

## Impact of COVID-19 Lockdown on Dietary, Physical Activity and Behaviour among Female University Students

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### Abstract:

*The pandemic situation has influenced the health and lifestyle among college students especially female. This study was carried on to analyse the changes in dietary, physical activity and behaviour during COVID-19. The study was carried on among female university students (N=150) aged 18-30 years. An online questionnaire was forwarded to them through mail and questions regarding dietary habits, physical and behavioural changes were asked and elicited. The results showed that 33% of females said that the reason for weight gain is because of more rest during the day time. It was found out that the information on diet was influenced by social media (56%) and family (16%). The physical activity levels were also reduced and behavioural changes included late sleeping hours and sudden outburst of feeling (55%). Considering the current situation, post lockdown measures should be driven towards students especially females being the most affected and vulnerable during COVID-19.*

*Keywords: Behavioural changes, COVID-19, Dietary habits, Physical activity, University Female students*

### Introduction:

The pandemic situation has brought many changes in students wellbeing. The measures taken by the government has also influenced the wellbeing of the students. The COVID- 19 pandemic is a life changing global burden, students being the vulnerable group influenced eating, physical activity and behavioural lifestyle changes among the population (Browning, 2021). The uncertainty regarding academics, future, and careers, college students are highly affected by the situation (Aristovnil, 2020). The eating habits and behavioural changes can be socially, physically and psychologically affected (Leng, 2017). Nutrition being the fundamental, WHO has given recommendations on the nutrition to promote healthy eating and immunity against COVID-19 (WHO,2020).

Due to COVID-19, the whole nation was advocated for lockdown and social distancing (Yilmaz, 2020). The fear of spreading viruses, self-isolation and social deprivation has caused many psychological changes and has link with poor wellbeing (Cheng and Freely, 2014). As the pandemic situation has raised the stress levels among the people in China, it was expected the same in other COVID-19 affected countries. (Wang et al., 2020). The sudden lifestyle changes resulted in psychological stress, anxiety and depression which was seen high during lockdown (Ozamis-Etxebarria et al., 2020). The overall wellness was drastically shifted which brought changes in the physical and mental health, diet, physical activity and sleep pattern during COVID-19 (López-Bueno et al., 2020).

The paradox shift to self- quarantining was a major step towards preventing the spread of COVID-19. Even though physical activity being important, COVID-19 regulations has restricted people's daily activity by staying home. During quarantine, the level of physical activity was negatively affected (Tangy, 2020) and the level of inactivity increased tremendously (Bourdass, 2020). Home confinement has led to reduced ability to engage in physical activity. Therefore, this study was carried to assess the dietary habits, physical activity and behaviour changes occurred before and during COVID-19 lockdown among female university students.

**Material and Methods:**

The study was carried out in Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, India. Female students (N=150), who were willing to participate was included in the study between the age group of 18 to 30 years. The participants were provided with brief information regarding the study, its objectives and confidentiality initially before the study questions. Fully filled in questionnaire were only included in the study. The incomplete responses were included by telephonic interview and duplicates were removed by screening.

A pre-tested online questionnaire was created using google form to obtain the data among the participants. The web-link was mailed and sent through the Whats App and Email to the university female students during COVID-19. The questionnaire included 35 questions of which initially started with general baseline questions like age, qualification, place and anthropometric measurements like height and weight. The measurements were used to calculate Body Mass Index. The perception and reason on weight gain during lockdown was also elicited.

Dietary habits of the participants were assessed by questions like frequency of meal, following any diet, information regarding diet and consumption of foods was enquired. The physical activity pattern among the participants was assessed by information on performance, frequency, type of physical activity and the way physical activity was performed. Questions regarding their mood swings, online classes, anxious about exams and future, sleep pattern, me time was also assessed.

**Results and Discussion:**

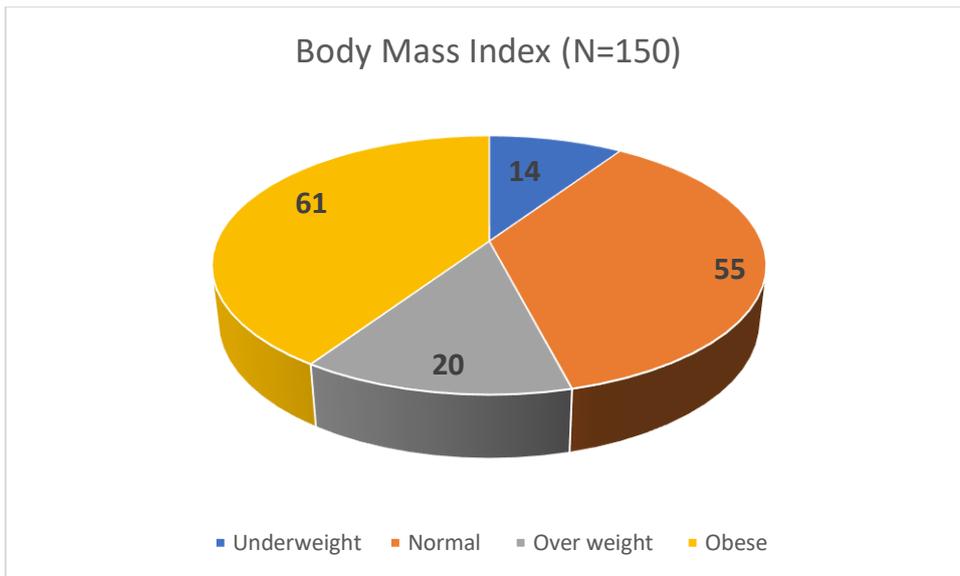
**A. General Information and Body Mass Index among the Female Students (N=150):**

The baseline information among female students shows that 54% were in the age group of 21-25 years and followed by 33% were between the age group of 15-20 years. The educational qualification of female students shows that 50% were undergraduates and 13% were pursuing higher studies like Ph.D. (Table 1). The results of body mass index showed that 61% were obese whereas 55% were normal. Underweight was also seen among female students (14%) (Fig. 1). The findings of a study carried on among UK adults resulted that adults already of higher BMI may be most at risk of increased weight gain as a result of the COVID-19 crisis (Robinson et al., 2020).

**Table 1: Baseline Information among Female Students (N=150)**

<i>Age (in Years)</i>	<i>Number (N=150)</i>	<i>Percentage (%)</i>
15 – 20	49	33
21 – 25	81	54
26 - 30	20	13
<b><i>Educational Qualification</i></b>		
UG	75	50
PG	55	37
Higher Studies	20	13

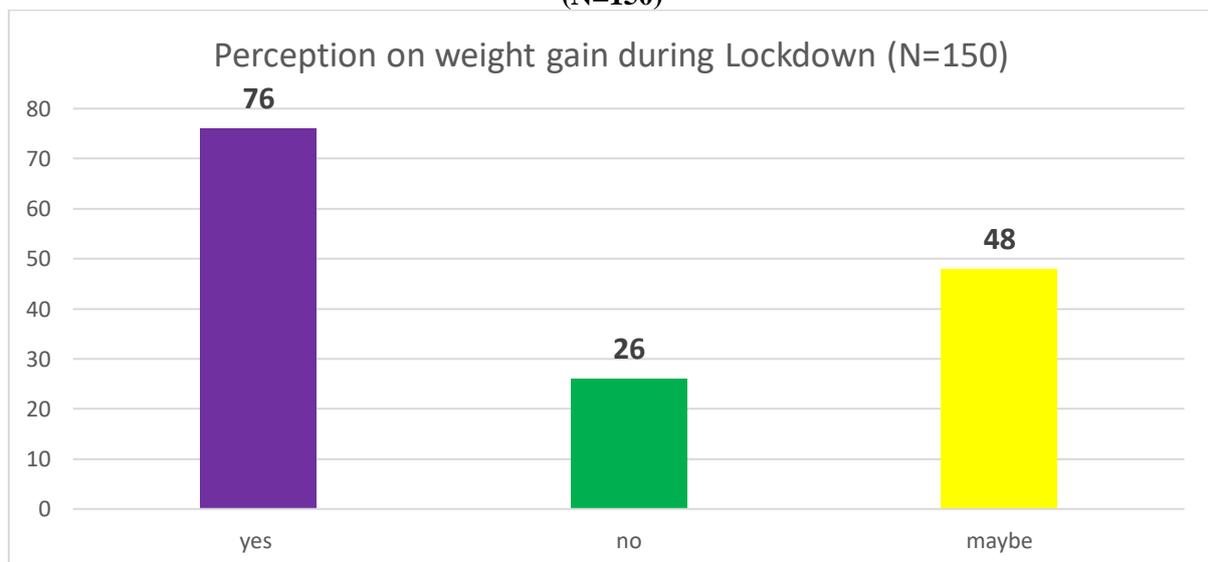
**Figure 1: BMI among Female Students**



**B. Perception and Reason on Weight Gain among the Female Students during Lockdown (N=150):**

Female students of 51% percept that the weight has been increased during lockdown and 32% had claimed that they are unaware of the weight gain (Fig.2). In a study conducted by Torre (2020) resulted that 49.8% of the individuals claimed to have gained weight during lockdown. Table 2 depicts the reason of weight gain in which 33% of females answered that the reason for weight gain is because of more rest during the day time followed by 25% of females responded high consumption of fried and high calorie foods. The reason may be due to number of meals prepared might have been increased since all the family members were at home confinement. Nevertheless, 15% of female student’s percept that the weight gain might be of high food cravings to junk foods.

**Figure 2: Perception on Weight Gain among Female Students during Lockdown (N=150)**



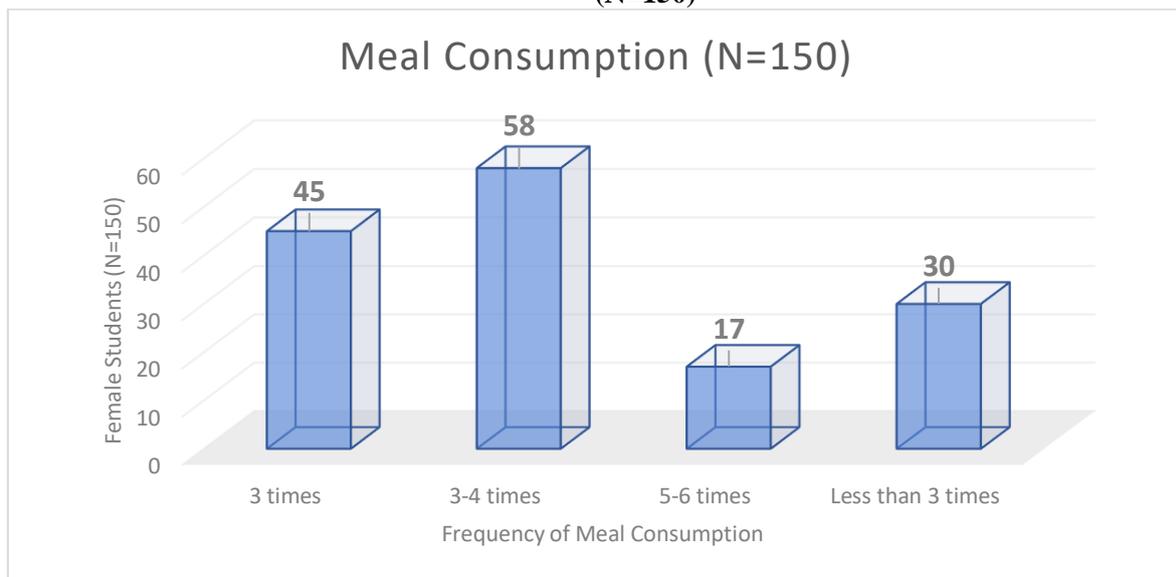
**Table 2: Reason on Weight Gain among Female Students during Lockdown (N=150)**

<i>Reason for weight Gain</i>	<i>Number (N=150)</i>	<i>Percentage (%)</i>
<i>More rest during the day time</i>	49	33
<i>Feeling to eat all the time</i>	23	15
<i>Late hours of sleeping</i>	18	12
<i>No/ less physical activity</i>	20	13
<i>High consumption of fried and high calorie foods</i>	25	17
<i>High food cravings to junk foods</i>	15	10

**C. Assessment on Dietary Habits among the Female Students (N=150):**

The results of frequency of meal consumption showed that 39% of females consumed 3-4 meals per day. Meal consumption of 5-6 meals per day was selected by 17% of female students (Fig.3). Moreover, a study showed that the percentage of participants consuming five or more meals per day increased from 2.1% to 7% during the pandemic (Ismail et al., 2020). Results also showed that the participants predominantly consumed home cooked foods including many Indian spices. The tendency to consume large amount of food was seen among 66% of females (Table 3).

**Figure 3: Frequency of Meal Consumption among Female Students during Lockdown (N=150)**

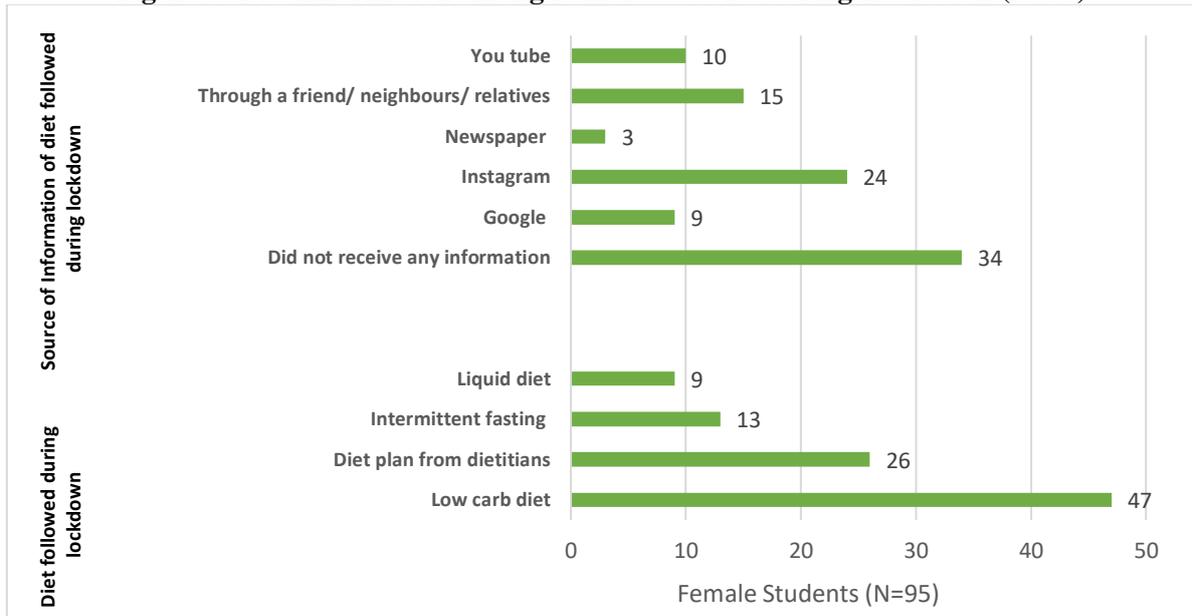


**Table 3: Tendency to Consume Large Quantities of Food among Female Students during Lockdown**

<i>Consumption of large quantities of food during lockdown</i>	<i>Number (N=150)</i>	<i>Percentage (%)</i>
<i>Yes</i>	99	66
<i>No</i>	51	34

The information regarding diet was interesting which depicted that 63% of females were following diet regime. The most followed diet among females was low carb/ calorie diet by 47 females. It was reported that 26 females were following diet charts prescribed by online dieticians/ websites. The result of source of diet information among female students revealed that majority of females (34) were dieting by themselves. Information regarding diet was received from Instagram by 24 female students (Fig 4). Social media and family had played an important role in influencing knowledge and source of diet information.

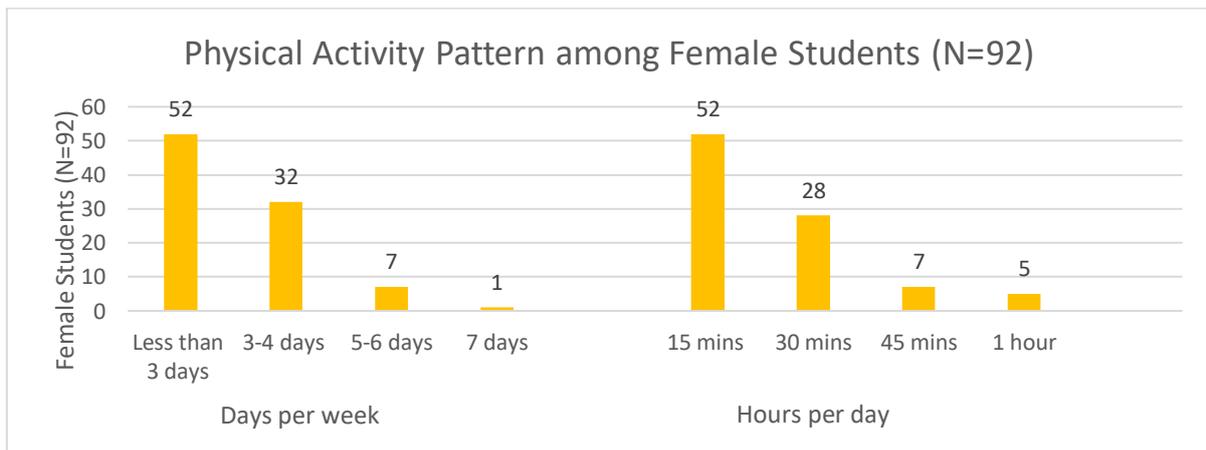
**Figure 4: Diet Information among Female Students during Lockdown (N=95)**



**D. Physical Activity (PA) Pattern among Female Students during Lockdown (N=150)**

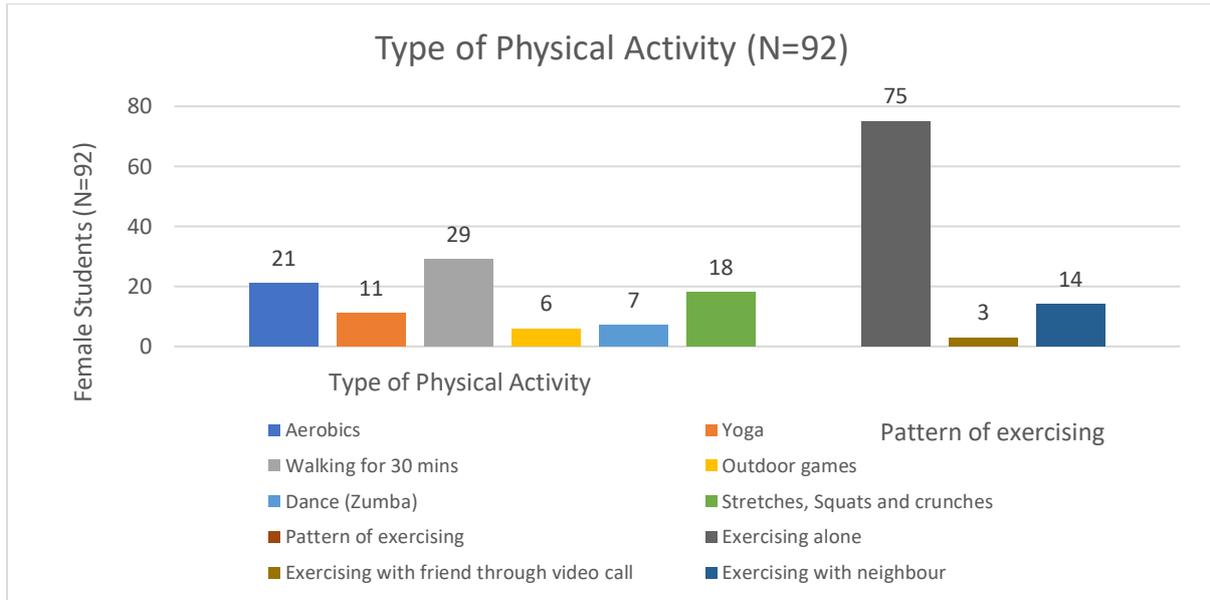
The physical activity pattern among female students resulted that 61% of females perform physical activity. Among 92 females, 52 females perform physical activity less than 3 days followed by 32 female students perform 3-4 days per week. A study concluded that there was a significant reduction in exercises and also other activities was coupled with an increase in daily screen and sitting time (Chopra et al., 2020). The time for performing physical activity was for 15 mins by 52 females whereas 28 female students perform physical activity 30 mins per day (Fig. 5).

**Figure 5: Physical Activity Pattern among Female Students during Lockdown (N=92)**



The commonly performed physical activity among female students was walking for 30 mins (29 females) followed by stretching and aerobics by 21 female students. The exercise was performed alone by 75 female students whereas 14 females reported exercising with neighbour (Fig. 6).

**Figure 6: Type of Physical Activity among Female Students during Lockdown (N=92)**



### E. Behavioural Changes among Female Students during Lockdown (N=150)

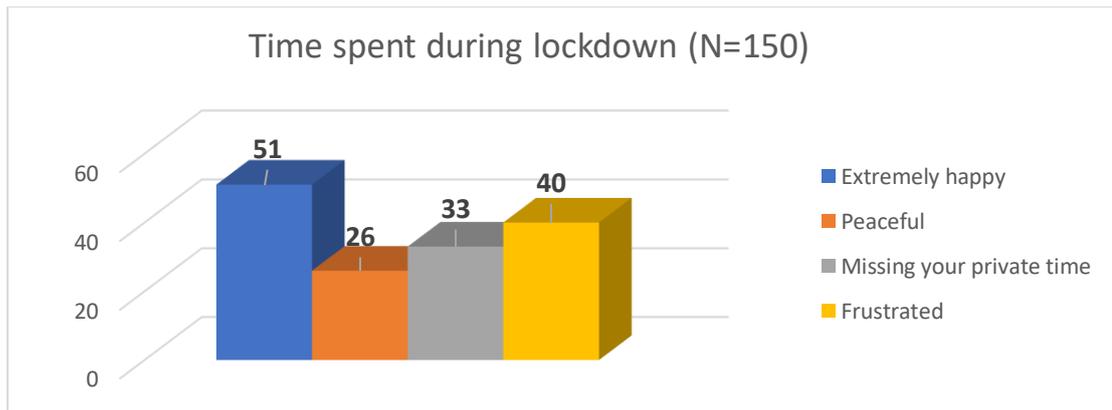
The home confinement had led the students to get anxious and 80% of female students reported that were anxious about studies/ exam during lockdown. Eighty-nine percent of female students were worried of future. The mood swings were experienced by 86% female students and 55% reported sudden outburst of feeling during lockdown (Table 4). The result of quality time spent with the family showed that 34% female students felt extremely happy where as 27% females felt frustrated during lockdown (Fig. 7). As lockdown is characterized by self-isolation, social deprivation, loss of freedom, and negative emotions such as fear, anger, and frustration are common and may lead to anxiety, boredom and uneasiness (Brooks et al., 2020; Holmes et al., 2020)

The time of sleep during lockdown resulted that 36% of females slept between 11 PM – 12 AM and 9% of females slept after 1 AM (Fig.8). In similar, results of a study carried in Italy showed that sleep habits are affected by lockdown had a strong impact on sleep quality (Franceschini et al., 2020).

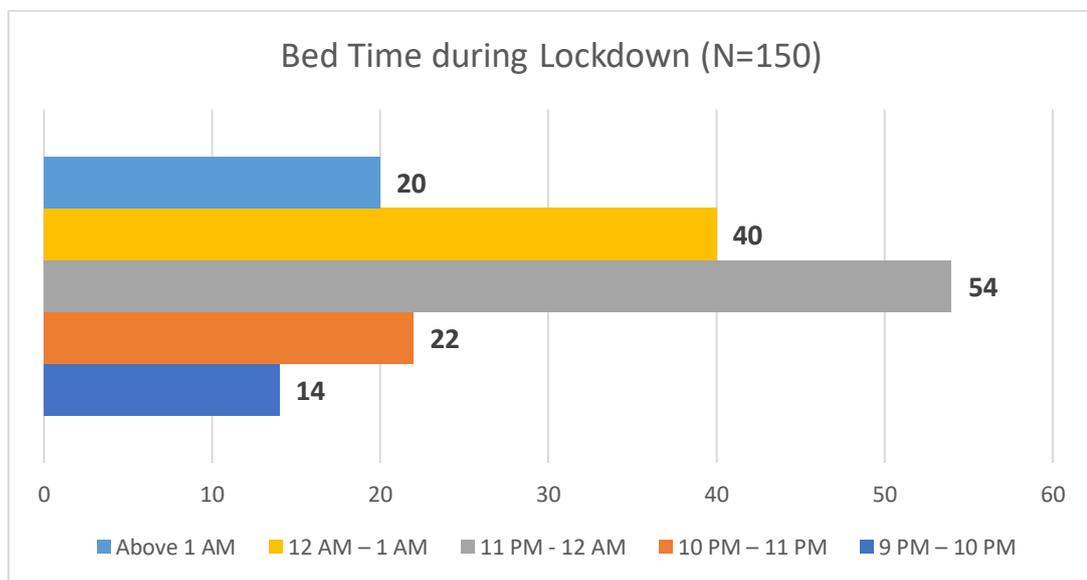
**Table 4: Behavioural changes among Female Students during Lockdown (N=150)**

<i>Anxious about studies/ exam during lockdown</i>	<i>Number (N=150)</i>	<i>Percentage (%)</i>
<i>Yes</i>	120	80
<i>No</i>	30	20
<b><i>Worried of future during lockdown</i></b>		
<i>Yes</i>	134	89
<i>No</i>	16	11
<b><i>Mood swings during lockdown</i></b>		
<i>Yes</i>	129	86
<i>No</i>	21	14
<b><i>Experience of sudden outburst of feelings during lockdown</i></b>		
<i>Yes</i>	83	55
<i>No</i>	67	45

**Figure 7: Quality of Time Spent with Family during Lockdown among Female Students (N=150)**



**Figure 8: Time of Sleep among Female Students during Lockdown (N=150)**



**Conclusion:**

This study showed the possibilities of COVID-19 has influenced the lifestyle among female students which resulted in changes in daily activities. The study showed a different perspective and perception among the female students which could be analysed among other age groups. Students especially females have to be administered carefully in future as they may be physically and mentally fragile. The post COVID-19 lockdown has to be analysed and monitored to educate on the importance of lifestyle modifications to improve immunity and prevent from lifestyle diseases. A multidisciplinary approach will help the students to overcome and deal with the current crises caused by COVID- 19 regulations. The new normal living has to be inculcated among the community for better livelihood post COVID-19.

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**Conflicts of Interest:**

Nil

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