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## “Impact of Stress, Diet & Physical Activity on Menstrual Cycle during Pandemic Period”

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### ABSTRACT:

The COVID-19 pandemic has a huge impact on the population with consequences on lifestyles. The aim of the study was to analyse the Impact of Stress, Diet & Physical Activity on Menstrual Cycle during Pandemic Period. A survey was conducted online and offline mode during. Selected population was female young college students with the age range of 18- 26 years, compare them with their usual diet and emotional mood and identify variables that may have influenced changes. Data was collected among 187 adults from Palakkad (selected districts in Kerala) and Coimbatore district in Tamilnadu. The results show that COVID-19 confinement did influence their dietary habits and emotional level and menstrual pattern.

**Keywords:** Covid 19,menstrual cycle, physical activity, stress.

### INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic has introduced acute and chronic psychosocial stressors for several individuals, with emerging gender differences that suggest women could also be at greater risk for poorer psychological state outcomes. this might have unintended consequences for women’s overall health and well-being, including disruptions to reproductive function as elevated stress is commonly related to oscillation irregularities. the target of this study was to work out if and the way the Covid-19 pandemic and its related stressors have impacted women’s menstrual cyclicity.

Over 50% of the population will experience menstruation, and menstrual disorders are extremely common. Problematic menstruation may cause anemia, incorporates an enormous negative impact on quality of life, and can be an unlimited socioeconomic burden for girls, their families, health services, and society. Standardized parameters for typical menstruation are defined by the International Federation of Gynecology and Obstetrics (FIGO) regarding menstrual frequency, duration, regularity, and volume, and deviation from these may constitute abnormal uterine bleeding. Features of the cycle are increasingly being recognized as 'vital signs'—acting as both indicators and possible determinants of broader health and well-being. as an example, irregular and long menstrual cycles are related to a greater risk of premature mortality, and

infrequent or absent menstruation is commonly an indicator of reduced fertility, which itself is alleged to be many chronic conditions.

Sedentary behaviors, anxiety, and tension caused by home confinement could influence motivation to eat, change lifestyle patterns, reduce diet quality, and promote overconsumption, although calorie intake should be limited with reduced physical activity during isolation. Stress plays an important role in causing irregular menstrual periods. When the extent of stress is high, there is a chance that the cycle is irregular. Current life is full of stressful situations which may negatively affect the mood of a girl and her health. Menstrual irregularities are an indication of women's health problems. Menstrual irregularity increases the prospect of chronic diseases including type 2 diabetes, disorder, migraine headache, carcinoma, and ovarian cancer. Stress affects the quantity of cortisol produced by our bodies. Cortisol is additionally called a stress hormone and it's one in all the foremost regulators of our entire hormonal axis. So, if we are stressed, more cortisol is being produced which successively suppresses our normal reproductive hormones," the very fact that the Covid-19 lockdown has disrupted our daily routine and a few women are reporting irregular cycles. Stress is more full of the oscillation pattern and other difficulties like sleeping and eating pattern changes and standing issues.

## AIM AND OBJECTIVES

The study aims to analyze:

- Comparative study between menstrual cycle & stress during lockdown
- Analysis of physical activity during & before lockdown.
- Menstrual cycle symptoms & characteristics before & during the covid 19 pandemic.
- The effect of the pandemic period on the menstruation process.
- Analysis of food habits & lifestyle.

## METHODOLOGY

The present study entitled "Impact of Stress, Diet & Physical Activity on Menstrual Cycle during Pandemic Period" was conducted with the aim to find the effects that the COVID-19 pandemic has had on the menstrual cycle and any contributing factors to these changes. The experimental procedure followed for the present study is given below:

## SELECTION OF TOPIC

The menstrual cycle is complex and controlled by many different glands and the hormones that these glands produce. The four phases of the menstrual cycle are menstruation, the follicular phase, ovulation and the luteal phase. Common menstrual problems include heavy or painful periods and premenstrual syndrome (PMS).

COVID-19 infection and illness could impact hypothalamic-pituitary-ovarian-endometrial function. It is proposed that ACE2 receptors are present on ovarian and endometrial tissue, hence COVID-19 may exert a direct impact on the female reproductive system. The reproductive hormone progesterone has been described as a predominantly anti-inflammatory hormone. Progesterone levels fall dramatically prior to menstruation and there is an influx of inflammatory cells to the local endometrial environment, culminating in shedding of the functional endometrium at menstruation and a heightened inflammatory state. The corona virus 2019 (COVID-19) pandemic has caused significant changes to homes, working life and stress. The purpose of this research is to investigate the effects that the COVID-19 pandemic has had on the menstrual cycle and any contributing factors to these changes.

Based on these the present study is relevant with the objective of effects on menstrual cycle in the pandemic situation and comparison of menstrual process during & before lockdown.

### SELECTION OF AREA

The area selected for the study was college students in Coimbatore & Kerala district. The age category was between 18-25.

### SELECTION OF SAMPLES

Simple random sampling method was used for the collection of samples in this study. Total 187 samples were collected among the age group of 19-25 years and were selected by using a random sampling method.

### SELECTION OF SUBJECTS

The subjects were selected by random sampling method. In this method of sampling the subjects are selected randomly from the chosen population. A total of 188 interviewees were included in the data analysis. The age limit was from 19-25years.

### SELECTION OF TOOLS

The main source of information is primary data. It has been collected through a questionnaire. Various questions related to the objectives of the study are given to students to get relevant information. The tools used for data analysis is Excel and SPSS

### DATA COLLECTION

Data was collected by a structured questionnaire and circulated through online & offline mode among 187 college students. The questionnaire includes Personal details, menstrual pattern (before & during lockdown), Medical history of respondent & family, dietary pattern, Physical activity (before & during lockdown) etc.

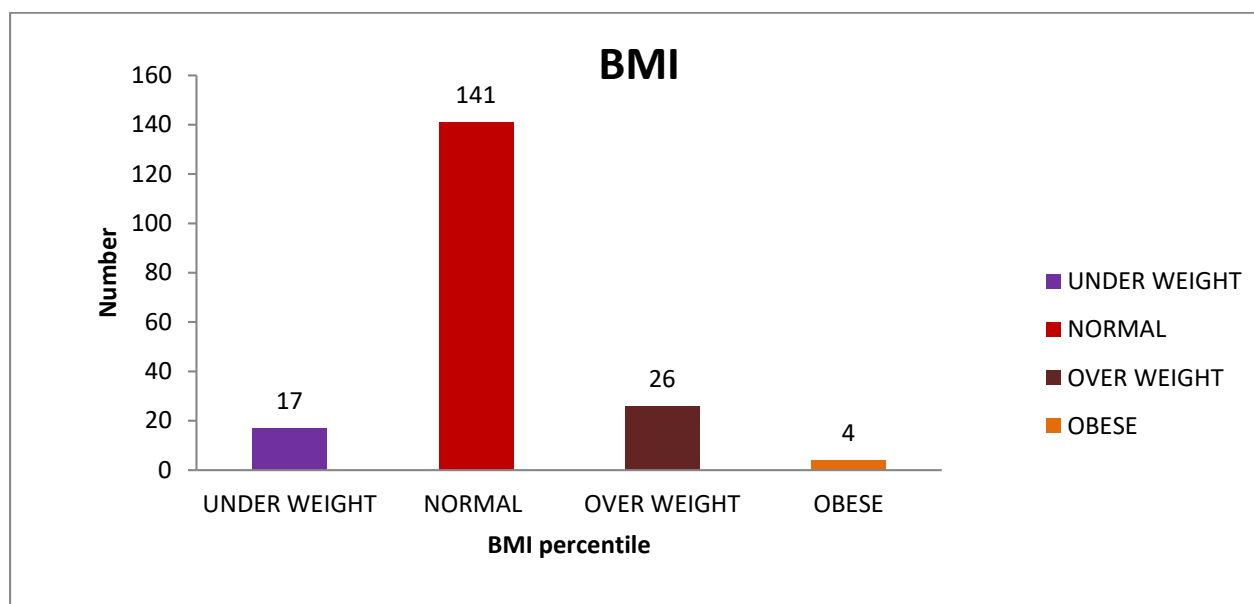
## RESULT AND DISCUSSION

BMI

**TABLE-1**

	Frequency	Percentage
NORMAL	141	75%
OBESE	4	2.12%
OVER WEIGHT	26	13.82%
UNDER WEIGHT	17	9.04%

**FIGURE- 1**



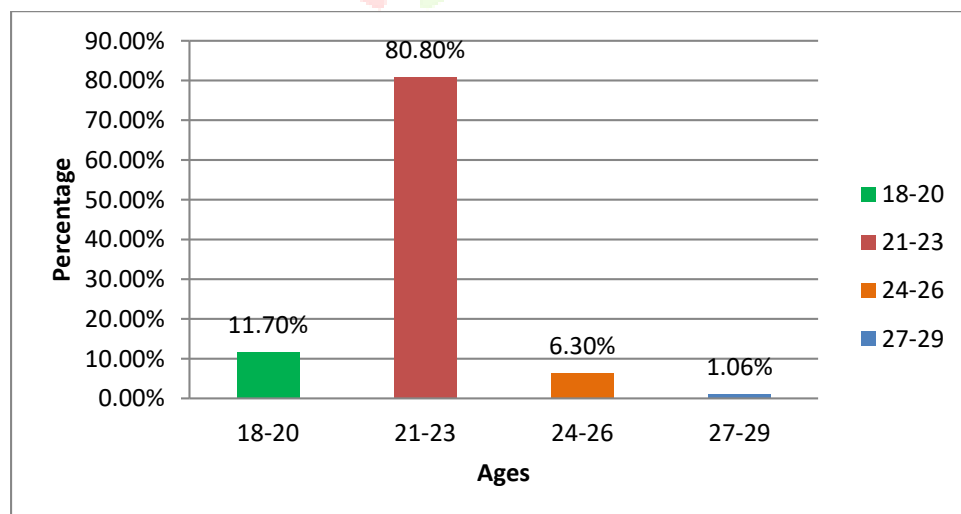
The table 1 & figure 1 depicts the BMI of the selected college students. Among them 141(75%) are having normal BMI, 26 (13.82%) are overweight and 17(9.04%) are under weight. Few of them are obese (2.12%).

**AGE**

**TABLE-2**

Age Group	Frequency	Percentage
18-20	22	11.70%
21-23	155	80.80%
24-26	12	6.30%
27-29	2	1.06%

**FIGURE-2**



In the above table – 2 & figure -2 shows the age category of college students . The students with 21-23 years of age are the most included category. The least included age category is 27 years to 28 years.

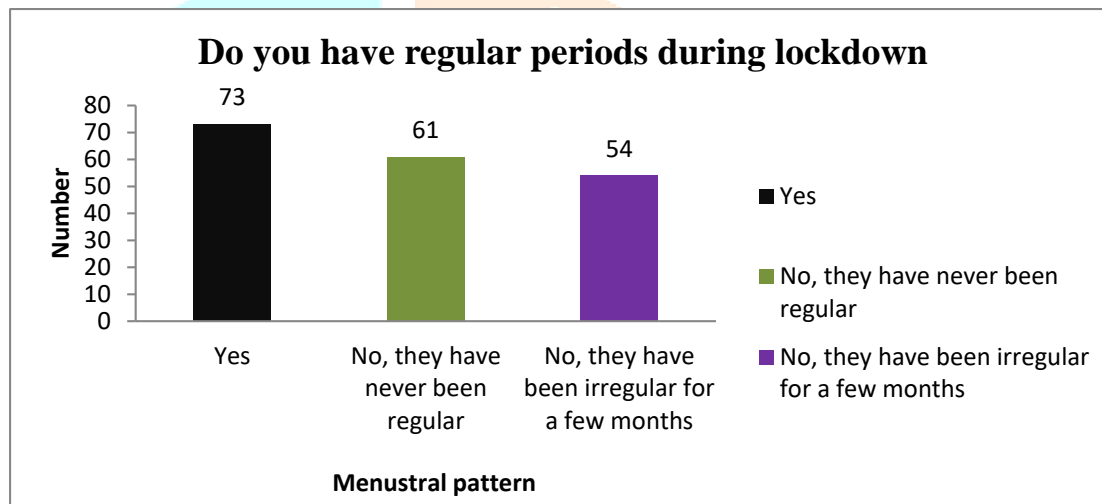
## Menstrual pattern

TABLE- 3

**Do you have regular periods? [During lockdown]**

	Frequency	Percent	Valid Percent	Cumulative Percent
No, they have been irregular for a few months	54	28.7	28.7	28.7
No, they have never been regular	61	32.4	32.4	61.2
yes	73	38.8	38.8	100.0
Total	188	100.0	100.0	

FIGURE-3



The above table -3 & figure-3 shows the regularity of periods of the students during lockdown. 38.8% of the students have regular periods. 32.4% of them have never been regular periods and 28.7% has irregular periods for a few months.

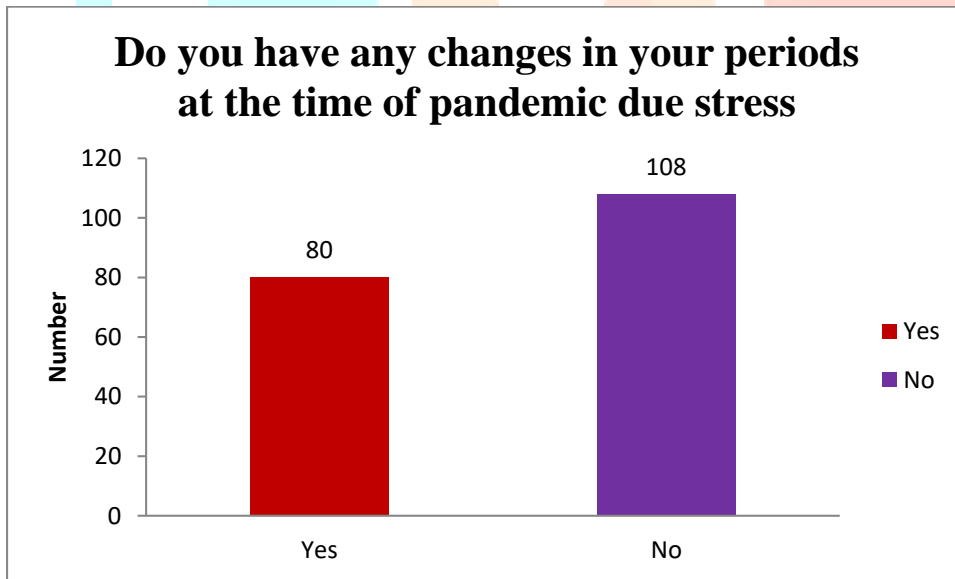
STRESS

TABLE-4

Do you have any changes in your periods at the time of pandemic due stress?

	Frequency	Percent	Valid Percent	Cumulative Percent
No	108	56.5	56.5	58.1
Yes	80	41.9	41.9	100.0
Total	188	188	100.0	

FIGURE-4



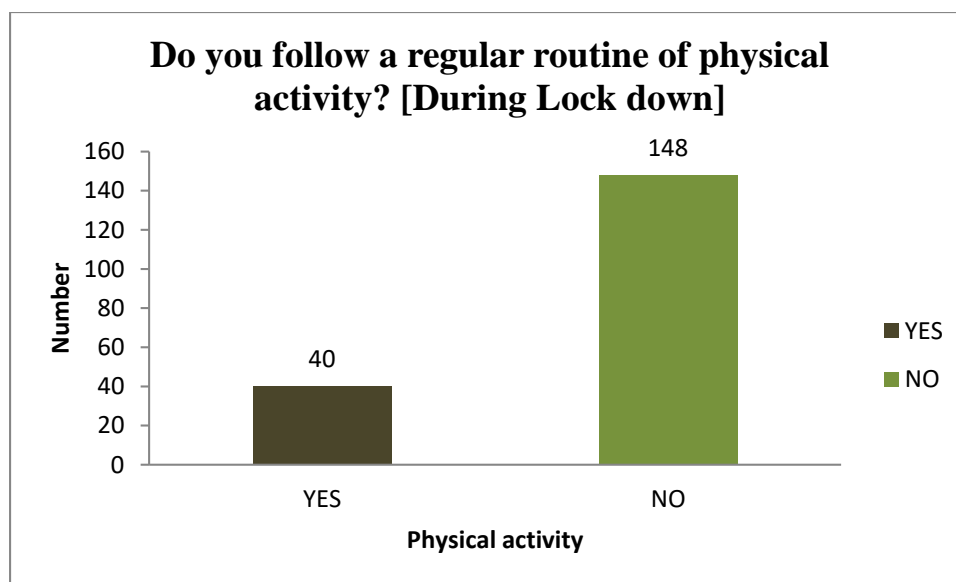
The figure-4 depicts the relation between stress & menstrual cycle. Most of the students do not have any changes in their periods during the pandemic due to stress (56.5%). And on the other hand 41.9% of the students have changes in their periods during pandemic due to stress.

TABLE-5

**Do you follow a regular routine of physical activity  
[During Lockdown]**

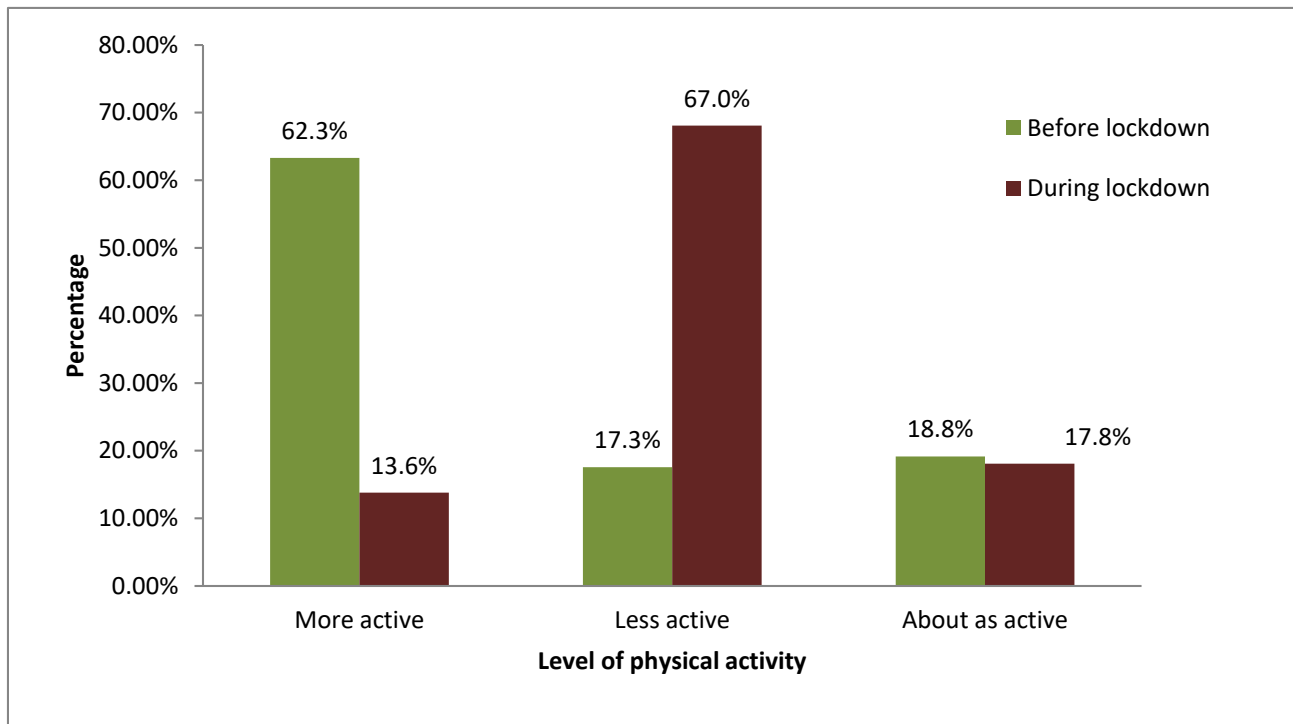
	Frequency	Percent	Valid Percent	Cumulative Percent
No	148	77.5	77.5	79.1
Yes	40	20.9	20.9	100.0
Total	188			

FIGURE-5



The graph shows the relation of physical activity during lockdown. Majority of the students do not follow physical activity in their routine during lockdown (77.5%). Some others on the other hand follow physical activities during lockdown (20.9%).

FIGURE-6



#### Before lockdown

The above the graph(fig- 6)depicts the level of physical activity before lockdown. It s classified into3categories ie; active, less active, & more active. students are physically more active before lockdown (62%) & only less students are physically less active before lockdown(17.3%).

#### During lockdown

In the above graph(fig-6) the level of physical activity of students are less active during lockdown (67%) & only few number of students are more active(13.6%).

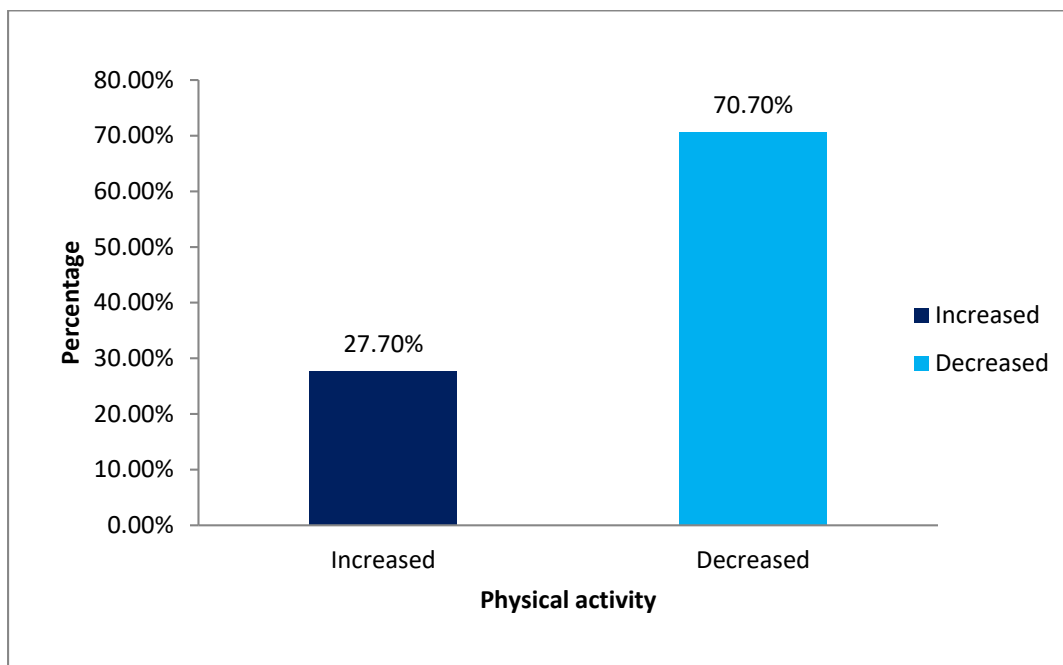


**TABLE-7**

**Have you increased or decreased your physical activity during lock down**

	Frequency	Percent	Valid Percent	Cumulative Percent
Decreased	3	1.6	1.6	1.6
Increased	135	70.7	70.7	72.3
Total	53	27.7	27.7	100.0
	191	100.0	100.0	

**FIGURE-7**



The above graph(fig-7) depicts the level of physical activity of students during lockdown. It shows whether physical activity has increased or decreased. The physical activity has decreased rapidly during lockdown at 70.70% and only 27.70% has increased

TABLE-8

Are you on dieting

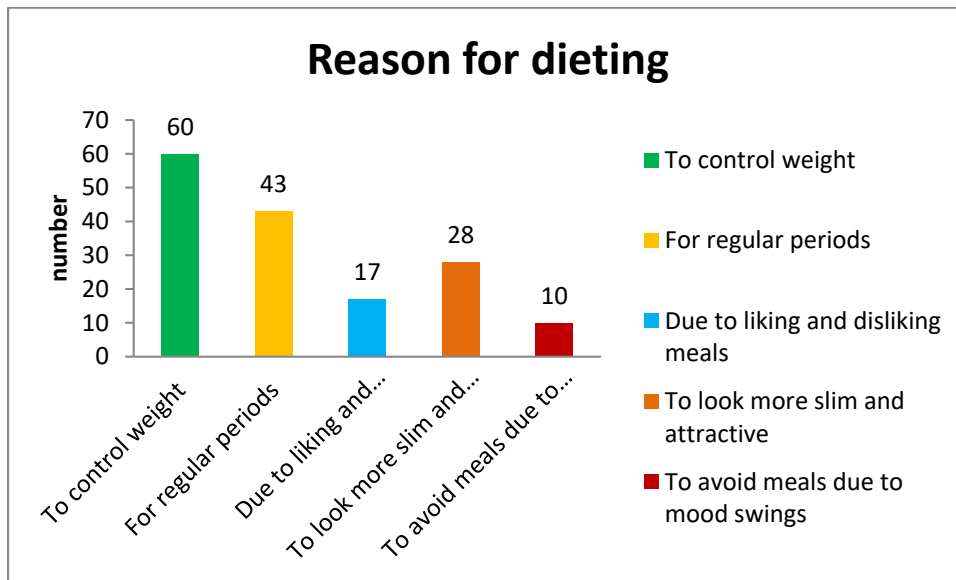
	Frequency	Percent	Valid Percent	Cumulative Percent
No	3	1.6	1.6	1.6
Yes	101	52.9	52.9	54.5
Total	87	45.5	45.5	100.0
Total	191	100.0	100.0	

FIGURE-8



This graph shows the pattern of diet followed by college students. The study shows that about 52.9% of students is on diet & 45.5% is not on diet.

FIGURE-9



The above graph (fig-9) shows that there are various reasons for dieting. At present scenario people are dieting for various reasons. Most of the students are dieting to control weight (60 number) and some others for getting regular periods (43 number), to look more slim (28 number), due to liking (17 number) and remaining to avoid meals (10 number)

## CONCLUSION

There are different studies and surveys created all over the world that depicts that the COVID-19 lockdown has affected the population's psychological wellness. The choice of quarantine from public health institutions has positive effects on the hindrance of the spread of the virus but contemporarily led to many symptoms of emotional disturbances and psychological disorders in the population. The severe quarantine restrictions, such as social distancing, school and several work activities closing, the ban on group gatherings and physical activities in open spaces abruptly turned upside down the normal lifestyle. It generated consequences on the psychological and emotional state globally.

The respondents to the questionnaire were mainly female young individuals. The lockdown has undoubtedly had effects on the mood of the participants of the survey the respondents said that they have had, for various reasons, a lowering of their mood. The majority of the participants in the survey referred to anxious feelings and depressed moods and tension. In the time of the COVID-19, anxiety can be considered a natural consequence it seemed to express itself as an inability to relax and as a state of nervousness and restlessness.

The impact of covid 19 has made a lot of changes in the lives of common people. Majority of the students family income has no change during the pandemic (49.2%). Family income has been decreased for some others (47.6%) and least of them have experienced an increase in the level of income (3.2%).

49.2% of the students have noticed changes in the menstrual flow before & during lockdown. The regularity of periods of the students during lockdown was checked. 38.8% of the students have regular periods. 32.4% of them have never been regular periods and 28.7% has irregular periods for a few months. The relation between stress & menstrual cycle was studied. 41.9% of the students have changes in their periods during pandemic due to stress.

Physical activities are very important in our daily routine. The relation of physical activity before lockdown and during lockdown was studied. Majority of the students follow physical activity as an important element in their routine before lockdown (57.6%) and 77.5% of students do not follow physical activity in their routine during lockdown. The level of physical activity of students are less active during lockdown (67%) & only few number of students are more active (13.6%). The physical activity has decreased rapidly during lockdown at 70.70% and only 27.70% has increased.

The lockdown caused by the COVID-19 pandemic has heavily influenced our life by completely changing our routines and isolating us from our loved ones. . As the COVID19 pandemic is still ongoing, our data need to be confirmed and investigated in the future with larger population studies. Hence, further study on psychological status, eating habits and positivity in relation to COVID-19 should be conducted.

