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Impact of Covid-19 Pandemic Lockdown Onlifestyle, Appetite and Weight Status among College Students

Nandhu Prakash[1], Priyanka Reddy S[1], Yogananda R[2], Abhijit Kumar Dalal[3], Girish Gowda A[3]

Pharm. D. Interns, [2] Professor and HOD, Department of Pharmacy Practice, [3] Assistant Professor, Department of Pharmacy Practice

S.J.M College of Pharmacy, Chitradurga, Karnataka-577502, India

Corresponding Author: Girish Gowda A

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Background and Objective: The lockdown for the COVID-19 pandemic affected lifestyle patterns globally and impacted students. This study aims to assess the changes in lifestyle, weight status, physical activity, sleep and nutritional supplements used to increase immunity in students from selected colleges of SJM Institute.

Methods: A prospective observational study was conducted on a sample of 293 students from SJM Institute. It comprised 9 parts, which includes Epidemiologic, Dietary assessment, Immunity boosters, Appetite, Physical activity assessment, Stress and anxiety assessment, Sleep assessment, Screen time and Body weight status.

Results: A total of 293 participants have been included in the study, aged between 17 and 27 years (57.3% females and 42.7% males). During the lockdown period 48.9% of the participants reported an increase in body weight, 53% reported an increase in all food group consumption, 87% of total participants have used different food items to increase the immunity, 26% had an increase in appetite, 52% of the whole sample reported change in physical activity, 57.4% of the participants showed an increase in quality of sleep, and 82.6% reported an increased screen time during the lockdown period.

Conclusion: The study shows that the COVID-19 lockdown period was characterized by an increased in the use of screen-based devices, lower physical activity, uncontrolled food intake and tended to gain weight. COVID-19 marginally improved the eating behaviour, yet half of the population gained weight.

Keywords: COVID-19, lifestyle, physical activity, lockdown

I. INTRODUCTION

In late December of 2019, several local health facilities reported clusters of patients with pneumonia of unknown cause. During the first weeks of the epidemic, an association was noted between the early cases and the Wuhan Huanan Seafood Wholesale Market; cases were mainly reported in operating dealers and vendors, the World Health Organization (WHO) was informed about an outbreak of pneumonia in Wuhan, Hubei province in China.[1] The etiology was not identified.

The report of the investigation identified the source of the pneumonia clusters and described a novel corona virus which was detected in patients with pneumonia. On 1 January 2020, the market was closed for environmental sanitation and disinfection.[2]

The World Health Organization (WHO) temporarily termed the new virus 2019 novel corona virus (2019-nCoV) on 12 January 2020. They officially named the infectious disease as Coronavirus disease 2019 (COVID-19) on February 2020. The International Committee on Taxonomy of Viruses (ICTV) officially designated the virus as SARS-CoV-2 based on phylogeny, taxonomy and established practice. [3] On January 30, 2020 WHO declared that the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic is a public health emergency of international concern (PHEIC).[1]

The absence of effective drugs or vaccine at the time, led the Governments of many countries to enforce strict measures in the efforts to limit the transmission and control the spread of the disease. Such measures included self-isolation, physical distancing with full or partial lockdown, school and college closures, as well as discontinuation of most business activities.[4]

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India has been following a nationwide lockdown since 22-March-2020, which was a one-day lockdown, followed by a 21day lockdown after two days, imposing restrictions on the movement of 1.3 billion citizens of India as a preventive measure to reduce the spread of COVID-19 in India. [5]

These crucial measures of self-isolation could have negative impact on people's life on health, mental health and on lifestyle related behaviours. Changes in daily routine, fear and anxiety of COVID-19 and absence from the work environment, school or university which are linked to boredom could lead either to binge/emotional eating or to appetite loss.[6]

II. METHODOLOGY

Study design: This is a Prospective observational study.

Study duration: The study was conducted over a period of six months.

Study site: Selected SJM Institutes in Chitradurga, Karnataka.

Inclusion Criteria:

- Random health care students from Pharmacy, Dental, Medical courses from SJM Institute.
- Students who gave informed consent.

Exclusion Criteria:

- Students who were COVID-19 positive during the lockdown.
- Students following particular dietary regimen (Prescribed by Nutritionist).
- Students who dropped out from the study.

STUDY PROCEDURE:

- The study commenced after getting approval from the Institutional Ethics Committee.
- Participants are college students randomly selected, pertaining to three different courses (Pharmacy, Medical, and Dental) at selected SJM Institute in Chitradurga.
- The study was conducted to investigate changes in their lifestyle and weight status during COVID pandemic lockdown in randomly selected health care college students.
- All participants were asked to complete an online questionnaire.
- Before filling the online survey, participants provided with information and consent regarding the purpose of the study.
- **Statistical analysis:** Descriptive statistical analysis has been carried out in the present study. Data are presented as mean ± standard deviation (SD) and as frequency distribution. A chi-square test was conducted to examine the association for categorical variables

III. RESULTS

A total of 295 responses were recorded and 293 were included in the study and analyzed for epidemiologic profile, lifestyle changes and weight status. The questionnaire was designed to assess changes in lifestyle and weight status during lockdown among college students

5.1. EPIDEMIOLOGIC PROFILE

5.1.a. Age Distribution:

The participants who enrolled in the study were in the age group of 17 to 27 years.

The mean age of the study participants is 21.48 and the standard deviation is 1.66.

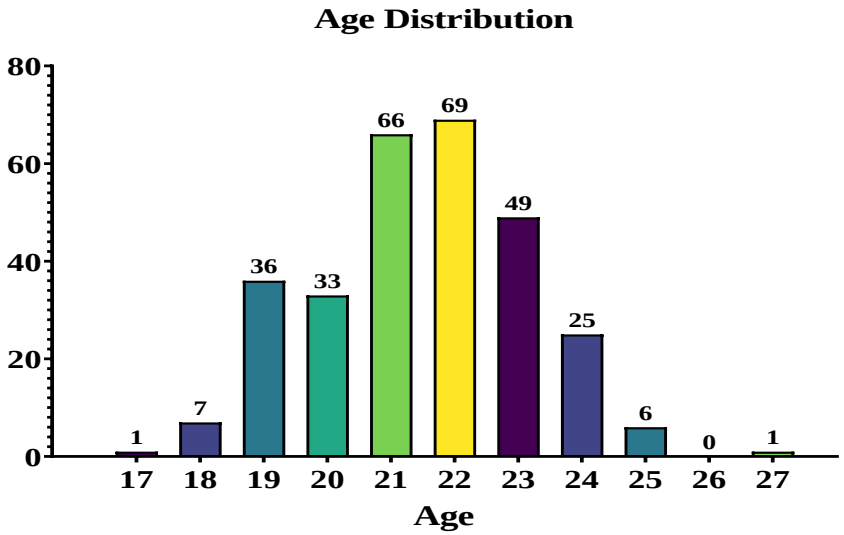

Fig No.1: Age Distribution

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5.1. b. Gender wise distribution:

Among 293 participants more than half of the participants of the study is females 168(57.3%) and male 125(42.7%).

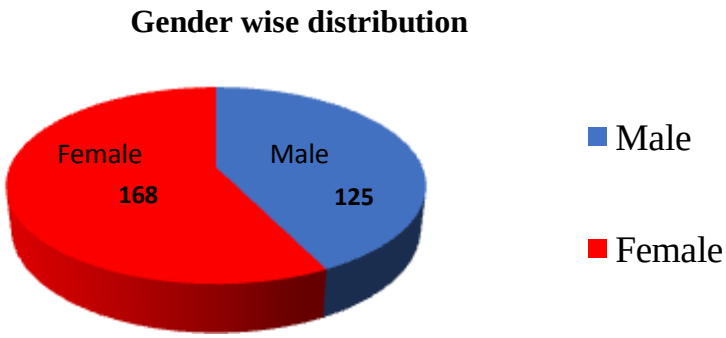

Fig No.2: Gender wise distribution

5.2 Dietary Assessment

The changes during COVID lockdown in food habits and other details such as skipping of meals, quantity of meal, taking of snacks.

5.2.aChanges in balanced diet

During lockdown there was an increase in consumption of a balanced diet, about 53.9% reported an increase intake of a balanced diet and 8.1% had decrease in consuming a balanced diet. There were no changes observed in 37.9% of participants.

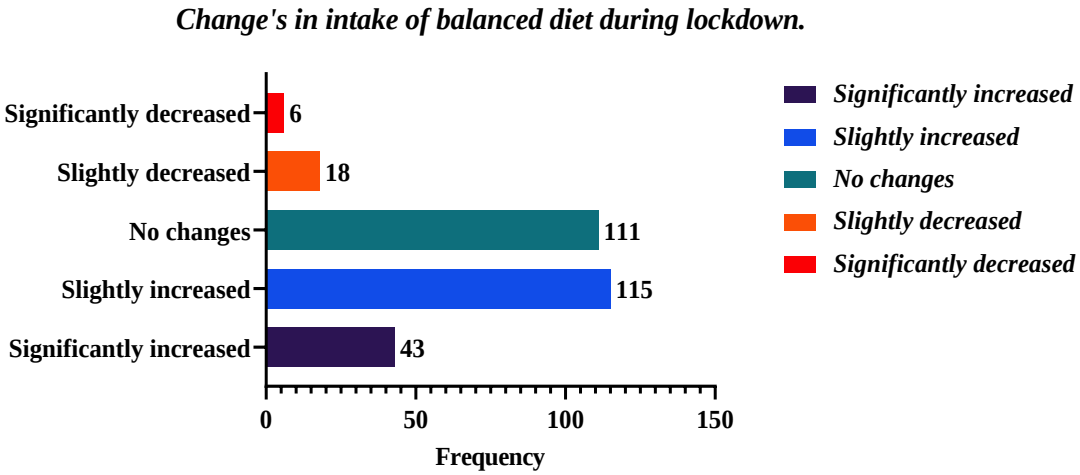

Fig No.3: Changes in intake of a balanced diet during lockdown.

5.2.b Consumption of junk foods

The consumption of junk food was significantly decreased by 25.9 % (76) and slightly decreased by 31.7% (93). Only 14 (4.8%) and 43(14.7%) showed an increase in the consumption of junk foods.

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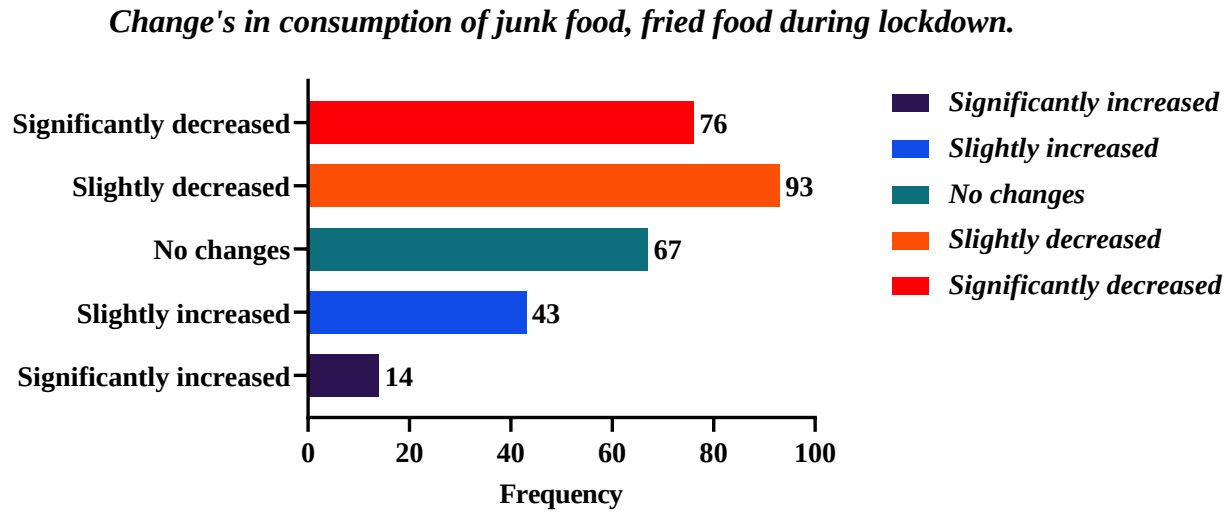

Fig No.4: Change in consumption of junk foods, fast foods, fried foods during lockdown.

5.3Immunity Boosters

5.3.aImmunity booster foods

Use of immunity boosting foods in diet was considerably increased during COVID lockdown, 87.7% of total participants have used different food items to increase the immunity. About 36.9% of the participants used to take immunity boosting food for more than one month.

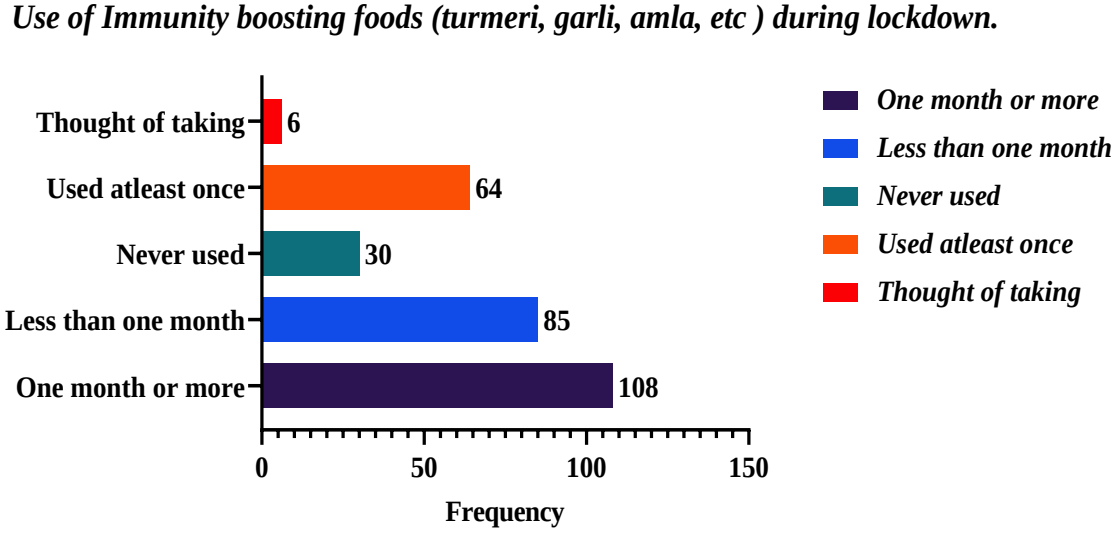

Fig No.5: Use of immunity boosting foods during lockdown.

5.3.b Immunity supplements

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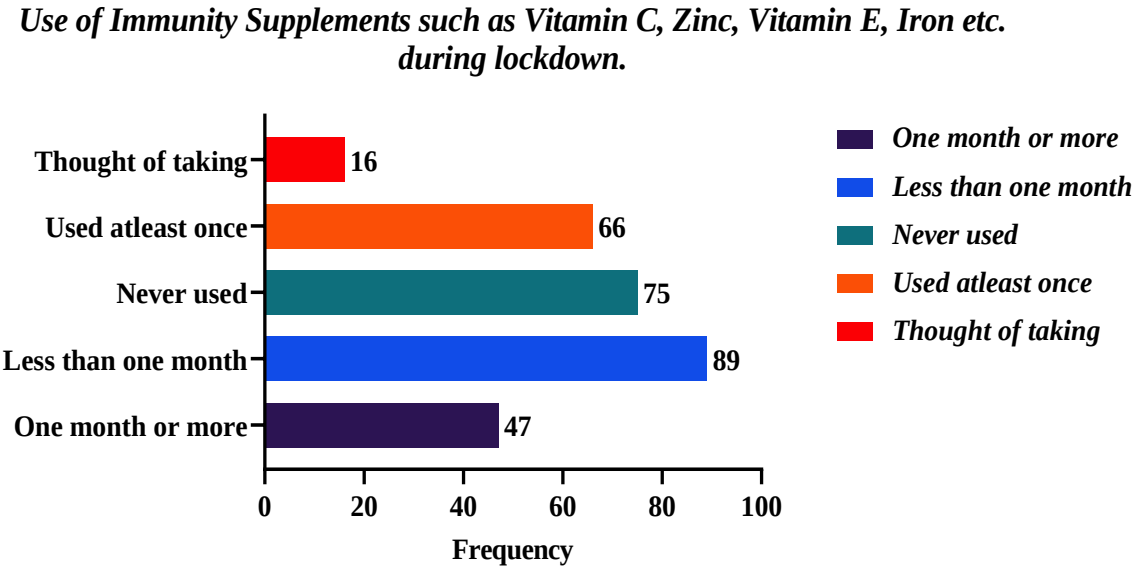

Fig No.6: Use of immunity boosting supplements during lockdown.

5.4. Appetite

About 78(26.6%) had an increase in appetite and 25(8.5%) had a decreased appetite. 190(64.8%) of participants had no changes in their appetite.

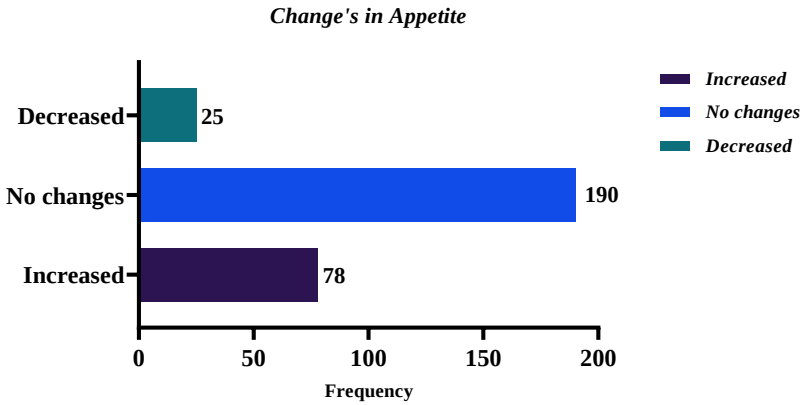

Fig No.14 Change in appetite during lockdown.

5.5. Physical Activity Assessment

During lockdown 153(52.2%) of the whole sample reported change in physical activity and 140(47.8%) did not had any change in physical activity.

5.5. a. Level of physical activity

The level of physical activity was categorized as high, moderate, inactive and same as before. 77.1% of the participants had change in physical activity in which 18(6.1%) had high physical activity, 147(50.2%) had moderate physical activity and 61(22.9%) reported as inactive during lockdown. There was no change reported in 67(22.9%) of the whole sample.

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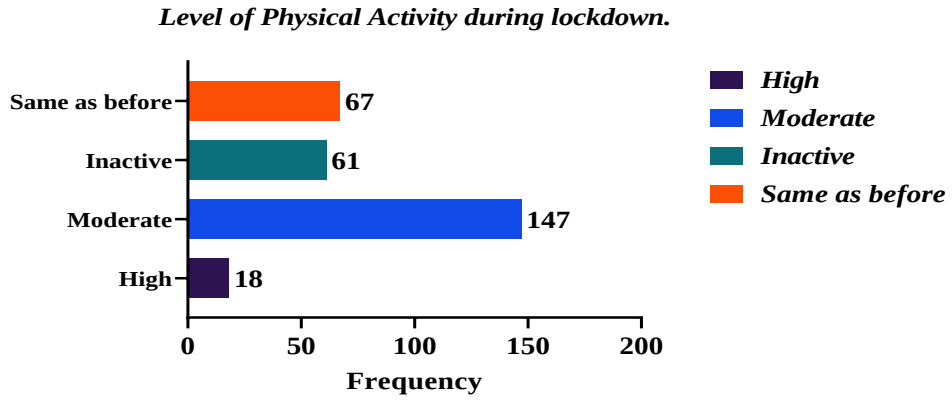

Fig no.16: Level of physical activity during lockdown.

5.7. b. Sleep duration

The results indicated a significant change in sleep duration, 190(64.8%) had an increase in sleep duration during lockdown in which 52(17.7%) had significant increase and 138(47.1%) had slight increase in sleep duration. Only a minor group showed decreased sleep duration.

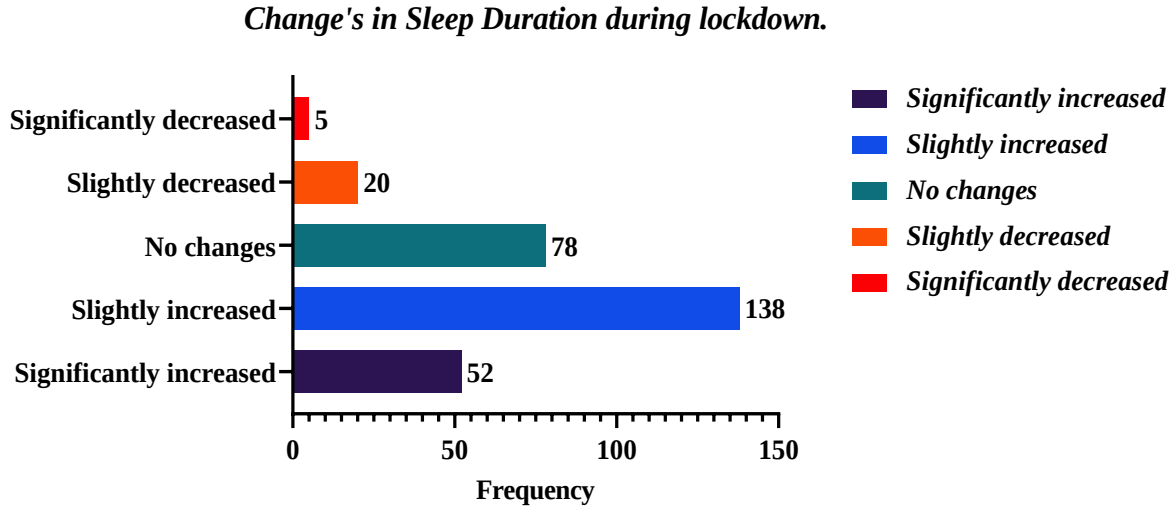

Fig No.20: Change in sleep duration during lockdown.

5.8. Screen Time

There is a significant change in screen usage time during lockdown, about 158(53.9%) and 84(28.7%) had significant and slight increase respectively. Only a small percentage of the study population showed decreased screen time which was 3.1% and 0.3%.

Majority of the students use smart phone as a most commonly used device for spending screen time, 251 (85.7%).

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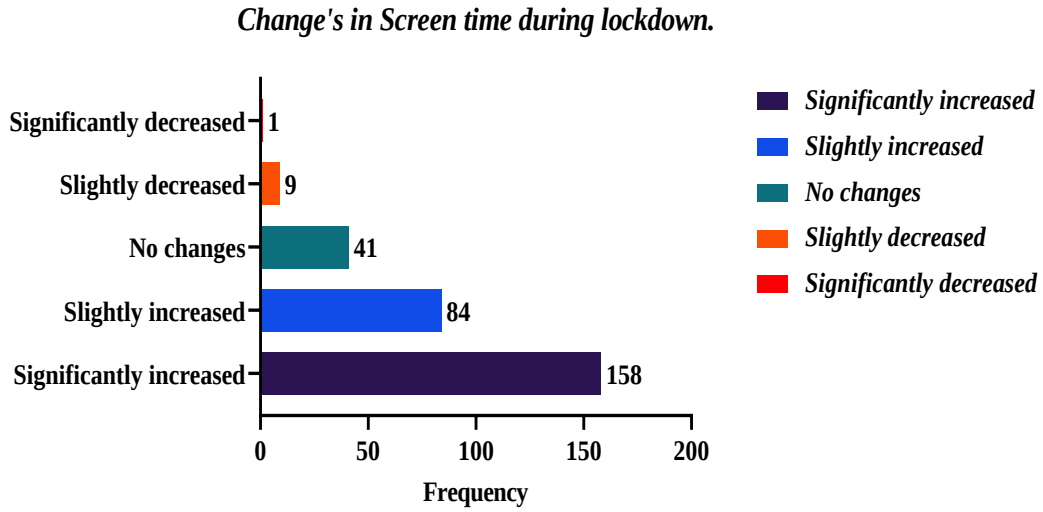
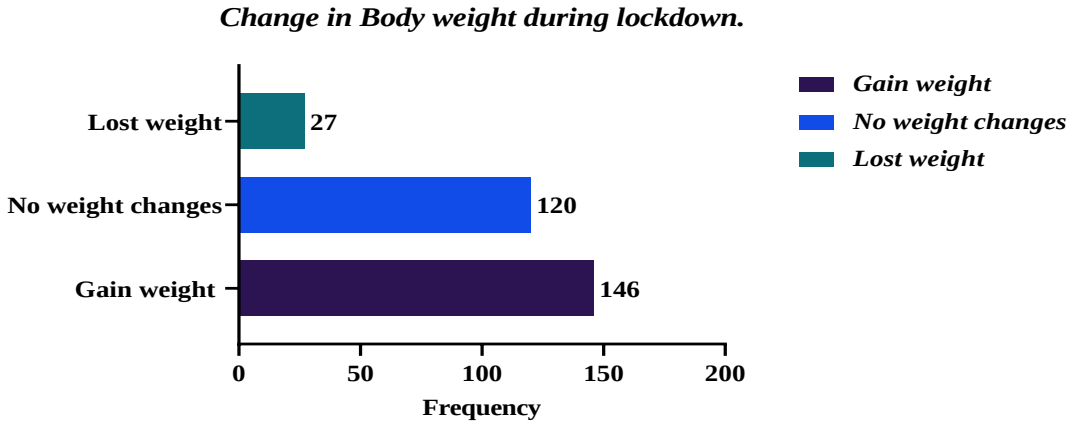


Fig No.21: Change in screen time during lockdown.

5.9. Body Weight Status

During COVID lockdown roughly 146(49.8%) had an increase in body weight, 27(9.2%) had decrease in body weight and 120(41%) had no change in body weight.



IV. DISCUSSION

Globally, the outbreak of COVID-19 has forced different countries to implement strict social distancing measures and sanitary regimens. People were under the lockdown, working remotely, home schooling children, and facing quarantine challenges related to eating habits, sleeping time, physical inactivity, and stress. Also, COVID-19 quarantine led to failure to comply with positive eating habits, enhancing negative obesogenic eating habits.

In this study, we sought to assess the impact of COVID-19 pandemic lockdown on nutrition, appetite and weight status among college students. Our findings revealed a significant variation of eating patterns and lifestyle factors that were affected by the quarantine.

Epidemiological profile

In the present study a total of 293 responses were recorded, in which 125 (42.7%) were male and 168 (57.3%) were female. The results closely match with the findings in other literatures [7, 8] shows a relatively higher percentage of females than males.

The mean age of the study population was 21.48±1.6 years, which closely resembles a study conducted by Jia P et al.[9]

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Dietary assessment

This research found skipping meals was common among participants, about 11.3% and 8.2% increase was observed, 53.9% had increased intake of balanced diet, increased consumption of fruits and vegetables in 57.3%, increase in snacking about 47.1%, decrease in consumption of junk foods 57.6%, decrease in sweetened beverages 48.5%. These results were in line with other studies [10, 11, 12].

Appetite

A slight increase in appetite was observed among the participants, 78 (26.6%) and more than half of the population did not have any change in appetite.

Immunity booster use

Adequate supply of immunity boosting substance such as zinc, vitamin C, vitamin D are essential for resistance to viral infections, immune functions and reduced inflammation. The study shows an increased trend in using immunity boosting supplements and food. A study conducted by Alehagen U et al,[13] shows use of supplements to increase anti-viral resistance against COVID-19.

Body weight status

During the COVID-19 pandemic, staying at home was recommended as the basic way to limit human exposure to the spread of the virus. Changes of lifestyle behaviors may lead to an increase of energy intake or energy expenditure, a condition which results in body weight gain when lasting for long periods of time. The main findings of the present study showed that during the lockdown period participants: (1) increased the consumption of certain foods, such as fruits and vegetables, snacks, (2) increase in screen time, (3) increase in sleep duration, (4) decreased physical activity, and due to these reasons 146 (49.8%) had an increase in body weight. Similarly, AndroutsosO et al.[14] result shows body weight increase in 35% of children/adolescents.

Physical activity

Being confined at home imposed a structural barrier in maintaining a physically active lifestyle. Results of our study testify a significant increase of time spent in sedentary activities and consistent decrease in physical activity during home-confinement. Our results showed that during home-confinement 6.1% were highly active, 50.2% were moderately active and 20.8% of the participants were inactive when compared to before lockdown, which is quite similar to the study conducted by Galle et al.[15]

Stress and Anxiety Assessment

The findings from the online survey confirmed that the lockdown had a negative impact on stress and anxiety, as it was initially expected. We also found 99 (37.2%) participants showed an increase in stress and anxiety levels. While the combination of anxiety and stress triggered by the COVID-19 pandemic could be responsible for the observed reduction on sleep quality. Self-perceived well-being could have been negatively affected by both factors.[16]

Sleep Assessment

The lockdown in response to COVID-19 may have resulted in lifestyle changes that affected Sleep quality. Quality of sleep was largely preserved and only 13.6% experienced sleep disturbance. Our study results point out an increase in sleep duration with significant increase of 17.7% and slight increase of 47.1%.

Screen Time

When the COVID-19 pandemic spread and government enforced schools and colleges closure as a part of containment strategy, digital technology and virtual learning played a vital role in ensuring some degree of class continuity. The results show a significant increase 158 (53.9%) and slight increase of 84 (28.7%) in screen time usage.

V. CONCLUSION

COVID-19 has led the world to its knees. Meanwhile, the entire world is struggling to discontinue the chain reaction of COVID-19, and also to optimize its growing burden, it is imperative to keep balance in our lifestyle and behaviour. In conclusion, this study provides insights into human behaviour's during the 2020 COVID-19 pandemic. Specially, our study showed profound effects of COVID-19 on (1) Diet, (2) Immunity boosters, (3) Appetite, (4) Physical activity (5) Stress and anxiety (6) Sleep (7) Screen time, (8) Body weight status. In this study, we have provided the data on the student's lifestyle from several colleges of SJM Institute during COVID-19 lockdown.

- The main findings of the present study showed that during the lockdown period participants: (1) increased the consumption of certain foods, such as fruits and vegetables, snacks, (2) increase in screen time, (3) increase in sleep duration, (4) decreased physical activity, and due to these reasons 146 (49.8%) had an increase in body weight.
- The perception of weight gain was observed in 49.8% of the population. Findings from this

study indicate that a lockdown period due to COVID-19 had a negative impact on the physical activity levels and sleep quality on a group of students.

- Quality of sleep was largely preserved and only 13.6% experienced sleep disturbance.

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