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Has the pandemic brought about a healthier lifestyle among adults?

Amirul Roslee

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Lew Rong Shun 2557113

Tricia Navarro 2556530

Akshay Raj 2525029

Amirul 2555414

Embry-Riddle Aeronautical University Asia

Abstract

This study is the first in Singapore to examine how the lockdown had an impact on lifestyle habits among adults above 18 years old in Singapore. The results were collected through an online survey consisting of 18 questions. Linear Regression is used to find the relation between healthier people and the variables. The data analysis determined whether significant differences exist between essential workers and non-essential workers. The proposed research will aim to gain a deeper understanding of the lifestyle changes affected by the lockdown mainly with regards to exercise, sleeping habits, and mode of working.

Keywords: Covid-19, Lifestyle, Lockdown, Exercise, Mode of working

Introduction

The pandemic is a relatively new problem but there has been research already carried out to assess the lifestyle changes, stress levels and eating habits amongst the population. These papers study the population in European countries where the lockdown had a very heavy effect on the people there as many were not allowed to leave their home. The limitation that previous literature present is that since this pandemic is ongoing, the results may change as time goes along. It is also the first time in modern history that a virus has affected human beings so much to the point that people are ordered to stay home.

Studies from Poland

This research paper was done in Poland with a purpose to find how the lockdown impacts the food consumption of individuals. It shows that being home quarantined may protect individuals from the virus but can still have a negative impact on their health. Just like most research papers, it concludes that the confinement had a negative impact on adults in Poland, specifically in their food selections and habits. An online survey was produced which gathered a total of 1097 participants. It is found that overweight individuals were eating more compared to before the lockdown therefore making them unhealthier. In addition, a larger proportion of individuals gained weight. Subjects consumed more meat and fast food than healthy foods such as fruits and vegetables. Other unhealthy traits like smoking and drinking also had an increase in frequency and intake during the lockdown, respectively. Other sources have the same findings that being quarantined at home made individuals have a negative lifestyle behavior whilst protecting them from the virus.

Another research has been done in Poland to examine the dietary and lifestyle changes in polish adults during the lockdown caused by the pandemic. Using cross sectional survey and k-means algorithm for gathering and analyzing data. There are a total of 2381 respondents for this study and the results of the survey show that 43% of respondents have a decreased physical activity, 49% an increase in screen time, and 34% of respondents have an increased food consumption. Two dietary patterns were found with 28% eating healthier and 19% having a less healthy diet. Another interesting finding is how dietary patterns were associated with age with the younger respondent having healthier diets compared to older respondents.

From both studies, the limitation of both studies would be the self-reported questionnaire used for the survey. As due to restriction of the pandemic it was necessary for remote data collection as well as the oversampling of a particular demographic in both cases, the respondents were predominantly women. The use of BMI (Body Mass Index) is also a limitation as BMI is not a clear indication of health but a rough measurement as a taller or muscular individual will have a BMI score that might suggest they are overweight when they are not. Therefore, more research will be needed with more accurate and less biased data.

Studies from Spain

The research was carried out in Spain with the same purpose which is to find out how the lockdown impacts the food consumption of individuals. The authors made an online questionnaire and surprisingly, their findings showed that individuals have a healthier dietary behavior during the lockdown. This contradicts most research papers which concludes that the confinement had a negative impact on the health of individuals. With a total of 7514 participants,

70% of which are women. 44 questions were asked in their survey which includes their socio-demographic data, processed food intake, fruits and vegetables intake and more. There was a decrease in intake of fried food, snacks, fast food and other unhealthy foods and an increase of fruits, vegetables, and olive oil, which is a healthier alternative to fat in the Mediterranean diet (MedDiet). Adherence to MedDiet played a big factor to this research paper's findings. There is not a need for a solution since the health impact is positive. However more research will be needed as other findings continually contradict one another.

Studies from Northern Italy

This research has been done in Italy to determine if there are any lifestyle changes during the COVID 19 Pandemic specifically during the lockdown. The method of this research was done by conducting surveys, questionnaires, and statistical analysis. The main objective of the research is to find out if there are any changes in physical activity, food habits, and smoking habits during the lockdown. A survey was posted via social media platforms to collect self-reported data on lifestyle changes during lockdown and 490 adults participated in it. Among the participants, 84% are female and 16% are male.

As a result, 43% of the participants reported symptoms of insomnia and an equal number of participants reported to have unchanged sleep quality. The rest claimed that they actually have improved their sleep quality. During the lockdown, 88% from the whole sample reported to have a decrease of physical activities in hours. This is because of the restricted measures during the lockdown. Food habits and nutrition seem to have a positive impact as 70% of the subjects reported buying more fresh food (meat, vegetables, fruits). This is because they have more cooking time to spend and be aware of what they are eating. There is a slight increase of

cigarette consumption among the 105 smokers, but it was associated with an increase of food intake. We can see that there is a relationship between the smokers and their food intake which increases correspondingly.

Limitations of this study include gender related effects because most of the respondents are females. The reports also did not investigate the association between lifestyle and psychological distress. For example, we do not know the fact that people who have increased food consumption have more eating time at home or are just stressed. Lastly, this survey might be biased due to self-reported responses. It is not controlled, and people could lie on their survey.

Studies Done in Belgium

This research has been done in Belgium to examine exercise levels and patterns among adults during the COVID 19 specifically during the lockdown. This confinement could limit the exercise possibilities, but the government has encouraged and raised awareness about remaining physically active to avoid future health problems. Both indoor and outdoor exercising in public spaces were promoted in Belgium. Meanwhile other countries such as France, Italy, India and China have enforced very strict measures by banning unnecessary public outdoor activity, Belgium on the other hand decided to have a “lockdown light”.

The method used for this research was mainly by online survey and data analyses. It was conducted via web based Qualtrics software that randomly distributed to as many people as possible. As a result, 15,737 participants registered and completed the survey. From the survey, 87% of them are highly active people even before the lockdown so the samples were divided into 2 groups which are the high active and low active. Subsample of highly active people showed that 36% of them exercised more during the lockdown, 41% exercised as much and 23% lesser.

Those who had a decrease of exercise state that closing of sports events and absence of friends are the reasons behind it. On the other hand, subsample of the low active people had 58% increase of exercise and agreed that they found more time to exercise during the lockdown. However, reports showed that people with low education, age 55 and above and people that used to exercise at sports clubs have decreased the number of exercises during the lockdown. This is mainly because of the lack of motivation and loss of competitive elements.

Limitations from this study is the data was collected from predominantly highly active people, this could be biased and only concentrate on those who are highly active even before the lockdown. The other limitation is that this survey was conducted 2 weeks after the start of the lockdown and the results may not be the same for long term.

There are similarities among the past studies, with the majority of the population changing their lifestyles to become healthier by opting for healthier food options, preparing their own food, increased physical activity and reflecting these changes will be more stable hours of rest. Existing research has also shown that people have been developing their own meal plans and paid better attention to nutritional values found in food. However, it was found that in some countries, people had a negative impact on their lifestyle with increased screen time by almost 40% and those who were overweight increasing their intake of food. These mixed results encouraged us to examine how the lockdown, circuit breaker in Singapore, affected the lifestyle of the country.

Research and Methodology

Study Design

Research question: Has the lockdown had an impact on lifestyle habits among adults in Singapore?

Null: There is no relationship between the lockdown cause by the pandemic, COVID 19, and having a healthier lifestyle

Alternative: There is a relationship (positive / negative) between the lockdown caused by the pandemic, COVID 19, and having a healthier lifestyle**.**

Correlational research would be done using data gathered from self reported surveys.

Once the above data have been collected and cleaned. Linear Regression would be conducted to analyze the data.

Population and Sample

Participants will be 18 years old and above living in Singapore. Data for analysis will be chosen using stratified sampling. 50% would be from essential workers and the other 50% from non-essential workers.

Variables and Measures

Dependent Variable

- BMI (Body Mass Index)
- Frequency of exercise (Hours/week)
- Change in sleep hours per week, before and after the lockdown. This not just measures the physical health of the person but also mental. (Hours/week)

Independent variables

- Number of hours spent working from home? (Hours/week)

- Are you an essential worker or not? (Yes or No)

Control variables

- Age (years)
- Gender
- Race
- Was the person ever diagnosed with the disease or placed on stay home notice for showing signs of the virus? (Yes or No)
- Income level (Monthly)
- Education level
- Number of household members

Data Collection Methods

It is a cross sectional data as we are observing multiple individuals at the same time. This will be an online survey for ease of use for participants. It takes less time to consolidate and cost effective. Besides that, close contact between interviewer and interviewee will be prevented which also reduces the spread of the virus. The data will be collected for five days, from November 23, 2020 to November 27, 2020. The survey is also attached in the appendixes.

Questions:

1. What is your age? (1= 18-24 years old, 2= 25-34 years old, 3= 35-44 years old, 4= 45-54 years old, 5= 55-64 years old, 6 = 65-74 years old, 7= 75 years or older)
2. Gender (1= Male, 2=Female, 3=Others)

3. Please specify your race (1= Chinese, 2= Malay, 3= Indian, 4= Others)
4. How many household members do you live with?
5. What is the highest level of school have you completed? (1=No schooling completed, 2= Primary, 3= Secondary, 4= Post Secondary 5= Degree, 6= Masters, 7=Doctoral)
6. What is your yearly income (1= below $20000, 2= $20000-$39999, 3= $40000-$59999, 4= 60000-$79999, 5= above $80000)
7. Have you tested positive for covid-19 or was placed on Stay Home Notice (SHN) for showing symptoms of the virus?
8. Are you an essential worker?
9. Applicated if 8) is "No", how many hours do you spend at work per week?
10. What is your BMI BEFORE the lockdown? (1 = Underweight, 2= Normal weight, 3= Overweight, 4= Obese)
11. What is your BMI AFTER the lockdown (1 = Underweight, 2= Normal weight, 3= Overweight, 4= Obese)
12. How many hours do you exercise in a week before the lockdown?
13. How many hours do you exercise in a week after the lockdown?
14. How many hours of sleep do you have before the lockdown?
15. How many hours of sleep do you have after the lockdown?
16. How many meals per day do you have before lockdown?
17. How many meals per day do you have after lockdown?
18. Describe your meal portion, 1 = small, 2 = average, 3 = large

Data Analysis Methods

The most appropriate methods would be linear regression to predict and find out the value and relationship between the dependent variable and independent variable which is the effect of lockdown and impact on lifestyle. Linear regression would help us understand the relationship as we have more than two independent variables.

$y=a+bX+E$

We will also include the Quasi experiment into our research since one of our independent variables is manipulated before the dependent variable is measured.

Control group- Non-essential workers

Treatment group- Essential Workers

DID (difference in difference) estimator, how control and treatment group change

Difference in control group - Difference in treatment group = Differences

y= Alpha + Beta treatment + Gamma post + Delta treatment (Post)

Conclusion

COVID-19 has severely impacted the lives of many people, as we adapt our lifestyles around the pandemic. This study is to find out the lifestyle impact lockdown had on Singaporean adults. This research, however, is subjected to several limitations. Firstly, BMI is a limitation as it is inherently not a definitive indicator but an estimate. The second limitation is the lack of secondary data to compare our data to due to the recency of the pandemic and lockdown. Lastly, as data is gathered by survey, self reported data inherently might not always be truthful or accurate responses by respondents. Therefore, further research can be done on the topic two suggestion we have is using a more definitive health measurement such as fat percentage over BMI and a qualitative or quantitative study could be done to look deeper into the reasons why

the lockdown causes a change in lifestyle such as identifying the factors they have in common. The information gathered from this study can be used by policy makers to gain a better understanding on managing health during a pandemic, how policymakers can encourage healthier lifestyles as well as if working from home should be encouraged.

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Appendix A

Health Lifestyle after COVID-19 Lockdown - Google Forms.pdf