic changes [1]. The pattern of sleep was largely affected due to lockdown which is evident in various studies such as in a study done by Gupta R. & Grover S. et al., in which sleep quality was reported getting worse after the lockdown due to shortened duration of night-time sleep that could have been the root cause of sleep deprivation [2].

Lockdown and social distancing were necessary to reduce the infection spread but people were feeling left out and lonely and can increase stress. This created stressful situation between public and stress can be the root for various mental disorders: a) Anxiety which is the primary response of our body to emotional and physical stress [3]. b) In case of depression people lose their interest in daily activities [4]. During the pandemic people tend to develop fear of the unknown problem which result in making them anxious, stressed, and depressed [5]. During the lockdown work from home routine made people spend more time sitting down. Also, all the gymnasiums and fitness centres were closed so it became harder for people to get any physical activity in their daily routine. Furthermore, reduced physical activity also disturbs sleep quality that ultimately makes people susceptible to mental and physical illness. Risk of adverse condition like obesity, cardiovascular disease, diabetes can be managed by appropriate physical activity [6].

Earlier studies on the correlation of medical comorbidities with the severity of COVID-19 infection have shown much higher risks of mortality, ICU admission, and cases of mechanical ventilation [7].

In India, the information available on deaths reported per cases (176 deaths per 206 cases) showed approximately half (50.5%) of the mortalities included patients diagnosed with pre-existing comorbidities such as diabetes (49 cases), hypertension (39 cases), respiratory diseases (24 cases) and cardio-vascular disease (CVD). While some of the cases (13%) were diagnosed with hypertension and diabetes both, a few (2.8%) cases were diagnosed with all three comorbidities, i.e., hypertension, diabetes, and respiratory diseases [8]. Taking all the recent studies and reports about comorbidities into consideration, it is evident that the risk of case severity in COVID-19 is directly related to the presence of medical comorbidities.

Taking into consideration, the lacking amount of information available regarding the impact of the COVID-19 lockdown on human health and behaviour, we devised a survey to gain an insight on the changes experienced by the people during this lockdown. Additionally, we planned to compare the available data regarding different physical and mental health attributes between the pre-lockdown and post-lockdown periods.

II. MATERIAL & METHODS

This online survey was designed using the online platform of Google Forms. It was made available in the English language only. The survey was made public on February 19, 2021 and closed on April 12, 2021. It was circulated through the social media networking websites like WhatsApp, Facebook, Instagram, and Telegram. It was also distributed through the Survey Tandem website. The survey takers who filled the survey were also asked to forward it.

However, we had to discard some of the responses provided by the participants due to unintelligible responses. For instance, some filled arbitrary information in text fields like weight, age, etc. This survey included the question inquiring about the pre-lockdown and post-lockdown status of people in areas like weight, sleeping hours, working hours, screen time, substance use and presence of any medical morbidities during the lockdown. Some basic information like age, gender, height, and marital status were also asked.

III. RESULT

The total number of responses received was 421 out of which 404 responses were taken into consideration for the study. We had to completely remove 17 responses out of which 6 were duplicate response and 11 were missing crucial information regarding major variables (age, weight, and height) of the study. Furthermore, we had to exclude several responses during the study of certain variables (weight and height) due to partial or incomplete filling such as weight in which we considered only 395 out of 404 in calculating the BMI (Body Mass Index) of the pre and post lockdown period.

The population included in this study had the average age of 22.82 (±7.07) years. 52% of the survey partakers identified themselves as males and 48% as females. According to the marital status 10.6% were married whereas the rest 89.4 were single. Out of 404 responses 38.3 % people selected their lifestyle as being sedentary whereas 61.7% had active lifestyle. Approximately half (48.2%) of the participants were non-vegetarians, 8.9% were eggetarians and 42.9% were vegetarians. Around 53.5% of the participants experienced no effect on their food intake during the lockdown whereas 37.3% experienced an increase in their food intake and 9.2% experienced a decrease in their food intake. According to the comparative analysis of physical activity (exercise) done on daily basis by the participants before and after the lockdown showed that 23.02% of participants continued exercising during the lockdown while 14.11% started exercising during the lockdown. While 8.17% of the survey participants stopped exercising and 54.70% did not exercise at all. One hundred and fourteen participants had one or more of the following medical morbidities: hypertension (47.4%), hypotension (51.8%) and diabetes (12.3%). Three hundred and fifty-one participants responded for experiencing one or more of the following symptoms: hopelessness (36.2%), loss of interest (52.4%), restlessness (31.9%), irritability (36.8%), mood-swings (57.8%), fatigue (24.2%), nervousness (19.1%) and stress (48.1%). In view of substance use during the lockdown 85.1% never smoked and 9.9% experienced no changes in their smoking habit, whereas 2.9% stopped smoking during the lockdown and 2.2% started smoking. In drinking habits 80.2% never drank alcohol and 11.8% experienced no changes in their drinking habits whereas 6.5% stopped drinking alcohol during the lockdown and 1.4% started drinking alcohol.

A shift in the working hours was seen between the pre-lockdown and post-lockdown period before the lockdown majority (46.28%) of the participants were having 6-9 hours of work but after the lockdown the majority (46.53%) was seen in the participant working for less than 6 hours. Albeit a small proportion (2.72%) of participants showed a shift toward working more than 9 hours. This comparison showed that there was a shift towards less working hours in general. (P= 0.0042). Before the lockdown, most of the participants were getting 6-9 hours of sleep (67.82%) and a few were getting either less than 6 hours of sleep (23.26%) or more than 9 hours of sleep (8.91%). And after the lockdown most of the people were still getting 6-9 hours of sleep (66.33%) and few were getting either less than 6 hours of sleep (15.84%) or more than 9 hours of sleep (17.82%), but there was noticeable change (8.91% to 17.82%) in the number of people getting more than 9 hours of sleep after the lockdown (P= 0.0001)

For the screen time usage before the lockdown most participants (60.39%) were having less than 5 hours of screen time and few were having either 5-7 hours of screen time (25.24%) or more than 7 hours screen time (14.35%) but after the lockdown the proportion of people having more than 7 hours of screen time (33.91%) usage increased significantly and as consequence the proportion of people having less than 5 hours of screen time (37.87%) usage decreased.

By doing the comparative analysis of BMI of the participants, we found a significant number of participants (58.48%) exhibited an increased BMI after the lockdown.

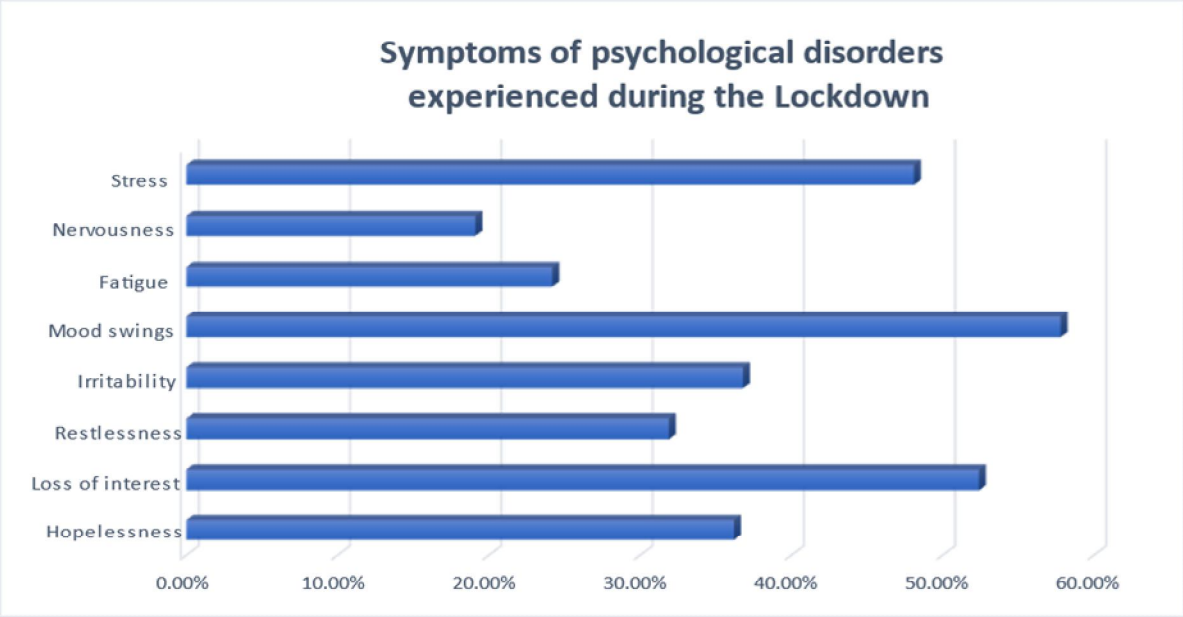

Figure 1:- Symptoms of psychological disorder experienced during the Lockdown.

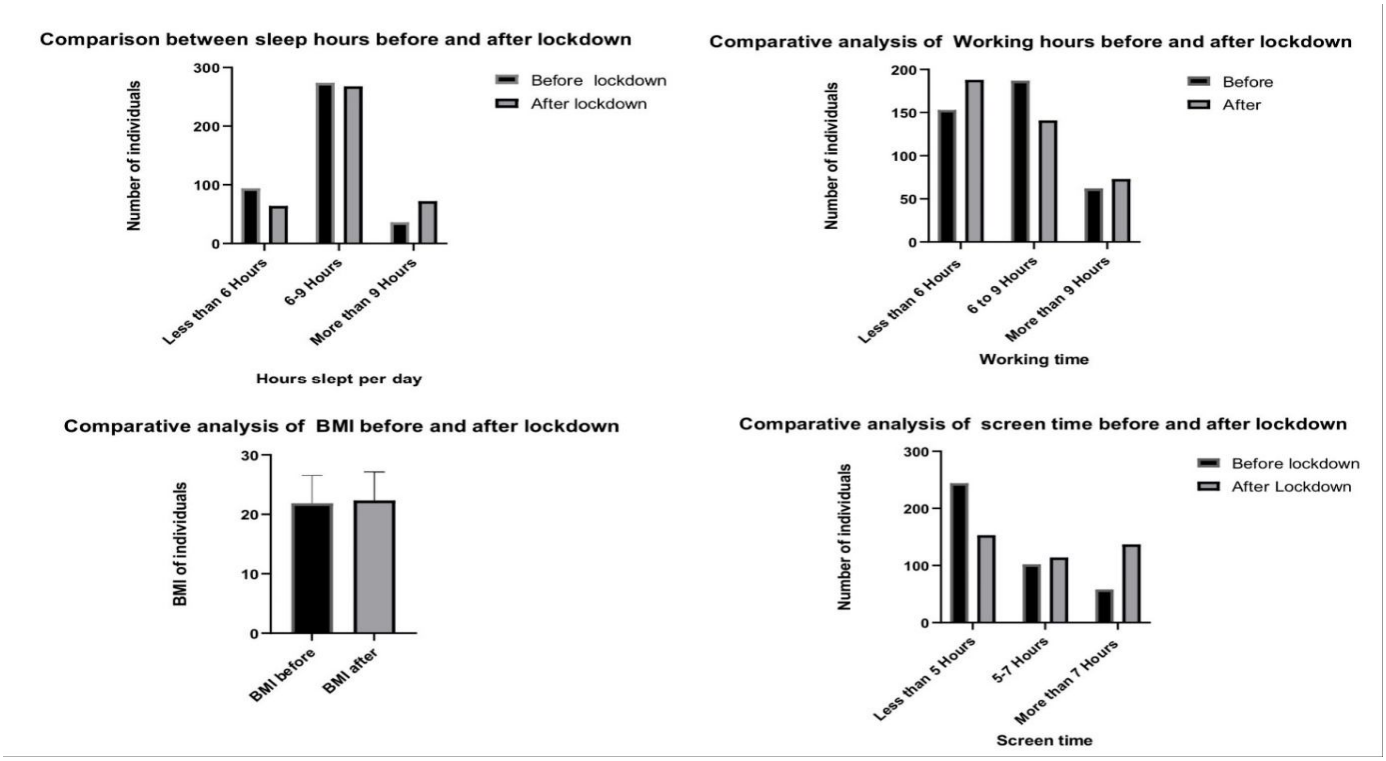

Figure 2:- (a-d) Comparative analysis of the variable Sleeping hours, BMI, Working hours & Screen time before and after the lockdown.

IV. DISCUSSION

According to the results of our study it was evident that the lockdown period had an impact on human health and behaviour. This could be seen in the various variables that were consider in this study. Like screen time usage which was seen to be increased during the lockdown. After the lockdown, the number of participants having 'more than 7 hours screen time' and '5-7 hours screen time' were increased whereas there was a decrease in the number of participants who were having 'less than 5-hour screen time'.

These findings are supported by a recent study from Germany, which reported that there is an increase in screen time in German population from 146.1 to 237.5 minutes [9]. Additionally, another study from Spain[10] and China[11] also confirmed that there is increase of 247.2 minutes in the daily total screen time of China whereas in Spain the increase in screen time for 13–16-year-old population was 198 minutes and 132 minutes for 3-5 years old kids.

This study shows that lockdown affected the screen time and excessive screen time can contribute to a rising health risks like poor sleep [12]. A recent study by Christensen MA et al., shows that longer time on screen can lead to shorter and lesser sleep [13].

On analysing our survey results, we found that the sleeping hours of the people increased after the lockdown. As is evident by the increase in the number of people getting more than 9 hours of sleep. This change in the sleeping pattern was also observed in a separate survey-based study done by Gupta, Ravi et al on "Changes in sleep pattern and sleep quality during COVID-19 lockdown." In which, they found the increase in daytime napping and quality of sleep getting deteriorated [14].

Similarly, in another survey-based study done by Blume, Schmidt et al, it was found that the median sleep duration increased by 13 minutes during the lockdown. In their study, the correlation of increase in the sleep duration was done with doing work from home during the lockdown period [15].

For the variable of working-hours, we observed that there was shift of number of working hours to extremes, before lockdown there was a greater number of people working 6-9 hours compared to those working less than 6 hours and more than 9 hours, but after lockdown we observed increase in number of people working less than 6 hours and more than 9 hours while there was a decrease in number of people working 6-9 hours. The shift is comparatively more towards lower extreme. Comparably, there is another study involving participants majorly from Europe including 54.3% of participants from Switzerland, 27.6% from Germany, 15.6% from Austria and 2.5% from other countries, around 80% of the participants from these countries reported increase in working time that was due to more flexibility in work time from staying at home [16]. In another study from Netherland, it is confirmed that there was increase in working hours by 15-21 hours per week for those who have more than 10% capability to work at home. For those who did not have capability to work at home, they observed decrease of 10 hours per week [17].

Lastly on analysing the variable of BMI change during lockdown different studies including ours saw a significant difference in the BMI of individuals before and after lockdown. In our study we calculated the BMI of 395 individuals and the results showed an increase in the BMI during the lockdown period, the data came out to be highly significant with a P value of <0.0001, while there were some individuals with a decrease or no effect in BMI, but their proportion was less. Likewise, in the study done by Srimati Devkynyar and Nanalal Bhatt on Indian population they saw a significant increase in the BMI of individual during the lockdown period [18].

V. CONCLUSION

Through this survey-based study we could interpret that there was a significant effect of lockdown on the human health regarding increase in BMI, change in eating behaviour, food intake, decrease in sleeping hours, increase in screen time, decrease in working hours and onset of several symptoms of psychological disorder including stress, mood swings, irritability, nervousness, fatigue, restlessness, loss of interest, and hopelessness during the lockdown.

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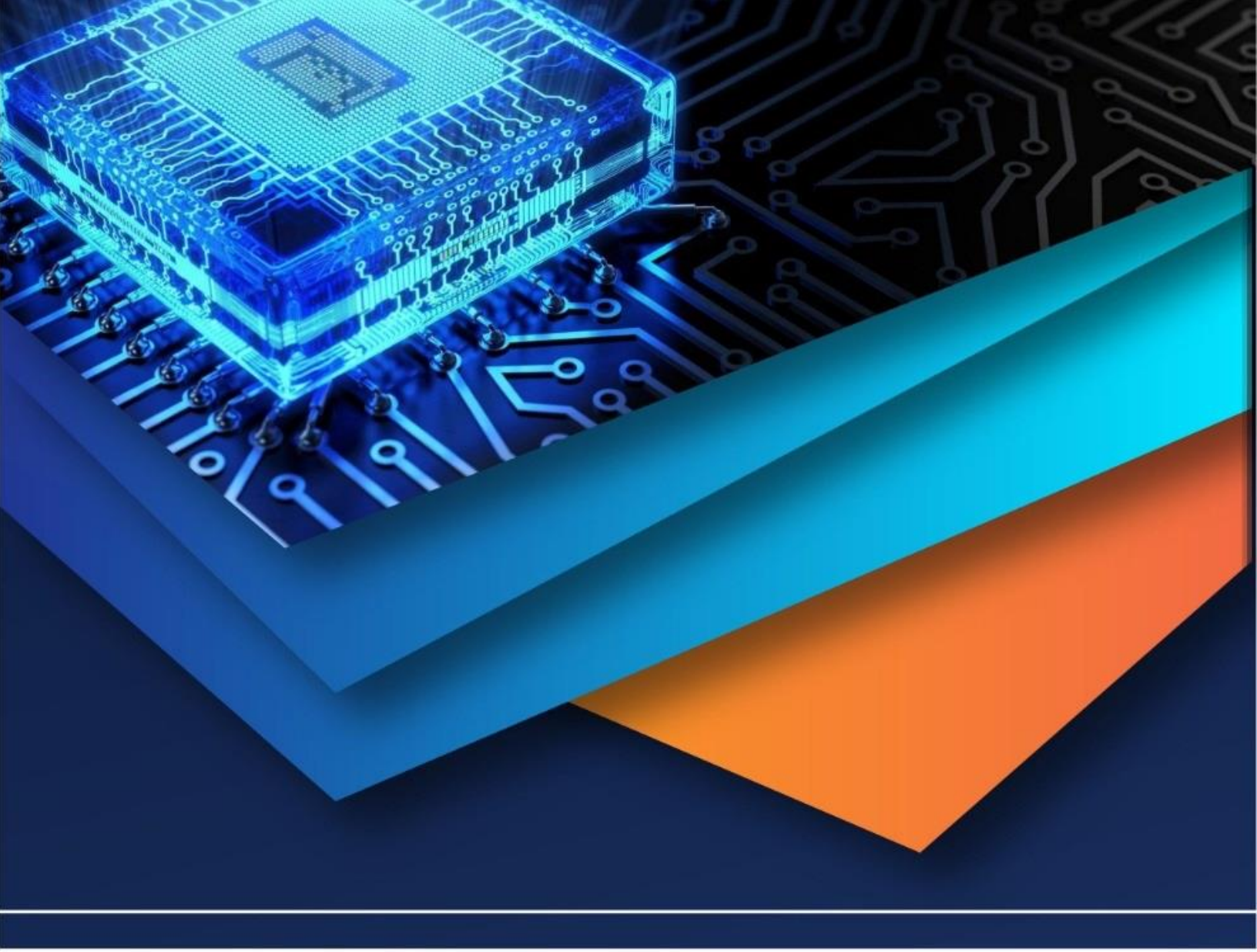

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