

Lifestyle changes among the UAE population: a cross-sectional online survey

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Research Article

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Abstract

Introduction: The COVID-19 pandemic has brought unprecedented changes to people's daily activities. Eating and physical activity were challenged by the requirements to practice self-quarantine and isolation.

Method: This cross-sectional online-based survey study investigated the effect of quarantine on different lifestyle habits. Demographic features and questions related to weight change, lifestyle habits such as physical activity, and smoking were collected. It also included the PHQ2 questionnaire. Adults and children were the targets of the study.

Results: The general tendency of weight among the study population was towards weight gain, especially in children. Female participants in the housewife group were more likely to lose weight. Approximately one-third of the adult population reported high depression scores, and 21% of children reported high scores. Physical activity significantly decreased among adults (p -value 0.018) during the quarantine. Among male smokers, 8.6% reported a decrease in smoking frequency or quitting, while 6.8% reported an increased frequency.

Conclusion: Weight changes were greater among females, especially housewives, and had a significant relationship with depression risk. No such relation was found between the low physical activity trends and mental wellbeing.

Background

Since the beginning of the Severe Acute Respiratory Syndrome coronavirus 2 (SARS-Cov2) outbreak, many countries have been forced to take extreme measures of lockdown to contain the spread of infection and protect their populations (1). The concept of quarantine is not new. The earliest known quarantine practice dates back to the 14th century to protect against the plague epidemic (2). Prophet Mohammad Peace be Upon Him established the principles of quarantine in Islamic communities. "...if the plague breaks out in a place while you are in it, do not leave that place" (3).

In the UAE, a program was activated at a national level to contain the spread of COVID-19 in March 2020. It encouraged people to stay home and restricted movement from 8 pm to 6 am except for vital sectors (4). This period of time was not encountered before, and it affected several health-related dimensions at the individual, family, and community levels. In addition to the previously existing disparities and vulnerabilities, it is crucial to measure how different population groups handle the current situation.

Stress and obesity were among the many outcomes that commonly came along with containment measures globally (5) (6, 7). The UAE, like many developed countries, had a high prevalence of obesity among children before this pandemic started (8). The closure of schools and entertainment areas forced children to stay home with increased potential for increased screen time. This may additionally worsen

the situation when linked with food consumption behavior during the pandemic, particularly among obese people (9).

In children, childhood overweight and obesity were found to adversely affect the children's quality of life, some of them very severely, where disability is reported to be similar to cancer cases (10). Compared to nonobese children, obesity negatively influences physical, psychosocial, and school performance. Childhood obesity can be a trigger for other severe conditions. Children who are overweight or obese are more likely to have depression (11). Obesity is also associated with worsening prognostic outcomes in COVID-19 infection (12) (13).

Therefore, forceful quarantine at home can aggravate many issues and can be summed up with different vulnerability times, such as childhood and adolescence, which are very sensitive periods of time. This study aims to study the challenging situation imposed by the COVID-19 pandemic, as its influence on people's health is not fully understood (14) (15) (16, 17). Lifestyle during the COVID-19 outbreak will be assessed among adults and children in relation to weight change as well as their mental well-being.

Methodology

This cross-sectional descriptive study was based on a self-reported online survey. The questionnaire was developed and used to explore the effect of restriction measures and quarantine undertaken by the government during the COVID-19 pandemic on different lifestyles; therefore, a validated questionnaire was not available, and questions were asked directly. Aspects such as weight, physical activity, smoking, and mood were inquired about. The questionnaire was directed to adults, to self-report, and to respond regarding their children where applicable. Therefore, data on children's weight, physical activity, and mood were also collected based on the adult's reporting. The questionnaire was piloted on a group of 23 family physicians and admins in the department of AHS academic affairs and laypersons from the public. The questionnaire link was then distributed using social media applications. Snowball sampling was used, and data collection was started in July 2020 and ended by December 2020. The inclusion criteria were all individuals who were willing to participate, including males and females of all age groups. No exclusion criteria were set. The survey was developed using the SurveyMonkey© website and distributed through the generated link.

Demographic characteristics included age, sex, city, employment status, marital status, educational level, number of children, and whether they were working from home. Adults' physical activity was assessed by reported daily or weekly minutes of walking or exercise. Children's physical activity was similarly reported by their parents. The participants reported their latest weight record they recalled as well as for their child before, during, and after quarantine. Smoking was assessed by stating the smoking status before quarantine and the changes that occurred in terms of increased or decreased frequency. To assess the effect of quarantine on mood for children and adults, we used the PHQ2 questionnaire as a screening tool for depression. The Patient Health Questionnaire 2 (PHQ2) is a simple initial tool to assess mood through two main questions: interest and pleasure and feeling depressed or hopeless. A score of 3 or

more will require further evaluation to establish a diagnosis of depression. Therefore, this tool provides a useful preliminary evaluation of mood in both adults and children. Other variables that may pertain to the study outcome were also included, such as ordering food from outside frequency and screen time.

Data analysis was performed using IBM SPSS Statistics software and was kept anonymous, as no private information was requested. Descriptive measurements of the different demographic characteristics were compared by percentages. Comparative measures of means, such as paired t-tests, were used to observe the differences in lifestyle behaviors during quarantine among the study population. To understand how behavior influenced health outcomes, univariate and multivariate regression was used. We looked at the associations between quarantine and the demographic features of the sample. Additionally, regression examined the relationship between weight change and screen time, smoking, and reported physical activity. Additionally, the association between weight and PHQ2 scores was examined for children to understand how they are affected during the same period of time using multivariate linear regression.

This research was approved by the Central COVID19 Institutional Review Board and Ambulatory Health Services Human Research Ethics Committee.

Results

Of all individuals who received the questionnaire link, 391 answered, and only 6 skipped. The different characteristics of the study population across variables are shown in Table 1. The majority of participants (42% and 35.4%) were young adults aged between 19 to 30 and 31 to 40 years, respectively. A total of 14.2% were aged 41 to 50 years, and 5.8% were over 51 years. Among all participants, females comprised the majority. Over one-third of the female population

(34%) were young adults between 19 and 30 years.

The majority of the study population was employed (67%). Among females, 52 (13.4%) participants were housewives. Most of the participants were educated up to the university level, followed by secondary and higher education (17.7% & 16%).

The comparison of means between ordering food before and during quarantine is 0.28 (p-value <0.01), which signifies that food orders increased during the period of movement restriction. Smoking was reported by 25.5% of males and 1.9% of females, and of the total sample, 14.6% were former smokers. Among male smokers, 8.6% reported a decrease in smoking frequency or quitting, while 6.8% reported an increased frequency.

Most people (52%) were physically active for less than 30 minutes a week during quarantine months. Similarly, 45% reported the same duration of physical activity before the quarantine.

A paired t-test revealed that the mean decrease in physical activity among adults was significant (0.18, p-value 0.01). In contrast, the physical activity change due to quarantine among children was not

significant.

Regarding weight change, in adults, one-third of participants reported a loss of weight of more than 1 kg (29.2%), and another one-third gained more than 1 kg (34.9%). Over half of the children (53%) gained weight during quarantine, with a mean gain of 1.6 kilograms. The paired t-test demonstrated a significant difference in the frequency of ordering food from outside before quarantine. The mean of ordering food before the quarantine was significantly higher. (p-value <0.001)

To assess the association between PHQ2 scores and weight changes among adults, simple linear regression was used. Higher depression scores were associated with greater weight loss (p-value 0.01, 95% CI -2.5- 0.3). No differences were observed among males and females with regard to weight changes during quarantine. Regarding employment status, only being a housewife was significant. It was negatively associated with weight change. Multivariate linear regression showed that the relationship between a child's weight change and child screen time and PHQ2 was not statistically significant.

Discussion

This cross-sectional study examined the effect of quarantine on healthy lifestyle habits. Weight change was towards gaining and losing in adults equally, while it was more towards gaining among children. The frequency of ordering food has increased in comparison to that before the quarantine. Although the effect on weight among this study population was not significant, there is an important need to further explore the quality of nutrition. The reported increase in ordering food deliveries is not necessarily an unhealthy choice, and different demographics can influence the types of foods that are ordered (9). Additionally, almost a quarter of the population reported ordering food before the quarantine. Starting with a high baseline of food orders stresses the need to study obesity-related behaviors and how it influences mental health bidirectionally more specifically among children. The dramatic shift from daily life activities to staying at home has naturally led to changes in eating habits. This change eventually reflected the quality and quantities of food consumed as well as food preparation. In a cross-sectional study from Lithuania, one-third of the study population reported gaining weight (18). An association between snacking and consumption of an unbalanced diet was observed among those people. Although people are more likely to cook at home during quarantine, a considerable percentage reported weight gain in the same study. This could be explained by many correlated factors, such as the quality of cooked food and the amount consumed. Therefore, home-cooked food is not necessarily healthier. This was also reflected in children's food consumption. During the pandemic, low to medium adherence was observed with regard to the Mediterranean diet among children (19). The importance of weight in relation to COVID-19 is two-sided, which makes it a very important determinant in the time of the pandemic.

Smoking behavior reports varied by region. The effect of COVID-19 on smoking can be increased, decreased, or similar to smoking frequency (20) (21) (22, 23). In this study, equal proportions of males reported decreasing or increasing frequencies. The decreasing trend observed during the pandemic could be because of the correlations with higher severity of COVID-19 and death (24).

Physical activity before the quarantine was insufficient. This trend continued during the quarantine period. The study population who reported less than 30 minutes per week was over 50%. Although this can be challenging during such difficult times, encouraging physical activity can help improve mental well-being during the COVID-19 pandemic (25).

The female population showed greater weight change than males. Although women reported worse eating habits in another study (26), our study showed a higher proportion of weight loss among females. It could be that housewives are experiencing more stress during quarantine, which could have led to different eating habits than those commonly associated with stress (27). Depression screening tool scores are inversely associated with weight, and higher scores reflect weight loss. Study findings highlight the importance of evaluating mental health and healthy behaviors in relation to weight during the new circumstances. It is important to continue the evaluation even after life activities start returning to normal because some effects can be long-lasting.

This study provides new knowledge on the effect of quarantine on mental health and weight change for both adults and children. The depression screening showed how it is linked with the weight loss that occurred in our study population. Although no change seemed to be observed among the children's weight and mental health, a more detailed screening and evaluation should be conducted to lessen the effect of indirect subjective reporting. The pandemic certainly imposed challenges on children and adolescents' social and mental development (28). Adults reported higher depressive symptoms on all severity scales compared to prevalence from before COVID-19 (29). The increase was even more pronounced among vulnerable groups. In the time of the global pandemic, many socioeconomic factors were adversely influenced by unemployment, poverty, the closure of businesses, and the deterioration of health. All collectively aggravate the mental health of those susceptible. Brooks et al. reviewed that the effects of quarantine can be chronic (14). Different conditions were examined, including anxiety, posttraumatic stress disorder, depression, and anxiety. For children and adolescents, the time of pandemics shifted their routine dramatically. The closure of schools forced them to spend a longer time at home. A study illustrated the effect of the increased prevalence of psychiatric disorders among children and adolescents during the quarantine (15).

Boys and girls were equally affected by an emotional disorder. During the outbreak in China, over 40% of schoolchildren had depressive symptoms (17). The risk seemed to increase with increasing grades. Fegert et al. bring up a concern about children's mental health and maltreatment due to being confined at home to parents who have mental disorders. The study compares the outcomes from the Great Recession and how higher numbers of child maltreatment were reported (16). This study did not navigate all such important details that need a future inquiry.

Although restrictions were generalized across the different cities of the UAE, the frequency of leaving home did not reflect on the adherence to staying at home instructions. People reports on leaving the house before and after quarantine were not dramatically changed when compared by percentages. Similarly, eating habits such as ordering food from outside were not greatly affected. This probably

requires modification of the self-quarantine approach, which takes into consideration the existing habits among the population and the vast compliance range that can be observed (30). The effect of “infodemic” can also be part of the associated observation on leaving the house. It is well known by now that providing reliable information from national and international authorities is challenged with false but highly influential news and information (31). In addition, different population groups may have different outcomes from quarantine. In our population, we have seen housewives tendency of weight change towards losing weight. It is probable that in addition to adhering better to quarantine rules, females' eating habits were influenced by the newly adapted home confinement with the rest of the family members (32). This could consequently have led to different eating and snacking habits than the rest of the population groups. The population of school children, on the other hand, is not as reachable as it used to be before the COVID-19 outbreak. Public health workers would need to develop a sound methodology to screen, evaluate and manage children and adults who are obese or at risk of obesity.

The results of this study can help provide useful input for healthcare workers and infectious disease control policymakers. This should be considered in light of the latest changes in quarantine policies. Health care personnel may want to consider how to evaluate cardiovascular risk and mental well-being (33). In addition, there is a need for continuous monitoring and evaluation of our intervention to combat the pandemic. It also provides a great tool to assess how people's health is being influenced by the quarantine as well as the new habits we are being accustomed to recently.

The low numbers of male participants limited our knowledge of changes in behavior among this particular group. Additionally, recall bias is a limiting factor for self-reported behaviors.

Conclusion

Weight changes were greater among females, especially housewives, and had a significant relationship with depression risk. No such relation was found between the low physical activity trends and the child's mental wellbeing. Lifestyle changes during COVID-19 provide a sitemap for healthcare workers and policymakers to further plan and improve services. An area of study is how they influence health outcomes in different ways.

Declarations

Author Contributions

MKH wrote the manuscript. L.B.K. conceptualized the study and designed the initial survey questionnaire. Both authors performed data analyses and interpreted the data. All authors have edited and approved the final version of the manuscript.

Declaration of Competing Interest

All authors declare no conflicts of interest.

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Tables

Tables 1 and 2 are in the supplementary files section.

Figures

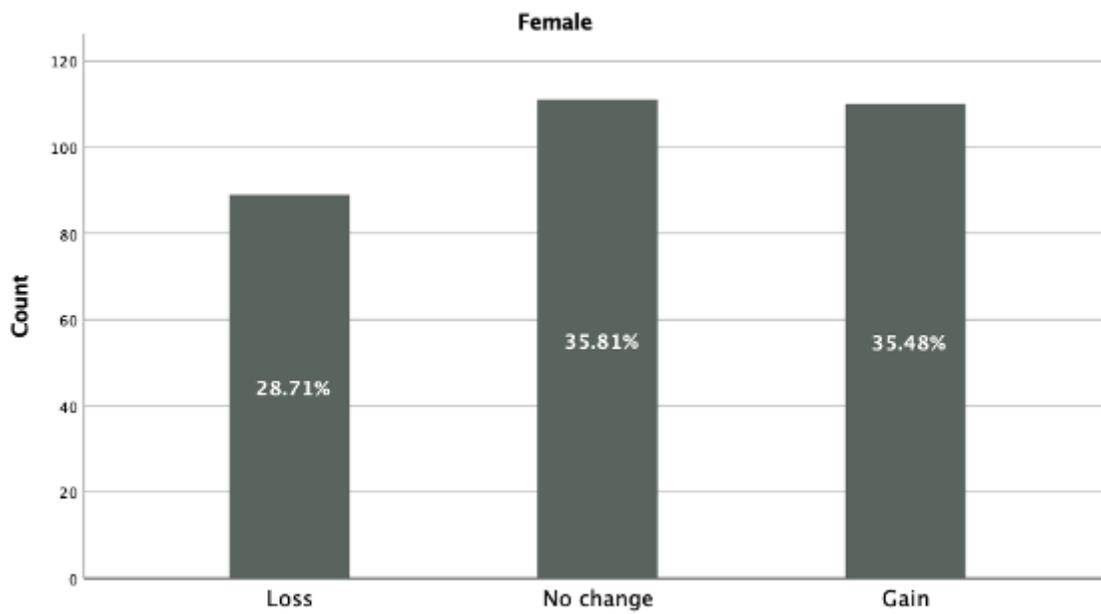
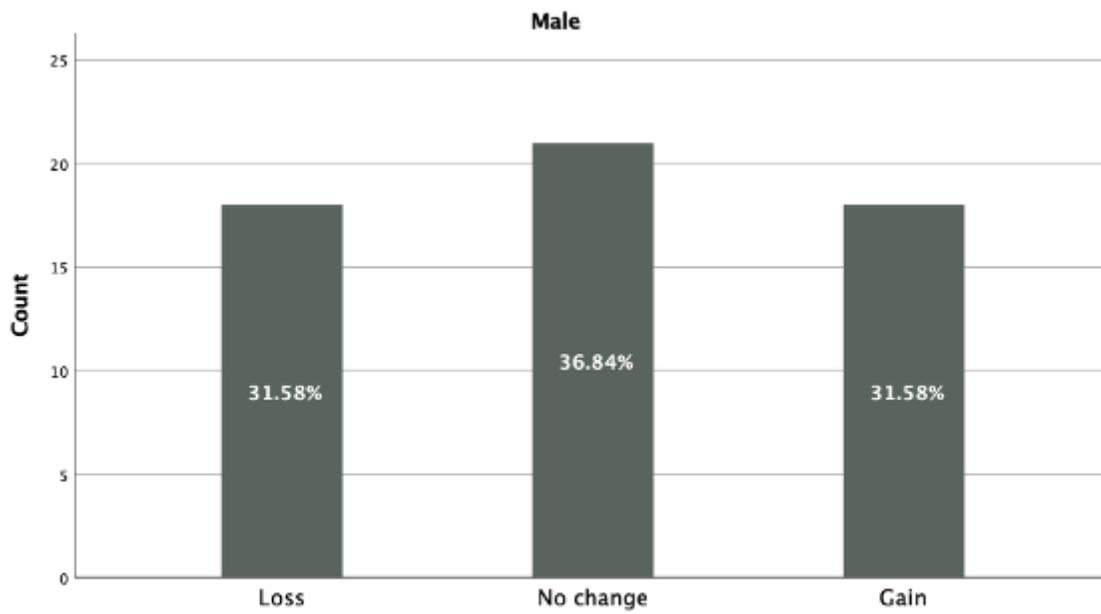


Figure 1

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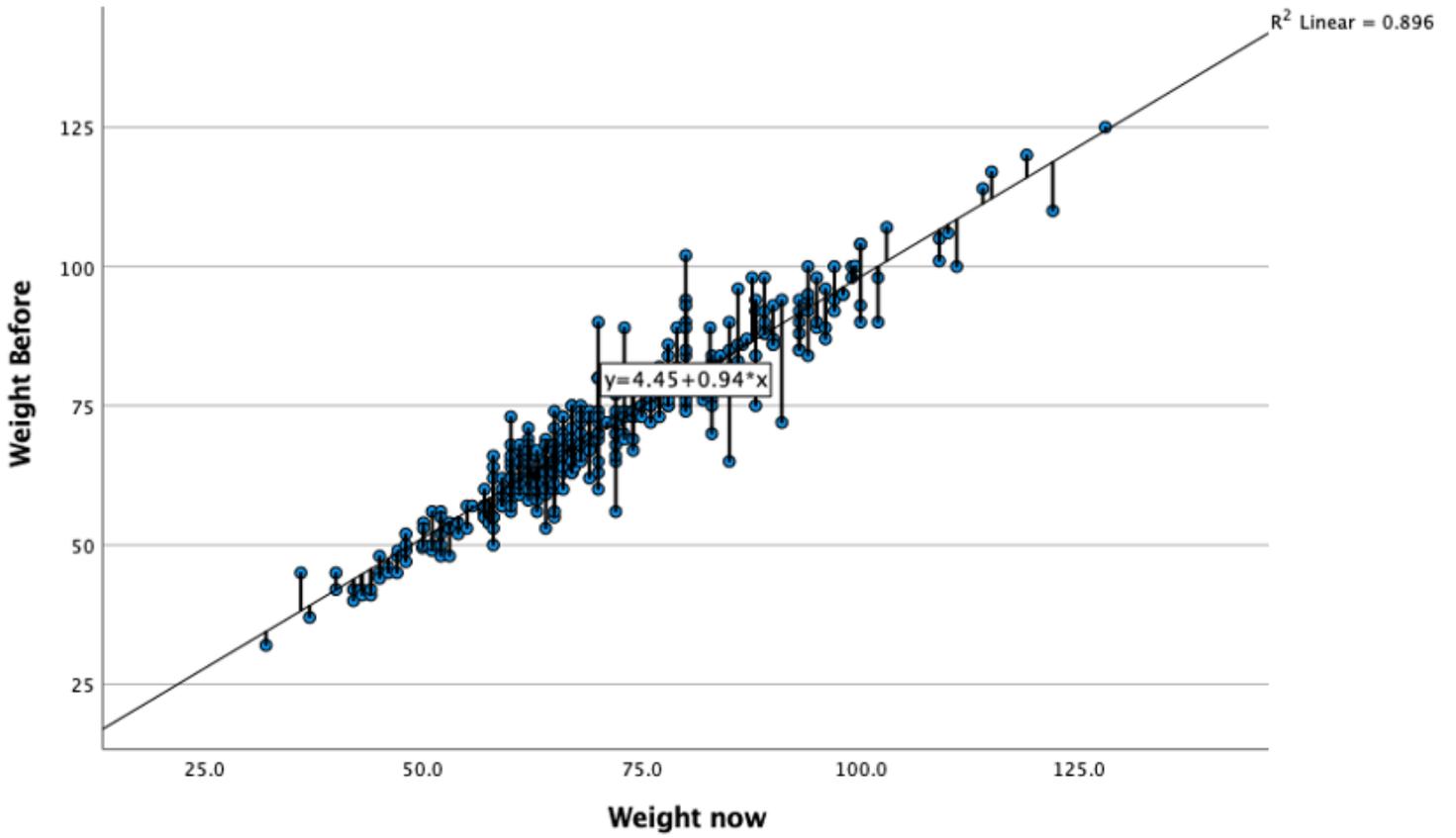


Figure 2

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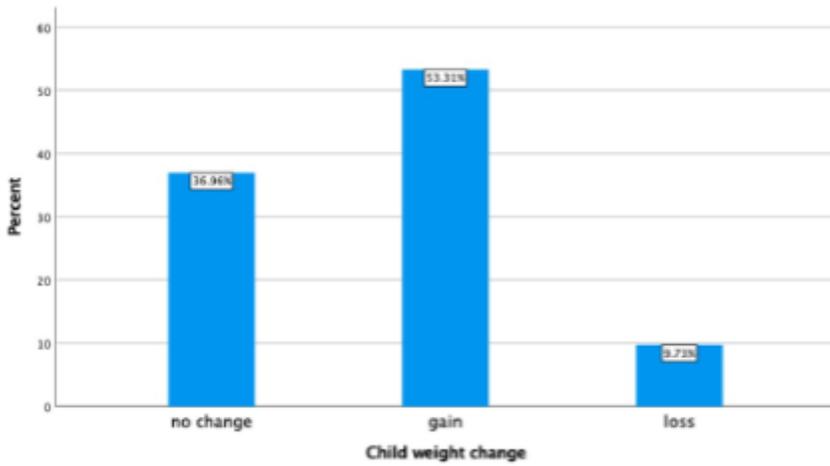


Figure 3

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Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [Questionnaireused.docx](#)
- [STROBEStatement.docx](#)
- [Table1demographiccharacteristics.docx](#)
- [Table2healthbehaviorsduringquarantine.docx](#)