### "Changes in food habits during pandemic times with reference to eating out in Pune city"

Dr. Suvarna Sathe<sup>1</sup> Dr. Mahesh Randhave<sup>2</sup>

<sup>1</sup>Professor, Department of Hotel Management, TMV Pune <sup>2</sup>Assistant Professor, Department of Hotel Management, TMV Pune

Corresponding author details

#### Abstract

The COVID-19 pandemic represents a massive impact on human health, causing sudden lifestyle changes, through social distancing and isolation at home, with social and economic consequences. Optimizing public health during this pandemic requires not only knowledge from medical and biological science but also of all human sciences related to lifecycle, social and behavioral studies, including dietary and habits. The sudden pandemic affected people to eat out and are more bothered about safety and hygiene. The study helps to rebuild the eating-out culture again by reducing the risk factors due to the pandemic/COVID-19. The research aiming to find the alterations in food habits during pandemic times. Due to the time and resource limitation, respondents within Pune city are considered for the research to carry out.

#### Keywords

Food habits, Eating out, Pandemic, Restaurant.

#### Introduction

The corona virus disease (COVID-19) pandemic has added various challenges and changes to human life worldwide, causing an impact on human health, lifestyle, and social life and has affected the local and international economies. The lockdown was imposed all over the world, lifestyle was changed, and people were not able to go out and were in their homes. There is no doubt that there was a lack of accessibility and availability of food that people were not able to get a proper meal.

The food may be eaten where it is purchased – dine in or away from the selling outlet – takeaway. Selling food for the people who wish to consume it away from the selling outlet (Takeaway) is one of the important parts of the catering business in the city. Various types of food are prepared and sold in Pune city by various catering outlets. People eat out at various catering establishments on various occasions and are ready to spend money on it. The change in people's lifestyle has got the habit of eating out more frequently. There are many reasons for the same like every family is now having double income (at least 2 members are earning), people get tired to cook food daily at the home or there is no time to cook food at home, to explore/try something new and so on.

#### Objectives

1. To study if eating out pattern has changed during the pandemic in Pune city.

2. To understand if the pandemic has altered the food selection and eating habits of people in Pune City.

#### **Literature Review**

Eating habits are shaped by variety of factors. The age group, nature of work, gender, and socioeconomic status, individual likes and dislikes naming a few. Though eating is a daily necessity it is a very subjective matter. It differs from region to region and culture to culture and from individual to individual.

During pandemic the life pattern itself became universal. Due to lockdown everyone was almost falling in the same line as far as daily chores were concerned. Eating which is also one of the major activities during a day has undergone changes. Youngsters, working population, travelers and foodies which are either relying on outdoor food services as a need or as a mandate have to change their pattern of eating out. In the early stages of lockdown as no food services were available on the caterer's premises going in for parcels was the only option.

In the earlier stages of Pandemic People were skeptic about contact with unknown people due to highly contagious nature of Corona Virus and avoided venturing out. Pune city was one of the worst hit areas. The researchers would aim to find out how this scenario had affected people of Pune city in the context of their habits of eating out.

In the literature review the researchers would take a look at impact of Pandemic on food habits discussed by various researchers globally and find out the gap at local level.

In an online survey conducted in Oman it was noted that people have opted for more healthy and hygienic food options in Pandemic. No negative impact on food habits was noted. In fact more positive impact on food habits like planning health diets, including local foods in diet were seen. [1]

- In an article based on survey in England the researcher has noted that the online food ordering level is high in Pandemic period than the pre Pandemic period. In that the deprived areas have gained higher percentage of ordering food online than the un-deprived areas. So a change in food habits is noted in pre and post pandemic period. [2]
- A survey conducted in Italy during Pandemic to understand the changes in food habits noted that people have opted for farm fresh, organic products. Also the young population seemed to adapt to Mediterranean diet. Also some life style changes were noted in the study. [3]
- A research paper on University students in Turkey revealed that there was a significant change in food purchase behaviour and nutritional diet. There was increased in quantity of food consumed and its frequency, may be due to the fact that they were at home all the time. Same was true with smoking and alcohol. Less nutritional supplements were in diet. [4]
- In an online survey conducted in MENA region after 6-8 weeks of Pandemic suggest that there were changes in eating habits of people. They were consuming less nutritional meals, snacking frequently leading to weight gain. This was because of less consumption of nutritious food and more of junk food [5]
- A study conducted in Italy Florence shows that the eating pattern was affected by Pandemic. People have developed sedentary life style; meals were consisting of snacking and breakfast. Also

increase in alcohol consumption was observed [6]

- A cross sectional online survey of Polish adults in Pandemic times suggests that there was decreased physical activity and increased food consumption. Both types of food habits were noted amongst the adults, both healthy and unhealthy [7] a study was conducted for a month in selected European countries during Pandemic to understand changes before and during Pandemic in dietary pattern. It was observed that there is an increase in the frequency of daily consumption food items. Also food having more shelf life was opted by many. There was noted increase in the consumption of alcohol.
- In a research conducted across many countries it was revealed that people have difficulty in obtaining foods required for daily use. Also price soar was observed of essential food products. With people having less means to survive were deprived of quality and quantity of food procured [8]
- A survey of German citizens conducted during Pandemic in relation to food intake and food habits was referred by the researchers. It indicates that women, migrants and younger population have changed food habits. They were more into consumption of junk food and alcohol [9]
- The literature review gives a window of research gap. The literature referred mostly talks about change in habits and food consumption patter pre, during Pandemic. But it does not specifically talk about eating out pattern in relation to Pandemic. Also it was noted that there is a geographical gap as Pune city is not covered for any change in pattern of eating out in Pandemic.

# A study on the inclination of people towards super foods to sustain good health during the pandemic (Jan 2022)

According to the research paper "A study on the inclination of people towards super foods to sustain good health during the pandemic." By Anuradha V. Karmarkar1 Dr. Gauri D. Shah2 Dr. Rasika R. Gumaste3 & Dr. Kiran M. Shende 4 Super foods were promoted in pandemic to improve health sustainability and fight the pandemic [10]. This "super food" was an additional ingredient that was promoted in its natural form to increase the nutritional value which was also

sustainable and economically supportive as it promoted the consumption of local ingredients. The data for this research was collected via sharing questionnaires with people of various age groups. During the pandemic, most people preferred home-cooked food considering the nutritional value and hygiene of food. People are aware of super foods but not by terms and are included in their day-to-day diet. Although Indian super foods are more feasible than imported ones as they're expensive, buying Indian super foods supports the local economy.

### A Study of Changing Consumer Behavior of Four Metro Cities in India during the Covid-19 Pandemic (Jan 2021)

Research paper "A Study of Changing Consumer Behavior of Four Metro Cities in India during Covid-19 Pandemic" By M. Razaullah Khan1, Dr. M.A. Sikandar2, Rafana Kazi3, and Anita Sikandar4 Aims to find out how Covid-19 affected the consumer behavior in four metropolitan cities Mumbai, New Delhi, Pune and Hyderabad as these cities were most affected by the pandemic. The data was collected via sharing questionnaire.

### How Corona Virus could affect the Culture of Eating Special Reference to Street Food: THE NEW NORMAL

Research paper "How Corona Virus could Affect the Culture of Eating Special Reference to Street Food: THE NEW NORMAL" By Miss ShikhaRanka [11] Speaks about how the food industry will change after the impact of Covid-19. Especially the street food industry has been affected by the pandemic. Before the pandemic, people didn't really care about hygiene or social distancing but with Covid-19 in the picture, everyone considers hygiene and sanitation. Street food is important as it is a source of ready-to-eat and affordable food for common people and it also generates employment.

## The effects of COVID-19 pandemic outbreak on food consumption preferences and their causes (May 2020)

According to the research paper [12] "The effects of COVID-19 pandemic outbreak on food consumption preferences and their causes" by Bilal Celik 1 and Senol Dane 2, tells us that the COVID-19 pandemic increased panic levels in both old and young people. The study tells us that the attitude of families in terms of food consumption towards the COVID-19 pandemic and lockdown. The method the survey conducted during the lockdown period of COVID-19 was to

get the food preference and their causes pre-pandemic and post-pandemic. The above research concludes that the COVID-19 outbreak has a powerful impact on food consumption preferences and the causes on families.

#### **COVID-19 Pandemic changes the food consumption patterns**

According to the research paper [13] "COVID-19 pandemic changes the food consumption patterns" by Tome Eftimov 1, GorjanPopovski 2, MatejPetkovic 3, Barbara Korousic 4, and DragiKocev 5, tells us that pandemic has affected all aspects of human life including their food consumption. Due to the various effects of COVID-19, the overall food consumption was limited to introduce the change in global dietary patterns. The food markets were restricted and limited. Due to restaurants and venues being closed people were not able to buy and consume food, so people start preparing at home. Many people are exposed to limited earnings at least on the scale which automatically impacted global food consumption patterns. Their methodology the change in food consumption patterns before and during the pandemic was obvious.

## The changes in food consumption behavior: A rapid observational study of COVID-19 pandemic (OCT 2020)

According to the research "The changes in food consumption behavior: A rapid observational study of COVID-19 pandemic" by Suci Sandi Wachyuni 1, KadekWiweka 2, tells us that- to identify food consumption behavior pre-pandemic, during the pandemic, and post-pandemic (Possibility). The basic thing is the need for food and drink and all these impacted restaurants, and cafés, due to COVID-19 and also has an impact on food health issues people around the world. This research can be the source of information for food or culinary skate holders to encourage innovative ideas to build a culinary business following changes in people's consumption behavior. Health, social and psychological factors have shown an influence on the respondent's food consumption behavior, and self-cooked trends are increasing. The increasing awareness in aspects of health, quality food and safety in choosing their food [14]

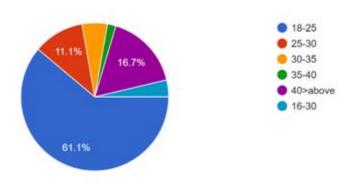
#### **Research methodology**

Researchers used both primary and secondary data sources to gather the information for research work. Convenience sampling is used for research, as the limited time available for research. Structured questionnaires were developed by researchers to obtain primary data on research topics. Researchers have collected secondary data through books, research articles, industry literature, and online reports from various research and government agencies.

#### **Data Analysis**

Researchers have formed questionnaire in Google forms and circulated the same to the citizens of Pune to find out the changes in their food habits during pandemic. Approximately 150 responses were received. Researchers have considered only 110 appropriate responses for further data analysis and conclusion of the research.

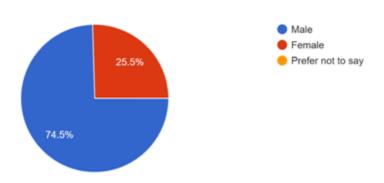
1.Age group



#### Figure 1 – Age Group

Figure 1 shows that out of 110 respondents 68 respondents i.e. (61.8%) are in the age group of 18-25 years, followed by 12 respondents i.e. (10.9%) are in the age group of 25-30 years, 6 respondents i.e. (5.5%) are in the age group of 30-35 years, only 2 respondent i.e. (1.8%) is in the age group of 35-40 years, 18 respondents i.e. (16.4%) are above the age of 40 and 4 respondents i.e., 3.6% are in the age group of 16-30 years.

2.Gender



#### Figure 2 - Gender

There are 82 respondents i.e. (74.5%) are male and remaining 28 respondents i.e., 25.5% are female as seen in Figure 2

3. How many times you were eating out in pre pandemic period?

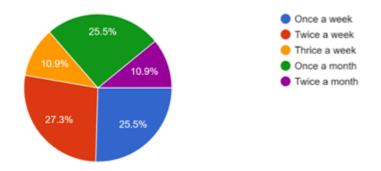
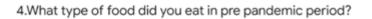


Figure 3 – Frequency of eating out in pre pandemic period

Figure 3represents 28 respondents i.e. (25.5%) were eating out once a week in the pre-pandemic period while 30 respondents i.e. (27.3) were eating out twice a week, 12 respondents i.e. (10.9%) were eating out thrice a week, 28 respondents i.e. (25.5%) were eating out once in a month and 12 respondents i.e. (10.9%) were eating out twice a month in the pre-pandemic period.



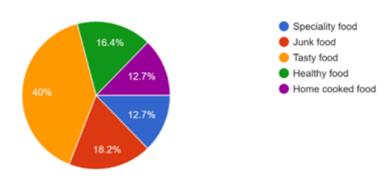
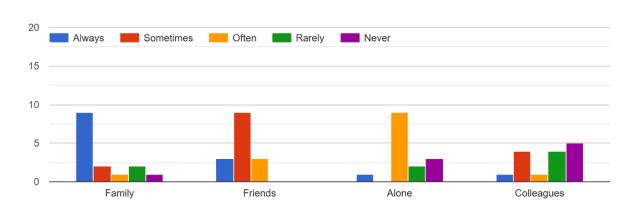


Figure 4 – Type of food preferred in pre pandemic period

Figure 4shows that out of 110 respondents 44 respondents i.e. (40%) were eating tasty food in pre-pandemic period, while 20 respondents i.e. (18.2%) were eating junk food, 18 respondents i.e. (16.4%) were eating healthy food, 14 respondents i.e. (12.7%) were eating home cooked food and 14 respondents i.e. (12.7%) were eating specialty food in pre-pandemic period.



5.With whom did you go out for eating?

#### Figure 5 – Preference for set of people to go out for eating

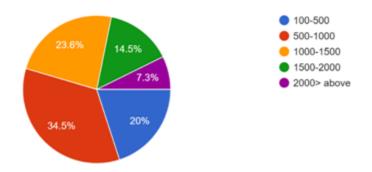
The bar graph as shown in Figure 5 shows that out of 110 respondents 18 respondents i.e. (16.3%) always go with family for eating out, while 4 respondents i.e. (3.6%) go sometimes with their family for eating out, 2 respondents i.e. (1.8%) goes often out with family, 4 respondents i.e. (3.6%) go rarely out with their family and 2 respondent i.e. (1.8%) never goes out for eating with their family.

Pattern of eating out with friends represents 6 respondents i.e. (5.4%) always go with their friends for eating out while 18 respondents i.e. (16.3%) go sometimes with their friends for eating out, 6 respondents i.e. (5.4%) often go out with their friends for eating out.

Followed by 2 respondent i.e. (1.8%) always goes alone for eating out, while 18 respondents i.e. (16.3%) often go alone for eating out, 4 respondents i.e. (3.6%) rarely go alone for eating out, 6 respondents i.e. (5.4%) never go alone for eating out.

If the one has to go with colleagues, 2 respondents i.e. (1.8%) always goes with their colleagues for eating out while 8 respondents i.e. (7.2%) sometimes go with their colleagues for eating out,

2 respondents i.e. (1.8%) often goes with their colleagues for eating out, 8 respondents i.e. (7.2%) rarely go with their colleagues for eating out and 10 respondents i.e. (9%) never goes with their colleagues for eating out.

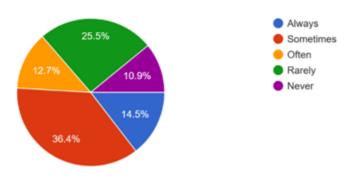


6. Average money spent on eating out in a month in pre pandemic period

Figure 6 – Average money spent on eating out – pre pandemic

Figure 6 tells us that about 38 respondents i.e. (34.5%) were spending money from 500-1000 for eating out in a month in the pre-pandemic period, while 28 respondents i.e. (23.6%) were spending money from 1000-1500, 22 respondents i.e. (20%) were spending money from 100-500, 16 respondents i.e. (14.5%) were spending money from 1500-2000 and 8 respondents i.e. (7.3%) were spending more than Rs. 2000 in a month in pre-pandemic.

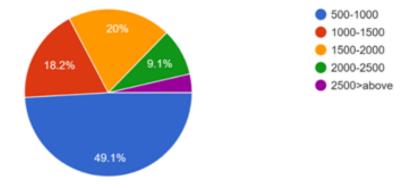
7.1 liked ordering food from outside during pandemic



**Figure 7 – Ordering food from outside during pandemic** 

Figure 7 shows that 16 respondents i.e. (14.5%) were always ordering the food from outside during the pandemic, while 40 respondents i.e. (36.4%) were ordering food sometimes from outside,14 respondents i.e. (12.7%) often ordered food from outside and28 respondents i.e. (25.5%) were rarely ordering the food from outside. Only 12 respondents i.e. (10.9%) have never ordered food from outside during pandemic.

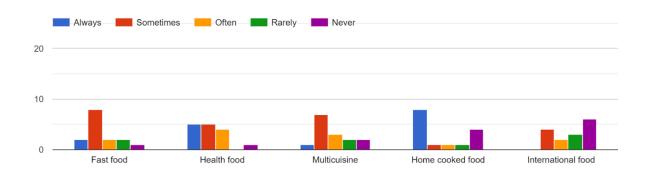
8.Average money spent on ordering food per month during pandemic



#### Figure 8 – Money spent on ordering food per month during pandemic

Figure 8 represents that 52 respondents i.e. (49.1%) spent their money to order food from outside during the pandemic price ranging from 500-to 1000 while 20 respondents i.e. (18.2%) were spent to order food ranging from 1000-1500 followed by 22 respondents i.e. (20%) were spending money to order food from outside price ranging from 1500-2000, about10 respondents i.e. (9.1%) were spending money to order food from outside price ranging from 2000-2500 and only 4 respondents i.e. (3.6%) were spending more than 2500 and above to order food from outside during pandemic.

9.While ordering food during pandemic what were your preferences?



#### Figure 9 - Preference of food while ordering during pandemic

It is observed that4 respondents i.e. (3.6%) were always ordering fast food during pandemics while 16 respondents i.e. (14.5%) were ordering fast food sometimes during the pandemic, 4 respondents i.e. (3.6%) were often ordering fast food during the pandemic, 4 respondents i.e. (3.6%) rarely ordered fast food during pandemic and 2 respondent i.e. (1.8%) never ordered fast food during the pandemic.

On the other hand,10 respondents i.e. (9%) were always ordering healthy food during the pandemic, 10 respondents i.e. (9%) were ordering healthy food during the pandemic, 8 respondents i.e. (7.2%) were often ordering healthy food during the pandemic, and 2respondents i.e. (1.8%) never ordered healthy food during the pandemic.

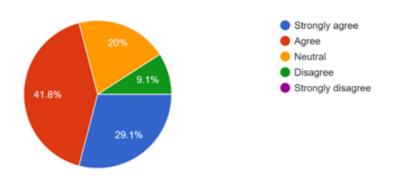
Followed by 2 respondent i.e. (1.8%) were always ordering multicuisine food during the pandemic, 14 respondents i.e. (12.7%) sometimes ordered multicuisine food during the pandemic, 6 respondents i.e. (5.4%) often order multicuisine food during the pandemic, 4respondents i.e. (3.6%) rarely ordered multicuisine food during the pandemic and 4 respondents i.e. (3.6%) never ordered multicuisine food during the pandemic.

There are some respondents who ordered home-cooked food.As seen in figure 9 about 16 respondents i.e. (14.5%) always ordered a home-cooked food during the pandemic, 2 respondent i.e. (1.8%) sometimes ordered a home-cooked food during the pandemic, 2 respondent i.e. (1.8%) often ordered a home-cooked food during the pandemic, 2 respondent i.e. (1.8%) rarely ordered a home-cooked food during the pandemic. There were 8 respondents i.e. (7.2%) who

never ordered a home-cooked food during the pandemic.

From figure 9 we can say that, 8 respondents i.e. (7.2%) sometimes ordered international food during the pandemic, 4 respondents i.e. (3.6%) often ordered international food during the pandemic, 6 respondents i.e. (5.4%) rarely ordered international food during the pandemic and 12 respondents i.e. (10.9%) never ordered international food during the pandemic.

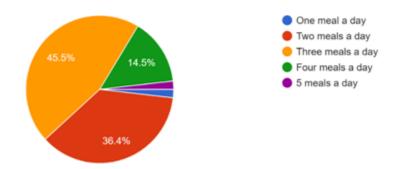
10.Do you feel your eating habits have altered during pandemic?



#### Figure 10 – Alteration in eating habits during pandemic

Figure 10 shows that about 46 respondents i.e. (41.8%) agreed that their eating habits have been altered during the pandemic, while 32 respondents i.e. (29.1%) were strongly agreed with the statement. There are 22 respondents i.e. (20%) who were neutral to the statement and 10 respondents i.e. (9.1%) disagreed that their eating habits were altered during the pandemic.

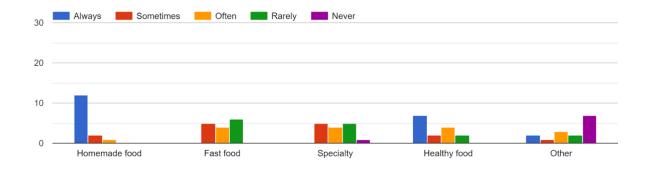
11. How many meals you ate in a day during pandemic?



#### Figure 11 – Number of meals consumed in a day during pandemic

Figure 11 represents almost 50 respondents i.e. (45.5%) were having three meals a day during the pandemic, 40 respondents i.e. (36.4%) were having two meals a day, 16 respondents i.e. (14.5%) were having four meals a day and only 2 respondent i.e. (1.8%) was having five meals a day and 2 respondent i.e. (1.8%) was having one meal a day during the pandemic

12.What type of food you prefered to eat during pandemic?



#### Figure 12 – Type of food preferred to eat during pandemic

Figure 12 tells us that out of 110 respondents 24 respondents i.e. (21.8%) always preferred homemade food during the pandemic, 4 respondents i.e. (3.6%) sometimes preferred homemade food during the pandemic, 2respondents i.e. (1.8%) often preferred homemade food during the pandemic.

Followed by 10 respondents i.e. (9%) sometimes preferred fast food during the pandemic, 8 respondents i.e. (7.2%) often prefer fast food during the pandemic and 12 respondents i.e. (10.9%) rarely preferred fast food during the pandemic.

There are10 respondents i.e. (9%) sometimes preferred specialty food during the pandemic, 8 respondents i.e. (7.2%) often preferred specialty food during the pandemic, 10 respondents i.e. (9%) rarely preferred specialty food during the pandemic, 2 respondent i.e. (1.8%) never preferred specialty food during the pandemic.

When it comes to the healthy food14 respondents i.e. (12.7%) always prefer healthy food during

the pandemic, 4 respondents i.e. (3.6%) sometimes prefer healthy food during the pandemic, 8 respondents i.e. (7.2%) often prefer healthy food during the pandemic and 4 respondents i.e. (3.6%) rarely prefers healthy food during the pandemic.

Variety of foodis necessary to get all required nutrition to human body. Only 4 respondents i.e. (3.6%) always prefer other variety of food during the pandemic, 2 respondent i.e. (1.8%) sometimes prefer other variety of food during the pandemic, 6 respondents i.e. (5.4%) often prefer other variety of food during the pandemic, 4 respondents i.e. (3.6%) rarely preferred other variety of food during the pandemic and 14 respondents i.e. (12.7%) never preferred other variety of food during the pandemic.

#### **CONCLUSION:**

All respondents considered for the research from Pune city have some or other changes in food habit during pandemic. Following are some outcomes of the research,

- 1. All respondents have eating out habit in pre-pandemic times. The frequency of eating out varying from once a week to almost 12 times in a month. There are various accompanying groups for eating out like family, friends, colleagues and even sometimes alone.
- 2. Most of the people preferred to eat tasty food followed by junk food as a second preference. A set of respondents also select to have healthy food and home cooked food. Very limited number of respondents have palate for speciality food/cuisine.
- 3. During the pandemic as the lockdown was imposed and no one was able to go out and eat, the situation was critical and people were frightened to go out. Number of people ordering food from outside increased during pandemic.
- 4. The money spent on ordering food per month was same in pre-pandemic stage as well as during pandemic.
- 5. Due to lockdown and COVID-19 protocols people's preferences for ordering food were more for home-cooked food and sometimes fast food from outside.
- 6. There is no change in number of meals consumed in a day in pre-pandemic and during the pandemic period. People are consuming three meals a day as a routine.
- 7. There is change in eating habits during the pandemic. Eating patterns and eating habits altered. In pandemic period people are more concerned about their health and preferred ordering healthy and home cooked food rather than any other type of food.

#### **References:**

1.Ben Hassen, T., El Bilali, H., Allahyari, M. S., Al Samman, H., & Marzban, S. (2022). Observations on food consumption behaviors during the COVID-19 pandemic in Oman. *Frontiers in Public Health*, *9*, 779654.

2. Keeble, M., Adams, J., & Burgoine, T. (2023). Changes in Online Food Access During the COVID-19 Pandemic and Associations With Deprivation: Longitudinal Analysis. *JMIR Public Health and Surveillance*, *9*, e41822.

3. Di Renzo, L., Gualtieri, P., Cinelli, G., Bigioni, G., Soldati, L., Attinà, A., ... & De Lorenzo, A. (2020). Psychological aspects and eating habits during COVID-19 home confinement: results of EHLC-COVID-19 Italian online survey. *Nutrients*, *12*(7), 2152.

4. Yilmaz, H. Ö., Aslan, R., & Unal, C. (2020). Effect of the COVID-19 pandemic on eating habits and food purchasing behaviors of university students. *Kesmas: Jurnal Kesehatan Masyarakat Nasional (National Public Health Journal)*, *15*(3).

5.Ismail, L. C., Osaili, T. M., Mohamad, M. N., Al Marzouqi, A., Jarrar, A. H., Zampelas, A., ... & Al Dhaheri, A. S. (2021). Assessment of eating habits and lifestyle during the coronavirus 2019 pandemic in the Middle East and North Africa region: a cross-sectional study. *British Journal of Nutrition*, *126*(5), 757-766.

<sup>6</sup> Mascherini, G., Catelan, D., Pellegrini-Giampietro, D. E., Petri, C., Scaletti, C., &Gulisano, M. (2021). Changes in physical activity levels, eating habits and psychological well-being during the Italian COVID-19 pandemic lockdown: Impact of socio-demographic factors on the Florentine academic population. *PloS one*, *16*(5), e0252395.

7.Górnicka, M., Drywień, M. E., Zielinska, M. A., &Hamułka, J. (2020). Dietary and lifestyle changes during COVID-19 and the subsequent lockdowns among Polish adults: a cross-sectional online survey PLifeCOVID-19 study. *Nutrients*, *12*(8), 2324.

8. Jafri, A., Mathe, N., Aglago, E. K., Konyole, S. O., Ouedraogo, M., Audain, K., ...&Sanou, D. (2021). Food availability, accessibility and dietary practices during the COVID-19 pandemic: a multi-country survey. *Public health nutrition*, *24*(7), 1798-1805.

9. Bühlmeier, J., Frölich, S., Ludwig, C., Knoll-Pientka, N., Schmidt, B., Föcker, M., &Libuda, L. (2022). Changes in patterns of eating habits and food intake during the first German COVID-19 lockdown: results of a cross-sectional online survey. *European Journal of Nutrition*, *61*(6), 3293-3306.

10. Karmarkar, A. V., Shah, G. D., Gumaste, R. R., & Shende, K. M. (2024). A study on inclination of people towards super foods to sustain good health during pandemic. *Sustainability, Agri, Food and Environmental Research, 12.* 

11. Ranka, S. (2020). How corona virus could affect the culture of eating special reference to street food: the new normal. *IOSR Journal of Business and Management*, 22(6), 1-7.

12. Celik, B., & Dane, S. (2020). The effects of COVID-19 pandemic outbreak on food consumption preferences and their causes. *Journal of research in medical and dental science*, 8(3), 169-173.

13. Eftimov, T., Popovski, G., Petković, M., Seljak, B. K., &Kocev, D. (2020). COVID-19 pandemic changes the food consumption patterns. *Trends in food science & technology*, *104*, 268-272.

14. Wachyuni, S. S., &Wiweka, K. (2020). The changes in food consumption behavior: a rapid observational study of COVID-19 pandemic. *International Journal of Management Innovation* & *Entrepreneurial Research*, 6(2), 77-87.