Dietary Panic under Public Crisis: A Case Study of the COVID-19 Outbreak

Ziyi Wang[1, *]

[1]SOAS University of London, UK

*Corresponding author: 699970@soas.ac.uk

Abstract. Since April 1st, Shanghai had been under a citywide quarantine for two months due to the exponential growth of the new COVID-19 variant, Omicron. Hence, over 25 million people have been confined, leading to drastic changes in residents' dietary behaviours compared to the preceding period. This study aims to examine the patterns of dietary panic in the situation of public crisis through the case of shanghai confinement based on the method of participant observation. The discussion included perceived changes in food consumption, variety of foodstuff intake and individual culinary practices of inhabitants during the lockdown period. Variables which affected inhabitants' dietary behaviours had been analysed, as well as the potential factors related to lack of food provisions. Research on the local food system and logistic access reflected the challenging food supply systems were facing as being restricted by anti-contagion policies and emergency public management, resulting in a common trend of irregular dietary habits and negative mental conditions during quarantine. Evaluating the situation may help to understand the relationship between dietary panic and global sanitary emergencies while being referenced further improvements in the method and timing of deploying public policy and societal management in the future.

Keywords: Dietary behaviours; Public crisis; Pandemic lockdown; COVID-19.

1. Introduction

COVID-19 caused by the SARS-CoV-2 virus was first discovered in December 2019 and spread rapidly on a global scale, which was identified by the World Health Organization (WHO) as a pandemic in March 2020 [1] due to its acute severity. To limit the spread of the virus through public facilities, many countries have adopted social distance restriction policies of different degrees over a specified period. And the virus has increased in severity in the intervening two years, with a variant of COVID-19 possessing an even more devastating ability to spread. The VOCs (Alpha, Beta, Gamma, and Delta) developed several changes in the spike protein compared to the original wild-type strain, making them more transmissible and capable of inducing immunological escape [2]. The brand-new SARS-CoV-2 VOC Omicron was discovered on November 2nd, 2021, in South Africa, where it subsequently quickly spread. By out-competing Delta VOC, which represented more than 90% of genomes sequenced worldwide in October 2021, it sparked sudden pandemic breakouts over South Africa, then Europe, and subsequently other countries in the globe [3]. This has led to a renewed and challenging situation for the government as well as for the health care institutions. This includes funding for the admission, centralized management and care of the rapidly growing number of positive patients, as well as frequent Nucleic Acid PCR Tests for all residents.

In March 2022, the Omicron variant was rampant in Shanghai, leading to a confinement time that last for 2 months. From April 1 to May 31, all districts implemented static management and lockdown [4]. Until June 1, the epidemic was effectively controlled and most of the system started to resume working. Except for necessary medical first aid or legal obligations, inhabitants must stay in a private residence or designated school dormitory area. This temporary scarcity of food may have influenced people's culinary motivations and behaviours [5]. The closing of restaurants and catering establishments has caused a shift in meal preparation and, as a result, a change in dietary patterns. During the lockdown period, the media also played an important role in influencing and reacting to people's changing dietary lives. One of the most obvious features is the rise in the trend for searches for recipes of all kinds, followed by the popularity of videos of food ideas that can be prepared with simple tools and ingredients. Although there has been rising attention to the influence of the pandemic

on mental and physical outcomes, little literature focuses on the association between modern public crisis and dietary panic. This study aims to review perceived changes in diet phenomena of inhabitants during the lockdown period as well as assess the impact of the public crisis on the aspect of dietary panic.

To frame this research, participant observation was used as methodology. Firstly, the study will describe the changes in the diet of the population throughout the lockdown period, including the way food is obtained, the type of food and the way it is prepared. Secondly, demonstrate the manifestations of dietary panics, such as irregular eating cycles, the difficulty of satisfying heterogeneous demands and the anxiety caused by monotony and shortage of food. Finally, the causes of dietary panic are examined, in terms of incomplete information transfer, poor food logistics and inaccurate service during the initial COVID-19 Omicron lockdown period. This research could be useful for developing community policy and food chain strategies under public crisis, at the meantime, enriching research in the field related to public crisis and emergency management.

2. Perceived Changes in Dietary Habits due to COVID-19 lockdown

In order to limit the spread of the pandemic, the government has adopted various policies to limit social distances to ensure the safety of residents and ease the pressure on the medical system [6]. Public facilities, including restaurants, were banned from operating and only food retailers were allowed to provide food directly to the community. The lockdown had made a huge impact on the life of inhabitants and the food system in many different ways.

2.1 The Resource of Food

As a result of the epidemic prevention policy, people were unable to leave their homes or their neighbourhoods, and going out shopping (including food markets, supermarkets and grocery shops) was no longer feasible, which led to a drastic change in the source of food in the daily diet of the residents. For residents of family units, household food stocks are the most basic source of food during the initial week. Additionally, some habitats with their gardens or enough soil available for growing food choose to grow vegetables that are easy to survive and have a high harvest rate at the same time. Government supplies were the main source of food in the first part of the lockdown. Students and teachers whose activities were restricted to the school premises had to wait for a box lunch that was distributed by the school canteen. With the gradual improvement of the policy in a few weeks, self-organized groups purchased food on a neighbourhood basis, and large batches of orders were placed with food retailers through online platforms and later distributed to each household by neighbourhood committees and volunteers, this was the most stable and widely way of food access.

2.2 The Type of Food

Most of the supplied food distributed by the government is vegetables that can be kept for long periods such as turnips, courgettes and potatoes, to reduce the risk of spoilage during transport. For personal cultivation, the most common of which are shallots and cilantro, used as a spicy. Lettuce was also usually planted during the lockdown as it is suitable for survival in most conditions of the soil. Foods and drinks high in sugar and calories were the most popular varieties, such as Coke, after some food suppliers were permitted to be ordered on a community-based scale. This collective procurement also provided a wider variety of foods for residents, including eggs, milk, and dairy products, as well as the usual types of meat and fish, which are not usually easy to store and need to be purchased regularly. Likewise, convenience foods were also very popular, especially those containing staples that could be reheated and served in a simple way. Some companies also give out food supplements, usual snacks of nuts and sealed packages of meat that have been cured, which is also the most common end-of-year welfare for employees. The significant change is the homogeneity of the diet. People cannot choose a specific type of food they received. Even for large-scale

purchasing in the community, orders that do not meet the standard of basic needs were going to be rejected by Resident Council.

2.3 Culinary Practices

As cookers and gas are not accessible in traditional school accommodations and specific types of flats, a significant amount of people used to rely on takeaway and company or on-campus catering. The lockdown made both of the methods difficult to achieve due to the consideration of precautions related to food transportation. Convenience foods that can be heated with water and the lime that comes with the packaging are the choice of most people. For those who could access stoves and cooking utensils, the limited and diverse range of food has led to a change in their culinary practices [7]. Creating and disseminating instructional videos and recipes for different ways of preparing the same vegetable has become a new trend. Also, videos on how to prepare food and desserts without using kitchen appliances such as stovetops and ovens are increasingly popular. Amongst other features, there has been a significant change in attitudes towards the use of convenience foods. Canned foods were often considered unhealthy with too many chemicals added, meaning they rarely appeared in household dishes before the pandemic. However, during the lockdown, large quantities of canned Luncheon Meat were used in the preparation of food to make dishes tastier and more varied.

3. Irregular dietary behaviours during the lockdown period

There is always a strong connection between living environment, perceived stress and eating behaviours. The complicated and problematic relationship between people with eating disorders and diet will be exacerbated due to the current state of food insecurity and panic shopping [8]. Traumatic experiences have an impact on people's mental health. The fear of being infected, as well as the loss of family members, produces a tremendous deal of uncertainty. Anxiety, despair, rage, and loneliness are all symptoms of isolation. For many persons with anorexia nervosa who are already emotionally and physically isolated, the negative emotional impact of isolation may be more evident. When there is severe social detachment, poor interpersonal functioning becomes more difficult to handle. These problems are not only limited to persons suffering from eating disorders. [9]. In fact, there are many papers had described the changes in people's eating behaviour in the different age groups over the globe. Bennett and his team made a literature review of related journals that described the changes in people's diets during the lockdown and studied the trend and relationship between those data [10]. Despite some studies indicating a decrease in food intake and cuisine practices, several studies indicated an increase in the number of snacks and meals taken or a rise in unhealthy food choices in the period of lockdown.

Considering the difference between regional lockdown policies and logistics development, there would be various results of inhabitants' behaviours. In the situation of Shanghai's lockdown, irregular dietary patterns, the difficulty of satisfying heterogeneous needs and anxiety due to shortage and monotony of food is the most frequent negative changes under the impact of coronavirus SARS-Cov2. And for people segregated in different facilities and areas, there are correspondingly different degrees of negative moods, as well as showing various manifestations of dietary anxiety.

Because it is difficult to access food supply and have predictable storage of food, there is a common phenomenon that there is an increase in irregular diet [11]. Meal number and frequency of adolescents have changed dramatically under the situation of lockdown as a result of psychological pressure. Some of the inhabitants might feel compelled to eat more frequently or in larger quantities as a coping method for their mounting dread and anxiety. Although there was a national quarantine in 2020, in the case of Shanghai, due to the speed and devastation of the epidemic, the quarantine policy and the level of restriction on the transportation of the food supply chain were more stringent to protect the public as well as the logistics and medical staff. The uncertainty of access to food sources led to a wide range of anxiety towards inhabitants' moods, resulting in an unnormal pattern of dietary behaviours [12]. Even for students and teachers whose activities are restricted to the school grounds,

the regular supply of box lunches still does not eliminate this anxiety. Because of the limited amount of ingredients that can be received in the canteen, the variety of food is homogeneous and unable to have a personalized choice. Compare to residents who were in their living place, people who lived in dormitories during lockdown were often faced with limited spaces and fewer choices of cruise practice methods. Unlike neighbourhood communities that were able to order food through the online platform, the logistics of the food industry are not available for those public institutions like schools, companies and temporary hotels for quarantine-required people. Delivery can only be interfaced by the district with the managers of the relevant facilities. The lack of ttttttttttttt of their following meals' content might also be one of the factors that exacerbate the negative emotions and unhealthy eating behaviour.

4. The reasons behind the public dietary panic

According to the data in 2020 from the National Bureau of Statistics of China, food consumption per inhabitant of Shanghai was 111.4kg, and per capita consumption of vegetables and edible mushrooms is 105.3kg, Meat consumption per capita is 19.1kg, which means that it could be estimated that the average daily food demand of Shanghai's resident population (approximately 25 million) is around 16,000 tonnes, maintained by the structured and powerful local food supply chain.

Shanghai's food supply chain during the lockdown period had changed from the normal situation because of the impact of COVID-19. Before the pandemic, foodstuffs (including cereals and potatoes, animal foods, pulses and their products, vegetables and fruits, and purely caloric foods) were from urban agricultural distribution centres and cross-city food online shopping. The function of urban agricultural distribution centres as first-categories distribution pivot of ingredients for the inhabitant's daily meals is to absorb large quantities of wholesale fresh produce from surrounding farmers and local growing institutions. Centres are responsible for delivering food to supermarkets, schools, corporate canteens and free markets, which later be consumed by citizens through dine-in or takeaway, while online shopping staff would be transported straight to individual residences [13]. However, during confinement time, the anti-epidemic policy restricted the operation of most supermarkets, and prohibited all kinds of commercial activities in the catering industry at the same time, leading to a great change in the structure of the local food supply chain. The composition of the food source for citizens changed into three main parts: local emergency food reserves, Government emergency supplies and donated supplies from other provinces and cities. During this period time, the free market contained E-commerce platforms and group purchases, the two purchase methods that citizens can access for food resources. For governmental supplies, the process of all foodstuff was distributed to neighbourhood committees, which were managed by the State Administration of Grain. At the same time, the supplies from other regions were also delivered to neighbourhood committees by municipal charities and district governments. After the committee received all the supplies, volunteers from their neighbourhood were responsible for the distribution to individuals and families.

This emergency food supply chain was facing huge pressure and realistic factors to achieve the work. From the aspect of the logistics industry, truck drivers responsible for transporting goods between cities were required to provide health codes, journey history, TB test results and a variety of other tests required for epidemic prevention. At the same time, once a vehicle has passed through a high-risk area, truck drivers will not be able to continue their logistics work and even be forced to return with the same route. Furthermore, the logistics warehouses and yards around Shanghai had stopped operating under the epidemic, meaning that the whole sorting work cannot be completed as normal. Also, as a result of the prohibition on vehicle traffic during the epidemic, the logistics transport tasks for the section from the countryside to the urban could not be completed either. Finally, staff who were responsible for logistics distribution may have been restricted within their neighbourhoods or residences and were unable to continue to participate in the distribution work, leading to a result of lack of labour force. Under the conditions where the neighbourhoods are strictly lockdown, self-pick-up of parcels is not possible, while home delivery requires a large number of

staff, which the community simply cannot meet. This has caused the price of various household goods in Shanghai to skyrocket, with the price of home delivery by courier increasing more than tenfold compared to the price before the epidemic, and this has been repeatedly rejected by courier companies, with only a few willing to take delivery.

All those factors during quarantine raised serious questions for citizens in three main aspects. Firstly, information communication among departments and neighbourhood committees is hard to maintain timely and effective. Inhabitants have to join neighbourhood online chat groups to keep up with the latest notification from neighbourhood committees about supplies and neighbourhood-based group purchase activities. Secondly, logistics have a hard time handling food supply for every restricts and neighbourhood, some food will inevitably spoil or decay in the process during transportation. The quality of food received would affect the emotion of inhabitants, which is one of the most correlated effects that lead to eating disorders like binge drinking and eating, or even lead to a negative life attitude during the lockdown. Finally, neighbourhood voluntary service is restricted by the number and personal energy of volunteers who have limited related experience. For elder people that might unfamiliar with modern technology or people who have disabilities or disorders, those groups of people would be difficult to receive information, yet under this server pandemic situation and strict confinement, there were few humanized and inclusive services developed.

5. Conclusion

This study on dietary behaviours during quarantine due to the public crisis based on the case study of the COVID-19 outbreak in Shanghai described the pattern of changes in inhabitants' diet and food intake. The strict restriction on logistics and activities led to great pressure on local food systems including agricultural distribution centres, city government and neighbourhood communities. The food supply systems were affected by the policy, resulting in limited food resources as most commercial activities of food were forbidden. There was an increase in the trend of cuisine practice, while some of the people showed negative diet behaviours like overeating or low dietary intake because of the anxiety of lack of food resources. By analysing the detailed composition of the diet, easily transportable vegetables were the most common among the food supplies provided by the government and therefore became the main food material during the blockade. Meanwhile, meat, eggs and milk, high-calorie foods and convenience foods were most popular during the lockdown periods. In the aspect of cooking methods, social media and video platforms had seen an increase in creative recipes and relative content that instruct people to prepare meals using simple ingredients and cooking utensils, which reflected the demands of avoiding dietary homogeneity under limited resources. Anxiety about food shortages can be attributed to three factors. The lack of timely information between the government and individual residents, limited capacity of the logistics industry to deal with the situation under strict control and the lack of measures in the community to manage large crises for people in need, such as the elderly. The local food supply chain was under extreme pressure during the outbreak. The quarantine policy made it more difficult to travel between Shanghai and surrounding areas, while the shortage of human resources in the logistics industry made it even more difficult to transport food resources.

These changes due to the quarantine environment could lead to chronic health conditions as a result of Irregular dietary behaviours. For intensified and lifted policies related to food supplies to avoid this phenomenon in protentional public crises in the future, several points should be concerned in policy-making. The announcement and information sharing among central food institutions, local communities and individuals should be more effective in order to eliminate the gap in information acknowledgement, which could lead to a negative influence on inhabitants' moods. Also, local logistics should develop emergency strategies that can handle the amount of foodstuff transportation with good quality and quantity. For the community, more inclusive service systems should be designed to provide additional contact or assistance for groups with limited access to the internet. Further investigation should be focused on specific data on different groups of age, occupation and

health status as a reference for public strategies that can be more inclusive under the public crises while ensuring the quality of life for local citizens. In future research, the manifestations of people's dietary panic in different periods of public crisis can be comprehensively compared, and the commonalities and differences of this phenomenon can be analysed from a broader perspective, thus extending the scope for progress in public management.

References

[1] World Health Organization, 2021 WHO Coronavirus Disease (COVID-19) Dashboard. Retrieved from: https://covid19.who.int

[2] Tian, Dandan, Yanhong Sun, Huihong Xu, and Qing Ye. The Emergence and Epidemic Characteristics of the Highly Mutated SARS-CoV-2 Omicron Variant. Journal of Medical Virology, 2022, 94 (6): 2376–2383.

[3] Grabowski, Frederic, Marek Kochańczyk, and Tomasz Lipniacki. The Spread of SARS-CoV-2 Variant Omicron with a Doubling Time of 2.0–3.3 Days Can Be Explained by Immune Evasion. Viruses, 2022, 14 (2): 294.

[4] Yang, Haibo, Hao Nie, Dewei Zhou, Yujia Wang, and Wei Zuo. The Effect of Strict Lockdown on Omicron SARS-CoV-2 Variant Transmission in Shanghai, 2022.

[5] Sarda, Barthélemy, Corinne Delamaire, Anne-Juliette Serry, and Pauline Ducrot. Changes in Home Cooking and Culinary Practices among the French Population during the COVID-19 Lockdown. Appetite, 2022, 168 (January): 105743.

[6] Hsiang, Solomon, Daniel Allen, Sébastien Annan-Phan, Kendon Bell, Ian Bolliger, Trinetta Chong, Hannah Druckenmiller, et al. The Effect of Large-Scale Anti-Contagion Policies on the COVID-19 Pandemic. Nature, 2020, 584 (7820): 262–67.

[7] Romeo-Arroyo, E., M. Mora, and L. Vázquez-Araújo. Consumer Behavior in Confinement Times: Food Choice and Cooking Attitudes in Spain. International Journal of Gastronomy and Food Science, 2020, 21 (October): 100226.

[8] Touyz, Stephen, Hubert Lacey, and Phillipa Hay. Eating Disorders in the Time of COVID-19. Journal of Eating Disorders, 2020, 8 (1): 19.

[9] Rodgers, Rachel F., Caterina Lombardo, Silvia Cerolini, Debra L. Franko, Mika Omori, Matthew Fuller-Tyszkiewicz, Jake Linardon, Philippe Courtet, and Sebastien Guillaume. The Impact of the COVID-19 Pandemic on Eating Disorder Risk and Symptoms. International Journal of Eating Disorders, 2020, 53 (7): 1166–70.

[10] Bennett, Grace, Elysia Young, Isabel Butler, and Shelly Coe. The Impact of Lockdown During the COVID-19 Outbreak on Dietary Habits in Various Population Groups: A Scoping Review. Frontiers in Nutrition, 2021, 8.

[11] Galali, Yaseen. The Impact of COVID-19 Confinement on the Eating Habits and Lifestyle Changes: A Cross Sectional Study. Food Science & Nutrition, 2021, 9 (4): 2105–13.

[12] Flaudias, Valentin, Sylvain Iceta, Oulmann Zerhouni, Rachel F. Rodgers, Joël Billieux, Pierre-Michel Llorca, Jordane Boudesseul, et al. COVID-19 Pandemic Lockdown and Problematic Eating Behaviors in a Student Population. Journal of Behavioral Addictions, 2020, 9 (3): 826–35.

[13] National Bureau of Statistics of China. https://data.stats.gov.cn/easyquery.htm?cn=E0103