Lifestyle Changes among Indian Undergraduate Students during the COVID-19 Pandemic Lockdown: A Cross-sectional Study

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ABSTRACT

Introduction: The nationwide lockdown due to the COVID-19 virus led to the disruption of India's daily activities and drastic changes in the lifestyle of the people. This study aims to find the change in undergraduate student’s lifestyle during the lockdown with a questionnaire-based survey.

Materials and Methods: An online questionnaire was distributed among the undergraduate students pursuing various courses across India via WhatsApp, a messaging application.

Result: Of the total respondents, 46% reported a weight gain during the lockdown period. Among the people who gained weight, 57% of them reported eating more food when compared to the period before the lockdown. Respondents sleeping between 9 PM to 1 AM decreased from 81% to 68% during the lockdown, with a corresponding rise in students sleeping late. Of the total respondents, 71% reported that their fast food consumption has become less than before with a rise in fresh vegetables and dairy products during the lockdown.

Conclusion: The lockdown caused drastic changes in the lifestyle of students. There was a decrease in the quantity of fast food with a healthier diet and an increase in overall food consumption throughout the day. There has been a transition of sleeping habits, with students sleeping later in the night and for more extended periods. It is crucial to promote a healthier lifestyle, as these lifestyle and behavioral changes may show their impact over time and may lead to a long-lasting influence on the community's health.

Keywords: COVID-19, Exercise, Food intake, Lockdown, Weight Changes

INTRODUCTION

In December of 2019, the Novel Coronavirus emerged in Wuhan, China. The virus spread rapidly, leading to WHO categorizing it as a pandemic on the 11th of March 2020 [1]. Being cognizant of the lack of effective treatment for COVID-19, the Government of India announced a nationwide lockdown urging the nation's population to stay inside their homes to curb the virus's transmission.
Although it helped decrease the transmission of the virus, the lockdown caused many adverse effects such as disruption of the ordinary day-to-day activities and limited access to physical exercises such as gyms and parks, to name a few. The lockdown also caused a dramatic change in the general populace’s eating habits concerning the amount and kind of food eaten.

There are two main influences on lifestyle practices during this pandemic: Decreased physical activity and increased reliance on online working and education, and increased energy intake, caused by the stockpiling of groceries at-home due to restraint in movement and overeating of comfort foods, also termed as 'emotional eating,' stimulated by the stress of the pandemic and the sudden negative experience of self-isolation and mass confinement [2].

Physical inactivity and mental ill-health are considered two major risk factors for many chronic cardiovascular diseases and various cancers. This risk is increased even more in the elderly and those with chronic illnesses. Even in children, physical activity has decreased drastically due to schools and sports facilities. Additionally, strong evidence shows a positive relationship between the severely obese and increased inflammatory complications due to COVID-19 [2].

A sedentary lifestyle exacerbated by the pandemic’s total inactivity has adverse physical, mental, and social outcomes. Changes in routine, uncertainty, stress due to continuous news about COVID-19 from the media, social isolation, concern about health, increased screen time, and inadequate sunlight exposure have caused worsening of sleep [3]. The economic slowdown due to the pandemic has led to significant financial loss and additional stress. All these factors harm mental health and lead to a sense of decreased well-being, increased anxiety, depression, insomnia, anger, and post-traumatic stress disorder.

We conducted a survey on ‘Changes in lifestyle during the COVID-19 pandemic among the undergraduate students in India’ to analyze people’s health behavior changes due to the pandemic.

MATERIALS AND METHODS

A cross-sectional survey was done among India’s undergraduate students to determine the lifestyle changes during the COVID-19 pandemic.

Inclusion criteria: Undergraduate students currently studying in various courses (MBBS, BDS, BSc., BBA, BA, B.Com, B.Tech) and are currently residing in India were selected for the study.

Exclusion criteria: Students who are currently studying in school and those who are not currently residing in the country were excluded from the study.

An online survey was done using the Google Forms platform. We circulated the questionnaire to the undergraduate students in India using the messaging platform WhatsApp. All the participants took part in the study willfully, and we also obtained informed consent from them. We downloaded the responses from the google form and used an Excel spreadsheet for analyzing the responses for the individual questions. We also inquired about the participant's socio-demographic inquiry of age and gender in the questionnaire.

Based on the results of the proportion of change in body weight, use of a mask, sleep pattern changes during the lockdown, and change in hand hygiene during COVID-19 pandemic lockdown among undergraduate students in India observed in a pilot study conducted with 10% allowable error 95% confidence, the minimum sample size for our study was measured to be 207.

Results and Analysis

A total of 1169 participants took part in the survey. Out of these, 1133 responses were appropriately filled, and 36 entries were rejected, as they were incompletely filled. Among the respondents, 73% (824) were female, and 27% (309) were male. Participants were between 17 and 25 years, with the maximum number of participants belonging to 18 to 20 years.

During the lockdown, 36% of students used liquid hand washes, 31% sanitizer, 18% used soap, 8% alcohol-based spirit, and only 7% used plain water (Figure 1). 97% of the respondents always wore a mask when stepping out of their house, while 2% sometimes wore a mask. 1% of the participants did not wear a mask at all when outside. Amongst all
participants in the study, 39% of mask wearers used cloth masks, 24% used N95 masks, and 22% wore surgical masks. Of the remaining, 12% used homemade masks, and 3% wrapped a scarf or towel around their mouth and nose.

With relation to the mode and frequency of watching COVID-19 related new, refer to Figure 2.

29% of participants reported sleeping for 1-2 hours more, and 18% started taking an afternoon nap during the lockdown. (Figure 3)

People's shopping habits saw a change with more people relying on an online and telephonic shopping method than going out to buy utilities at market places.

When responding to the diet changes, 37% of the study participants reported that their total food consumption increased before the lockdown. Opposed to this, 29% of people reported that they consume less food than before and 35% of participants noticed no change at all with the quantity of food consumed by them.

Fast food saw the most change in consumption, with 71% of respondents reporting a decreased consumption than before. 14% reported eating more than before, and 15% reported no change in fast food consumption.

40% of the study participants reported consuming more dairy products than before, whereas 24% of respondents were consuming lesser dairy, and 36% of the respondents noticing no change in their consumption of dairy products. Among the non-vegetarians, 53% reported consuming less non-vegetarian food than before, compared to 18% reporting as having consumed more than before.

51% of the participants reported increased consumption of the number of fresh vegetables than pre-lockdown levels. 14% reported consuming fewer vegetables than before. Consumption of tea, coffee, and other caffeine-containing energy drinks went up in 35% of the study population, and only 25% of the respondents reduced their caffeine consumption. (Figure 4).

The reported weight changes were significant, with 46% of the respondents reporting a weight gain and 28% reporting a net weight loss during the lockdown (Figure 5).

Among the people who gained weight, 57% of them reported eating more food, 23% ate the same amount, and 21% ate less food than before the lockdown (Figure 6).

This result contrasts with the group who lost weight, where 48% of the students reported eating less food than before, and only 23% said that they were eating more food than they used to. Fast-food consumption was down in both the categories, but in the group of people who lost weight, 74% of them were eating less fast food and packed food than 70% in the group who gained weight.

The people who gained weight consumed more dairy as 51% reported an increase in dairy consumption; in contrast, only 37% of the participants who lost weight reported more dairy consumption than before.

In the group who lost weight, 53% were exercising the same amount they used to before the lockdown, and 35% were exercising more than they used to. Only 12% reported doing less exercise than before during the lockdown. On the other hand, the group which gained weight, exercising went down with only 19% of the participants doing the same amount of exercise and 34% doing less exercise. However, 46% of them were exercising more than before. (Figure 7)

An interesting observation was seen, with 40% of people reporting that they have started exercising more than before the lockdown. 20% of people were doing less exercise, and 22% of respondents saw no change. 18% of respondents reported not undertaking any exercising activity at home.

Of the students who were not doing any physical activity at home, 58% gained and 25% lost weight. Of those who were doing less exercise than before, 58% gained weight, with only 22% of the people losing and 19% noticing no change in their weight. For people doing the same amount of exercise as before, 67% either lost or maintained the same amount of weight. Only 33% gained weight. Exercising more had a balanced effect as 41% of the people gained weight, 33% lost, and 26% noticed no change.

The participants in the study were asked about the perceived change in the quality of their family
relationships. 47% of the respondents said that their family relationships became better than before. Only 7% of the respondents reported a deterioration in their relationship. 44% of the respondents saw no change in the quality of their familial relationships.

Discussion

Mask wearing reduces transmission of the virus when used widely by the population (Center for Disease Control and Prevention, 2020) [4]. 39% of participants used cloth masks, 22% used N-95 masks and 22% used surgical masks. Of the remaining, 12% used home-made masks, and 3% just wrapped a towel or scarf to cover the nose and face. Studies show that surgical masks effectively block respiratory droplets and particles of more than 5 micrometers but cannot prevent the aerosols, usually less than 5 micrometers in dimension [5]. N-95 masks are much more efficient than surgical masks, filtering about 95% of the airborne particles, both large and small particles (CDC Infographics) [6]. The CDC has recommended that N-95 masks be not used by the general public and categorized them as critical supplies for healthcare workers and first responders. The US FDA has advised the general public to use cloth masks while in public places, which will help slow down the virus's transmission [7].

On evaluating the sleep pattern, we observed that the participants had started sleeping late at night than they used to before. The proportion of people sleeping between 9 PM to 1 AM decreased, the number of people who sleep between 1 AM to 3 AM increased. Many participants were sleeping beyond 3 AM, which they never did before. This change in sleep pattern can be due to various factors such as overeating, decreased physical activity, oversleeping, or due to anxiety and stress [8]. Sleeping later and waking up late can also be due to the change in the schedule during the lockdown, decreased exposure to light, and decreased social cues, allowing people to sleep longer and later at night [9].

We observed that more people preferred to obtain information about COVID-19 via television and online modes. The number of people reading newspapers daily or even frequently was about 50%. Low newspaper readership may be since coronavirus can be transmitted via inanimate objects such as newspapers and wood surfaces [10].

We noticed a significant rise in hand sanitizer usage, liquid hand wash, and alcohol-based spirit regarding hand hygiene. Frequent hand washing reduces the risk of transmission of the virus, and it is recommended to wash hands with soap and water for at least 20 seconds [11]. There has also been a reduction of people washing their hands only with plain water, as the plain water is not adequate to remove the virus from the skin. Some studies indicate that soap is more effective than sanitizer [12]. Increased handwashing can lead to an increased risk of contact dermatitis, especially among health care workers [13].

Shopping habits have changed remarkably. The majority want to opt for online/telephonic buying groceries and utilities due to the apprehension of going out in public and coming in close contact with strangers. The primary route of spread of the COVID-19 virus has been the aerosol route of spread. Chances of infection are increased by being in crowded, confined places with poor ventilation. During the lockdown amid COVID-19, 58% of consumers in the Asia-Pacific region increased their online shopping frequency [14]. Our study showed that more than half (52%) of the people preferred to shop with methods other than going out. In a survey by Economic times, about 74% of Indian consumers surveyed said they would prefer to purchase from retailers offering delivery at flexible timing in the next 6-9 months showing the increasing apprehension of the general public going out for their daily utilities.[15]

We saw a dip in the amount of fast-food intake, with 71% of the respondents saying they ate less fast food than before. Lockdown and closure of restaurants imposed by the government may be the cause [16]. The participants might also incline towards having a healthy lifestyle and focus on weight loss as obesity can exacerbate the tissue damage associated with infection by the SARS-CoV-2 virus [17]. The frequency of food delivery orders made through applications like Swiggy and Zomato dipping by 70% showed the change of demand for fast food and eating food from restaurants as people tried to shift towards home-cooked food as a healthy and hygienic alternative [18].

The total daily intake of food increased for 37% of the people, which may be due to people eating to
combat anxiety and boredom due to being confined at home, consuming comfort food, and increasing food intake [19].

Decreased shopping and limited availability of food and raw materials due to limitations on movement in the city and restaurants’ closure according to the lockdown guidelines may be why 29% of the respondents consumed less food than before. [20].

76% of the people surveyed had reported consuming the same or more quantity of dairy than before the lockdown. This increase can be due to people being confined to their homes and spending more hours in their kitchens. Home consumption of milk-based products has increased to a great extent [21]. Demand for products like condensed milk has also doubled. Some large dairies across the country have reported a 50-100% jump in monthly sales of cheese, butter, paneer, cream, and dairy whitener in April [22].

The news of transmission of COVID-19 from a bat to a human at the beginning of the pandemic has resulted in an apprehension among non-vegetarians to consume meat and chicken. Rumors circulated on social media, linking poultry birds as possible vectors of the virus, further lead to a demand drop [23].

51% of the respondents reported increasing their fresh vegetables and fruit consumption. People have more motivation than ever before to adopt a healthy lifestyle in the wake of the pandemic. World Health Organization started campaign #HealthyAtHome emphasizing the consumption of vegetables and fruits [24].

35% of the respondents reported increased caffeine consumption than before. With the prolonged time spent on a computer due to online classes, there could be increased caffeine consumption as it requires a higher amount of concentration [25].

46% of the respondents reported a weight gain during the lockdown, and 28% reported a net loss of weight during the lockdown. Of those who noticed an increase in their weight, 57% of them had increased their daily food consumption, possibly from increased binge eating due to heightened stress levels. The increased consumption of dairy products can lead to increased weight, and in our study, the majority of those who consumed more dairy than before reported an increase in weight [26].

More people were exercising than before, due to awareness of COVID-19 virus had worse symptoms and prognosis in those who were obese and had other co-morbidities like hypertension and diabetes [27, 28].

Those who were exercising less than before gained more weight than those who were exercising more than before. It is common knowledge that exercising more leads to better health and results in weight loss, and people who exercise are less likely than their sedentary peers to become overweight [29].

WHO also started campaigns to increase awareness among the general public about the benefits of exercise during lockdown to fight the coronavirus pandemic. The #HealthyAtHome campaign had a broad reach and stressed guiding people on a diet and exercising [24].

58% of people who gained weight were not doing any physical activity, which can be due to people suffering from a lack of interest in indoor exercises and pandemic related depression resulting in overeating and weight gain.

The majority of people reported a relative betterment of their family relationships during the lockdown era. This improvement can be ascribed to the proximity effect [30], according to which there tends to be an increase in interpersonal liking with more physical and psychological closeness with other people.

CONCLUSION

The entire world has seen a radical change in its lifestyle and behavioral habits. Some communities were disproportionately affected than others, while some saw little disruption. Undergraduate students in India were no different. The lockdown was put into effect to control the spread of COVID-19 and better prepare the health care facilities. The lockdown resulted in students from all the courses to stay in their homes and study online. There has been a decrease in fast food consumption with a healthier, well-balanced, and nutritious diet; there also has been an increase in the overall daily food consumption. There was a shift in sleeping habits, with students sleeping later in the night and their sleep duration is longer. The use of hand sanitizers and alcohol-based spirit increased and may lead to dermatitis. We observed that many people had gained weight during this pandemic, leading to long-term problems due to
obesity, such as cardiac diseases and other chronic illnesses. People were also exercising more than before. Those who exercised and improved their diet noticed a reduction in their weight. Thus, it is crucial to promote and propagate a healthier lifestyle, as these lifestyle and behavioral changes may be there for a long time and thus, can lead to a long-lasting impact on the health of the population, especially as the students of today are the country’s future.

LIMITATIONS

1. The questionnaire outreach was limited to the students having an internet connection and those who had WhatsApp. Since it was online, it cannot state how many people received the message and how many filled the questionnaire, and the response rate could not be calculated.
2. There may have been a bias due to neutral responding, screen fatigue, and respondent effect.

REFERENCES


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