



## RESEARCH ARTICLE

### A WEB-BASED SURVEY- IMPACT OF COVID-19 LOCKDOWN ON EATING BEHAVIOR OF URBAN MIDDLE-AGED PEOPLE

Anjali Puntambekar<sup>1,\*</sup>, Tanvi Patole<sup>2</sup>, Mugdha Oberoi<sup>3</sup>, Jatin V. Badgujar<sup>4</sup>, Gaurav M. Sharma<sup>5</sup>, Priyanka Shah<sup>6</sup> and Aanchal Jain<sup>7</sup>

<sup>1</sup>Professor, The SIA College of Health Sciences, College of Physiotherapy, Dombivli, Msc.PT in Rehabilitation of Hand Conditions, Mumbai University. PGDEMA Indira Gandhi open University.

<sup>2</sup>Consulting Physiotherapist, Goregaon, MPT, Musculoskeletal Physiotherapy, Maharashtra University of Health Sciences

<sup>3</sup>Consulting Physiotherapist, Mumbai, MPT Neuro Physiotherapy, Gold medalist, Maharashtra University of Health Sciences

<sup>4</sup>Department of Orthopedics,, Assistant Professor, Department of Traumatology, MGM Institute of Medical Sciences, Kamothe, Navi Mumbai, Maharashtra, India.

<sup>5</sup>Department of Orthopedics,, Assistant Professor, Department of Traumatology, MGM Institute of Medical Sciences, Kamothe, Navi Mumbai, Maharashtra, India.

<sup>6,7</sup>Consultant Physiotherapist, Mumbai, Maharashtra, India, BPT, Maharashtra University of Health Sciences

#### ARTICLE INFO

##### Article History:

Received 25<sup>th</sup> September, 2021

Received in revised form

17<sup>th</sup> October, 2021

Accepted 29<sup>th</sup> November, 2021

Published online 30<sup>th</sup> December, 2021

##### Keywords:

Eating Behavior, COVID-19 Lockdown, Physical Inactivity, Urban Middle-aged People.

#### ABSTRACT

**Background:** In the present scenario of Covid-19 lockdown, physical inactivity has risen remarkably. Unhealthy bingeing is on a rise due to erratic working hours and consuming comfort foods. Combating stress, anxiety, and boredom with desserts and high-calorie food is a commonly noted behavioral pattern. Therefore, this study aims to assess the impact of paradoxical diet patterns on obesity during this phase of lockdown. **Objective(s):** The purpose of the study was to determine the impact of COVID-19 lockdown on eating behavior of urban middle-aged people. **Materials and Methods:** Three hundred and eighty-two participants were recruited for the study as per inclusion and exclusion criteria via an online based pre validated and pre designed questionnaire. The study period was for 5 months and the outcome measure used was a three factor-eating questionnaire. **Results:** It was observed that out of 382 participants more cognitive restraint was seen in the age group of 45-50 years (29.8%) whereas more uncontrolled eating and emotional eating was observed in 55-60 years with 106.5% and 42.7% respectively. **Conclusion:** The study results showed that there was an impact of COVID-19 lockdown on eating behavior of urban middle-aged people in terms of cognitive restraint, uncontrolled and emotional eating.

#### INTRODUCTION

WHO recommendation for physical activities for adults includes 150 minutes of moderate exercise per week and weight training twice a week. <sup>1</sup> The benefits of physical exercises range from improvement of general health condition to lowering down the aging effects. Along with the increase in endurance, emotional well-being is achieved. There is a marked reduction in the risk of diabetes, coronary heart disease, hypertension, osteoporosis, and obesity with regular physical exercise. <sup>2-5</sup>

But a paradoxical increase in the prevalence of obesity is seen globally owing to lifestyle changes. <sup>5</sup> Diverging trends of dietary patterns and dramatic decrease in physical activities are constantly increasing. The imbalance between total energy intake and expenditure is the main causative factor for weight gain. <sup>6</sup> In wake of COVID 19, with the whole country under lockdown, the lifestyle will be further modified. Working from home has reduced physical activity to a great extent. The household chores are categorized as moderate or submaximal exercise levels. <sup>7</sup> Due to social disconnect, stress, anxiety, fear, and boredom many adults use comfort foods as coping strategies. Bingeing unhealthy snacks during lockdown could be explained by consumption of the high-fat diet overriding the normal satiety mechanism. <sup>8</sup> To unfold these factors this study aims at assessing the cognitive, behavioral, and restrain

\*Corresponding Author: Priyanka Shah,

Consultant Physiotherapist, Mumbai, Maharashtra, India, BPT, Maharashtra University of Health Sciences.

domains using three-factor eating. These insights are important to increase awareness for obesity prevention. As prevention is always better than cure.

**MATERIALS AND METHODS**

The approval was taken from Institutional Ethics Committee (IEC) of MGM Medical College (N-EC/2020/09/98). It was a cross-sectional study design. An online-based pre-designed, pre-validated, questionnaire was sent across among individuals who were fitting in the inclusion criteria. The study population included participants in the age group of 45-65 years. The consent was taken by asking the participants to answer a ‘yes-no’ question online to confirm their willingness to participate voluntarily. After confirmation of the question, the participants were directed to complete the questionnaire. Confidentiality was ensured of all participants enrolled in this study. The data collection form consisted of a survey questionnaire distributed online. The study period was for 5 months. A convenient sampling method was used.

**Inclusion criteria**

- Both males and females
- Previously active, but currently not doing any physical activity

**Exclusion criteria**

- Not willing to participate
- Eating disorder

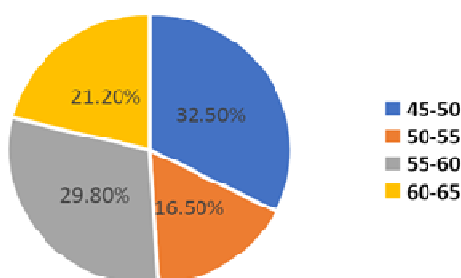
**Outcome measures**

Three-factor eating questionnaire Validity and reliability:  
 Cronbach's coefficient  
 =0.84(UE)  
 =0.92(EE)  
 =0.70(CR)

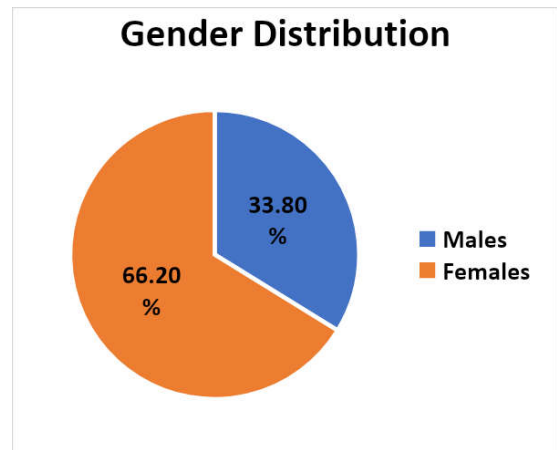
**RESULTS**

382 participants submitted the complete questionnaire. There were 33.8% males and 66.2% females in total as shown in Fig 2. Participants were divided into 4 age groups of 45-50 years, 50-55 years, 55-60 years, and 60-65 years. 32.5%, 16.5%, 29.8%, and 21.2% were in the age groups of 45-50, 50-55, 55-60, and 60-65 years respectively as shown in Fig 1.

**Participants as per Age group distribution**

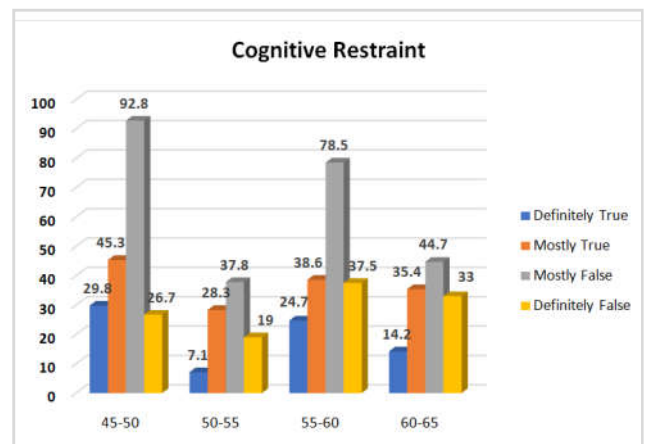


**Fig 1. Age group distribution of Participants**



**Fig 2. Gender wise Distribution of Participants**

There were 3 main domains of Cognitive Restraint, Uncontrolled Eating, and Emotional Eating. The data was collected and recorded in Microsoft Excel 2016 spreadsheet and it was analysed using Statistical Package for the Social Science (SPSS) software (Version 16). Questions 2,11,12,15,16 and 18 are included in the cognitive restraint domain. Questions 1,4,5,7,8,9,13,14 and 17 are included in the uncontrolled eating domain. Questions 3,6 and 10 are included in the Emotional Eating domain. For question 18: 1-2 scores were coded as 1, 3-4 scores were coded as 2, 5-6 scores were coded as 3 and 7-8 scores were coded as 4. Cognitive restraint: Out of the 382 participants, the majority did not show any cognitive restraint for eating in all the age groups with the most frequent answer as “mostly false” as shown in Figure 3.



**Fig. 3. Graph representing Cognitive restraint (Values expressed in percentage)**

It was observed that 126 (32.98%) participants out of 382 had shown absolutely no cognitive restraint for eating out of which it was seen highest in the age group of 55-60 with 37.5%. Cognitive restraint was more in the age group of 45-50 (29.8%) followed by age groups of 55-60 (24.7%) ,60-65 (14.2%) and 50-55 (7.1%).

**Uncontrolled Eating:** The results of the study showed that there was more uncontrolled eating in the age group of 55-60 (106.5%) followed by 45-50 (93.8%), 60-65 (70.6%), and 50-55 (61.3%). The majority of the people in the age group of 45-50 (17.8%) absolutely denied uncontrolled eating followed by the age group of 60-65 (12%) as shown in Figure 4.

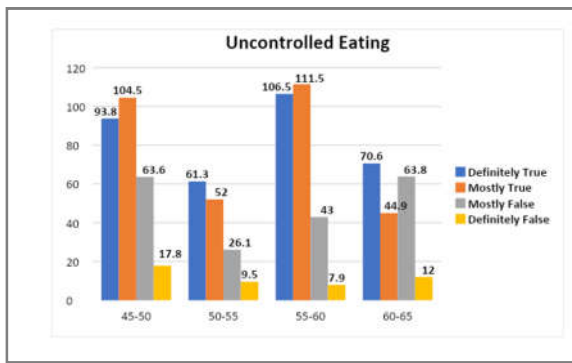


Fig 4. Graph representing Uncontrolled Eating (Values expressed in percentage)

**Emotional Eating:** Emotional eating was seen more in the age group of 55-60 years (42.7%) followed by the age group of 45-50 years (34.3%). Only 7.1% of participants in the age group of 45-50 years completely denied emotional eating as shown in Figure 5.

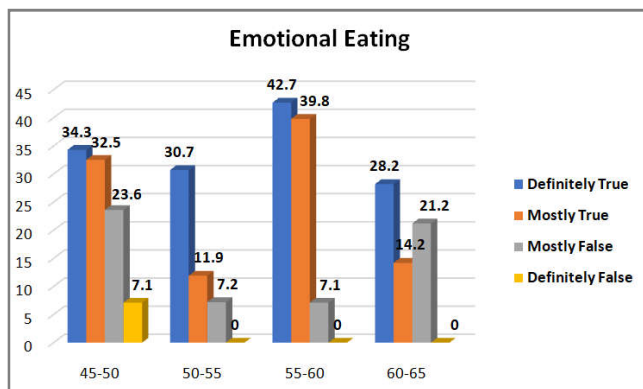


Fig 5. Graph representing Emotional Eating (Values expressed in percentage)

## DISCUSSION

Behavioral and lifestyle changes play an important role in maintaining an individual's body weight.<sup>4</sup> Covid-19 pandemic was a major factor responsible for changes in lifestyle during the lockdown period. Physical activities reduced and eating behaviors changed drastically. Thus, this study was conducted to understand the role of eating behaviors among middle-aged individuals in the spectrum. It was an important survey to get clarity on three important aspects of eating behavior patterns. A healthy diet and physical activities play an important role in weight management.<sup>7</sup> These factors are responsible to cause a sustained balance between the total energy intake and the energy expenditure through resting metabolism and physical activity. Reduced physical activity during lockdown could be the main determinant of the rising of obesity. The diverging trends of increasing intake, decrease physical activities thus increasing body weight.<sup>6,8</sup> These trends of intake are classified into three different eating behaviors. Cognitive restraint, uncontrolled eating, and emotional eating.<sup>8</sup> Cognitive restraint behavior is seen among individuals in order to control body weight. This is a conscious effort taken in order to promote weight loss. These perceptions are based on health promotion. As physical activities were reduced, cognitive restraint behavior was an important measure to control and even maintain a healthy weight. Thus, the self-reported utility of healthy foods was commonly seen in this group.

As per the study, maximum cognitive restraint was noted in the age group of 45 to 50 years. While minimum was seen in the 55 to 60 years age group. The possible causative factor responsible for such tendency could be explained on the following basis. The radical changes in habits and lifestyle as seen in the results could be a response to changes due to total reduction in socialization owing to lockdown. Social distancing and isolation changed everyday behavior. Compulsory home stay modified the educational pattern to digital platforms, work from home, limitations of gym availability, and outdoor facilities for physical exercise were seen in the lockdown period. Thus, in this age group, the only way to maintain a healthy weight was cognitive restraint. The second behavior pattern was in form of an uncontrolled eating pattern, totally opposite to restraint. Uncontrolled eating behaviors are seen in individuals who are more sensitive to taste perception and have food preferences. These individuals tend to have higher body weight. These behaviors were noted maximum in the 55-60 years age group.<sup>20</sup> Obesity is the most prevalent problem in such individuals. Due to even easy availability of high calorie or so-called junk foods, which were available on one click. These foods are preferred by Indian's palate. The fried foods and higher calories affected the body weight. Thus, overall glycemic index was on the higher side almost 60 to 70 percentage in carbohydrates. Oils ghee, butter add to the higher fat content. Pickles, papads were calorie-laden foods added to meals daily in many people with uncontrolled eating patterns. The third group was the emotional eating group. Their eating was associated with mood fluctuations. This behavior pattern was observed maximally among the 55 to 60 years age group.

They found comfort foods to beat the anxiety and stress during the lockdown. Interruption of work routine pattern due to quarantine resulted in boredom. This was seen to be associated with increased food intake. Another cause attributed to higher intake was stress. Constant news updates on increasing cases in Covid cases, higher numbers of mortality rates were very scary. Losing friends and the deaths of known people were further building anxiety. Thus, to beat these fears comfort foods were easily available. Simple carbohydrates and high sugars are known to increase serotonin levels and mood changes. Such type of eating is known as emotional eating. This was a reward and gratification method ignoring the signals of satiety and hunger. Another behavior along with a sedentary lifestyle was disturbed sleep patterns.<sup>10</sup> These in turn changed the stress levels resulting in binge eating adding to further calories. The overall results were increased weight. The celebrity chefs encouraged a lot of people to prepare homemade foods. Baking became a very common comfortable way to have high sugars. These high-calorie foods lead to weight gain. Thus, excessive weight gain was seen due to complex interactions of genetic, environmental, metabolic, physiological, behavioral, and social influences.<sup>17,18</sup>

## Conclusion

This study provides an insight to regulate the extra added weight during the inactivity, stressful period of Covid-19 pandemic and lockdown. Physiotherapists need to have a holistic approach towards wellness and measures to manage obesity in different age groups to add healthy years to life. These measures are necessary for health promotion to build immunity to fight against infectious diseases.<sup>20</sup>

### Limitations

Self-reported questionnaires have limitations, as some individuals may lack in sharing a true picture of their eating habits and behavior.

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