COVID-19 nationwide lockdown and disruptions in the food environment in Zimbabwe

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Abstract: This study assessed the COVID-19 related disruptions on the food environment in Zimbabwe. Information on disruptions in personal life, changes in food habits, changes at food acquisition points and nutrition information required during the lockdown were collected from 243 adult respondents using online survey. The pandemic disrupted work, social events, food behaviors and habits. Food consumption behaviours changed during the COVID-19 lockdown included panic buying (68%) and stockpiling (60%). The changes in food related habits were associated with a reduction in eating out at restaurants (89%) and ordering fast foods (71%). Temperature checks, physical distancing, hand sanitization and restricted access to food stores when not wearing a mask were the changes made at the point of food acquisition and adhered to by respondents. Respondents required nutrition advice on what type of food to eat (58%), food availability in area (52%), and ways to reduce food wastages (49%). Important policy implications emanate from this study. Retailers should ensure adequate supplies of affordable food commodities. The public and private sector should provide information on nutritious foods, ways to reduce food wastages, and food safety during and after the COVID-19 pandemic. There is scope of using social media as one of the platforms to disseminate such information. Innovative interventions such as online purchasing and home delivery of food supplies should be piloted to reduce human physical contact. This requires

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PUBLIC INTEREST STATEMENT
This study analysed the disruptions in personal life, changes in food habits, and changes at food acquisition points caused by the COVID-19 pandemic and its associated lockdowns in Zimbabwe. About 68% and 60% of respondents resorted to panic buying and stockpiling food respectively. A reduction in eating out at restaurants (89%) and ordering fast foods (71%) were the main food related habits noted. Temperature checks, physical distancing, sanitization and wearing of masks were adhered to at points of food acquisition. About 58% and 52% of the respondents sought advice on types of nutritious food to eat, and food availability in area during the COVID-19 lockdown respectively. The retailers supported by public sector should ensure adequate supplies of affordable food commodities. The public and private sector should provide information on nutritious foods, ways to reduce food wastages, and food safety during and after the COVID-19 pandemic.
improved broadband connectivity and collaboration between mobile network companies and food suppliers to pilot online purchases.

**Subjects:** Nutrition; Environment & Economics; Development Studies

**Keywords:** COVID-19; lockdown; disruptions; food environment; Zimbabwe

1. Introduction

COVID-19, a disease caused by the virus SARS-Cov-2 spread very fast in terms of geographical coverage and casualties (Paules 2020). Its symptoms were first discovered in Wuhan city, China on the 31th of December 2019. The outbreak was then, declared a Public Health Emergency of International Concern (PHEIC) by the World Health Organisation (WHO) on 30th of January 2020 and a pandemic on 11th of March 2020 (Islam et al., 2020). Government of Zimbabwe declared the pandemic a national disaster on 12th of February 2020, where responsible ministries were advised to mobilise resources towards preventing and reducing the transmission of the virus. Globally COVID-19 outbreak continued to engulf in a short period of time. Zimbabwe reported its first coronavirus case on the 21st of March 2020. As of 24th of July 2020 coronavirus reported cases has risen to 6497, with 5221 recoveries and 202 deaths. **Figure 1** summarises the Zimbabwe coronavirus confirmed cases, recoveries and deaths from the 1st of May 2020 to 24th of August 2020.

Since the onset of the emergency, an inter-ministerial taskforce chaired by the vice -president was appointed to lead COVID-19 preparedness and national response plan. The taskforce oversees implementation of policies to reduce transmission of the virus. Specifically, a 21 days lockdown was enforced starting on the 30th of March 2020. During the COVID-19 induced lockdown only essential service providers were allowed to continue operating (Prosper Bright et al., 2021). Essential services exempted included security service personnel, healthcare professionals, agricultural product suppliers, retail shops and food outlets. With COVID-19 cases on the increase in Zimbabwe and the informal sector still closed, vulnerable people are bearing the brunt as the country’s food insecurity situation looms.

The rapid escalation of COVID-19 at global and country levels have clearly and quickly transformed the pandemic from a pure health event into a broader and much more complex phenomenon, which has immediate and medium-long term social and economic consequences on the society at large and on vulnerable communities in particular. Social distancing, school closures, and the closure of non-
essential businesses have led to significant personal, social, and economic hardships (Makaroun et al., 2020). The pandemic added to the country’s macroeconomic challenges such as high inflation rate, unstable exchange rate and unemployment. The economy was hardly hit, in response government of Zimbabwe announced a stimulus package of ZW$500 million meant to fight the disease and stimulate the economy. A greater share of the package went towards provision of medical aid to frontline workers and protective clothing equipment (PPEs). Because of the shortage of PPEs, government intervened in their production and distribution to deal with high needs in particular areas (Chitsamatanga et al. 2021). Some of the money was allocated as social grants meant to help people to buy food in the times when incomes depleted due to lockdowns.

COVID-19 outbreak has raised serious concern to the food environment as food supply channels face major disruptions mainly caused by transport interruptions and measures implemented to curb transmission of the virus at food acquisition points (Harris et al., 2020; Hobbs, 2020; Prosper Bright et al., 2021; Di Renzo et al., 2020). Sheth (2020), noted that work-life boundaries are now blurred as people work at home, study at home, and relax at home leading to increase in food demand. Furthermore, lifestyle of people, eating habits, diets and livelihoods were significantly affected by the pandemic (Harris et al., 2020; Sheth, 2020). The lockdown and social distancing necessary to combat the covid-19 virus has generated significant disruptions on consumer behavior and caused massive income losses (Sheth, 2020). Most children rely on school nutrition programs which makes them highly vulnerable to school closures. Moreover, loss of local and abroad remittances will deal a further blow on food availability among rural and urban households in the country.

There is growing evidence of the implications of COVID-19 on food supply and nutrition (Harris et al., 2020; Hobbs, 2020; Prosper Bright et al., 2021; Sheth, 2020; Singh et al., 2021). However, the implications of COVID-19 pandemic on personal life and food environment has not been extensively analysed in the context of Zimbabwe. The overall objective of the study was to assess how the COVID-19 pandemic and induced national lockdown affected people’s personal lives and the food environment in Zimbabwe and provided possible recommendations. In particular, it investigated the changes on personal life, food related behaviours, food related habits, at the point of food acquisition, and access to food and nutrition information brought about by COVID-19 pandemic. This research assists in enlightening the public on how COVID-19 disrupted the food environment and guide appropriate nutrition education and interventions aimed at avoiding disruptions in the food supply and environment.

2. Methods

2.1. Participant and procedure

An online COVID-19 and food environment survey was conducted from 24 May to 24 June 2020 among the Zimbabwean adult residents. The online questionnaire was uploaded on Kobo Collect and the online survey link was shared through emails, and social platforms including WhatsApp, Facebook, and LinkedIn for respondents to complete. The first section of the questionnaire consisted of an introductory paragraph describing the objective of the study as well as ethical issues of participating. To ensure wider coverage, we formed a research team consisting with 4 members with social networks on WhatsApp, Facebook, and LinkedIn. Each member shared the online survey link from their online platforms. These platforms included staff groups at Universities, the non-governmental sector, work, family, friends, and church groups. The participants were also encouraged to share with any other their social networks. A total of 243 participants responded to the survey. In principle, this method employed an adapted version of snowballing, whereby the researchers selected groups that they were connected to. Members in those groups were also requested to forward the link to other groups whom they were connected to in Zimbabwe.

A total of 243 respondents attended the online survey, among which the percentage of male and female was 51.44% and 48.56% respectively, and the composition of age groups was
distributed as 18–24 years (7%), 25–35 years (55.97%), 36–44 years (23.05%), 45–54 years (11.93%), and 55–64 years (2.06%) old. The provincial distribution of respondents was Harare (37.04%), Bulawayo (33.74%), Midlands (5.35%), Manicaland (4.94%), Matebeleland North (4.12%), Matebeleland South (4.12%), Masvingo (3.29%), Mashonaland East (2.47%), Mashonaland West (2.47%), and Mashonaland Central (2.47%). It was found that, the frequency of urban participants was higher (90.12%) than rural respondents (9.88%) because of frequent access and use of internet, and the study mostly reflected an urban food environment. In terms of the occupation status of those who participated in the study, the majority were in the NGO sector (38.68%), government civil service (11.52%), higher and tertiary education (11.11%), business (5.76%), unemployed (13.17%), agriculture (7%), finance and insurance (4.12%), and others (8.64%).

This online data collection method ensured easy access to respondents during a time when the COVID-19 induced lockdown did not allow for free movements and face-to-face contact with respondents. There were both positives and negatives associated with this sampling method. On the positive side, the online sampling method enabled a sample that had a national outlook, that covered all the provinces in Zimbabwe without incurring major costs. There were several downside aspects to the sampling technique. Firstly, the researchers acknowledge that the respondents who are likely to be the most affected by the COVID-19 induced food insecurity may have limited access to online social platforms due to data costs associated with such access. The study might therefore have been biased towards the more affluent members of society who are less affected by food insecurity. However, the researchers still believe that the findings of this paper are indicative of the effects of COVID-19 on the status of food security in Zimbabwe as a whole.

2.2. Study measures and data analysis
A self-developed questionnaire was used to collect information on key domains of COVID-19 pandemic and food environment in Zimbabwe. The first domain sought to understand how COVID-19 affected individuals’ personal daily life and activities with regards to disruptions on food, work/school, income, social activities, entertainment, health, and transport related activities. The disruptions were ranked on a 5-item scale which included “no”, “little”, “neutral”, “moderate” and “major disruption”. The second domain assessed whether respondents had experienced any changes in their food-related habits before and during the COVID-19 outbreak. The habits included for example, eating out at a restaurant and other people’s places, eating fruits and vegetables and reliance on frozen foods. The changes were captured on a 5-item scale—no change, slight decrease, decrease, slight increase and increase. For our analysis, slight decrease and slight increase were collapsed into decrease and increase, respectively. The third domain sought to understand whether or not respondents experienced changes in food related behaviours, which included amongst others, panic buying, stock piling, eating more out of fear, food waste, reliance on social protection and wild fruits. The fourth domain assessed if respondents experienced changes at the point of food acquisition with regards to queuing, hand sanitization, temperature checking and social distancing. This was followed by the fifth domain which sought to understand food related information tools and resources that respondents used during the COVID-19 outbreak. These ranged from nutrition information and advice from websites, social media applications, support from friends, relatives, and Non-governmental organizations (NGOs). The last domain, sought to understand the types of food and nutrition information that respondents were interested to learn more about in the context of COVID-19, for example, information on food availability, food subsidies, nutrition advice on what to eat during COVID-19, food safety and waste. In addition, the questionnaire included basic socio-demographics (e.g., age, gender, occupation, and area of residence). The descriptive statistics (e.g., frequencies, percentages) and visual graphics were employed to understand respondents’ basic characteristics and the food environment domains. STATA 16 was used for the analysis of the datasets.

2.3. Ethics
The consent of all respondents was taken before the survey. All responses remained anonymous. All the respondents were informed about the objective of this study before proceeding to complete
the online survey questionnaire. Respondents were informed that they were free to terminate the survey at any time if they felt that they were no longer comfortable providing responses. The survey was programmed in such a way that each respondent was able to complete the survey only once. Anonymity and confidentiality of the data were ensured throughout the data collection, analysis, writing and archiving. The online survey procedure also ensured we adhered to the WHO guidelines on COVID-19 prevention through social distancing, avoiding face to face interviews and not sharing physical documents.

2.4. Study limitations
The present study is limited in many ways. First, it’s a cross-sectional study among a non-representative sample of adults and with overwhelming response from urban compared to rural respondents. Besides, the survey was conducted during COVID-19 related lock down and targeted only respondents with internet and this introduces systematic biases. The study results should be interpreted with caution, given that the survey was conducted in the formative period of the COVID-19 pandemic in the country. Despite the limitations, the present study provides novel and crucial findings on food environment during COVID-19 crisis, and acts as a trigger for more systematic research.

3. Results and discussion

3.1. COVID-19 and personal life
To understand the effect of the pandemic lockdown on the food environment, it is first important to understand how the advent of COVID-19 changed the day-to-day business and social environment. In this section, we asked respondents which areas of their routine daily life and activities had been most disrupted by COVID-19 pandemic and the associated lockdown. Results in Figure 2 show how individuals perceived the effect of COVID-19 on their lives. Most of the sampled individuals indicated that the major disruptions caused by the COVID-19 pandemic and lockdown were in the areas of social events (82.7%) and entertainment (76.1%). The national lockdown measures announced on 30 March 2020 and further extended in order to prevent and reduce transmission of the virus included the banning of all social events including sports, closing of schools, and limiting group interactions such as in churches, bars and restaurants. In addition, all gatherings such as weddings, graduations and birthday parties were also banned, thus further disrupting social life. As in many countries worldwide (Almarzooq et al., 2020; Chick et al., 2020), some universities, organizations, and schools, in particular private schools began using virtual training as a method for scholars and instructors to remain engaged in scheduled activities.
while remaining in their homes. However, internet connectivity was either weak or absent in many areas of the country and where present, the associated costs were too high to enable scholars to take advantage of the virtual training.

The other major disruptions caused by COVID-19 induced lockdown were in areas of work (69.1%), transport (58.9%) and income (37%) while health had relatively fewer individuals (23.1%) who cited major disruptions. All workplace activities were banned, except for essential services, in the health, transport, food, and agriculture sectors. Those in the essential services were required to observe social distancing, wear masks, and have temperature checks. These disruptions ushered in a new era of work ethics characterised by widespread use of social media and online platforms such as Skype, Zoom and Microsoft teams to host meetings and deliver on project outputs (Almarzoq et al., 2020). In the transport sector, only state-owned Zimbabwe United Passengers Company (ZUPCO) registered buses and minibuses could carry passengers into town and between cities. Private transport operators were banned. This meant that all those who depended on private transport operations for their livelihoods were affected. The formal sector continued paying wages and salaries for their workers while the informal sector was affected significantly as day to day income generating activities were totally halted by the lockdown. Most of the informal sector suffered enormous income shocks. In other countries, governments rolled out industry bailout schemes to help struggling business (Nicola et al., 2020). The informal sector was encouraged to formalize their businesses and lobby government for bailouts. Only 23% of the respondents cited major disruptions were noted in health care services while 44% cited moderate disruptions. The health sector was considered as an essential service. It was thus exempted and permitted to continue operating during the lockdown. In addition, healthcare services for individuals living with HIV/AIDS and the elderly were highly disrupted during the extended lockdown as movement of people was restricted. Consistent with other studies (Hobbs, 2020; Islam et al., 2020; Makaroun et al., 2020), the COVID-19 pandemic resulted in disruptions of normal flow of all business sectors including education, transport, health, food purchases and supply chains, and social events.

3.2. COVID-19 and changes in food related behaviours

Figure 3 show how respondents experienced changes in food related behaviours since the outbreak of Covid-19. A larger majority, (67.5%) of respondents indicated that they had experienced the behaviour of buying food out of fear. Since the onset of the pandemic, there was widespread

![Figure 3. Changes in food related behaviours since the outbreak of COVID-19 (%).](image-url)
uncertainty on when the lockdown restrictions were going be lifted resulting in panic buying. However, as some respondents put it in a jocular manner, “When others were doing panic buying, I could only panic, but I could not buy as I did not have the money.” (Respondent on a Communal Neighbourhood WhatsApp Group, Bulawayo). Sixty percent (60%) of the respondents indicated that they had stockpiled food before and during the lockdown period. The stockpiling was induced by fears that food supplies would run out. Since schools and universities were closed most households stockpiled food knowing that they were going to spend more time with their children at home. About 55% of the respondents claimed they are aware of the food wastages they experienced. Consumer changes in awareness of food wasting could be partly attributed to reduced income, anxiety, and the need to serve food. In Tunisia, Jribi et al. (2020) found similar results and revealed that consumer awareness on food wastages increased during the lockdown period. Another food related behavior reported by 28% of respondents was eating more food out of fear during the home confinement. Moreover, the outbreak resulted in restrictions on movement and increase in household size due to returnees and children from school, who spend more time at home and hence are likely to eat more. In Italy, Scarmozzino and Visioli (2020) also reported that 46.1% of their study participants eat more during confinement and if this is not accompanied by physical activity, this might again introduce the burden of obesity.

3.3. COVID-19 and food related habits

Figure 4 show the changes in food related habits during the COVID-19 lockdown. More than half of the respondents indicated a decrease in the following food related habits; leaving home to shop for groceries (62%), eating out at restaurants and food cafes (89%), eating out at someone’s place (81%) and ordering fast foods and takeaways (71%). Results confirm that the physical distancing and lockdown measures required to save lives and suppress the transmission of the virus had resulted in significant reduction in habits such as leaving home to shop for groceries, eating out, eating at someone’s place, and ordering take-away or fast food meals. The majority of respondents (71%), affirmed that cooking at home increased during the COVID-19 related lockdown and this change in eating habits is plausible given the associated restrictions on movements. Di Renzo et al. (2020) also report similar results that reliance on home-made food was common in Italy during the lockdown. About 38% and 35% of the respondents alluded to an increase in consumption of fresh fruits and vegetables and wild fruits respectively during the lockdown period. Around 40% of interviewed people indicated no changes in the consumption of frozen and canned fruits and vegetables. These findings indicated that the COVID-19 induced lockdowns were associated with shifts in food related behaviours.
3.4. COVID-19 and changes at the point of food acquisition

The study investigated changes that occurred at food acquisition points due to COVID-19 outbreak (Table 1). Wearing of masks, physical distancing, sanitizing and body temperature check were the measures implemented to curb human to human transmission of the virus (Di Renzo et al., 2020). Most individuals (97%), cited that handwashing and sanitization were done at all food acquisition points. Interestingly, most of the respondents (94%), were at one point denied access in shops because of not wearing a face mask. The study was carried out in the formative period of COVID-19 pandemic in Zimbabwe and these results show that people were not fully aware of the prevention and control of the virus. When asked about changes on food stocks, 70% of the participants noted poor food stocks in shops and or marketplace. Food stocks depleted in shops due to disruptions in the transportation of goods and services induced by the lockdown restrictions. Late deliveries were noted as it took longer for haulage trucks to get cleared at the ports of entry. About 49% of the respondents declared that there were changes on physical distancing measures in stores (e.g., protective screens/barriers at cashier). All the hygiene measures and physical distancing was practiced in all supermarkets and shops. However, anecdotal evidence showed that most people in high density areas were not observing social distancing when queuing for basic commodities and fetching water at boreholes. The government and private sector in Zimbabwe should ensure all household have access to basic services including piped water and sanitation to avoid crowding, which fuels the transmission of the virus. Hence, policies of social distancing should be complemented with measures that improves access to all basic services.

3.5. Food related tools and resources used during COVID-19 lockdown

Figure 5 highlights the food related tools and resources used more during the COVID-19 lockdown. About 29.6% of the participants got social support and COVID-19 food related information from friends, family, and neighbors while 27.6% used recipe applications to get information on how to prepare food. These results are in line with empirical evidence elsewhere that shows that social networks amplify the spread of both harmful and beneficial behaviors during a pandemic (Van Bavel et al., 2020). About 23.5% of respondents received food related information via social media platforms such as twitter, WhatsApp, and Facebook while 16.1% relied on internet websites for nutrition information related to COVID-19. These results demonstrate the emerging potential for using social media and internet to disseminate accurate information related to COVID-19 pandemic and food security and nutrition (Yammine, 2020). However, there is need to guard against the use of social media to induce panic and misinformation (Depoux et al., 2020). While, home delivery of food and online trading is increasing in countries with improved broadband connectivity, Zimbabwe is still lagging owing to poor internet infrastructure, especially in rural areas. This is an area that deserves investment.

| Item                                                                 | %  | Std. dev. |
|----------------------------------------------------------------------|----|-----------|
| Restricted access to stores (e.g., one in one out queuing systems)   | 92 | 27        |
| Handwashing/sanitizing at entrances & body temperature checks        | 97 | 18        |
| Physical distancing measures in stores (e.g., protective screens/barriers at cashier) | 81 | 39        |
| Physical distancing information in stores (e.g., signage or queuing markers on floor) | 85 | 36        |
| Information about responsible purchasing in stores (e.g., signage about only purchase items needed, no stocking) | 48 | 50        |
| One item per customer                                                | 54 | 50        |
| Poor food stocks in shops/ at the marketplace                        | 70 | 46        |
| Restricted access if not wearing a face mask?                        | 94 | 24        |
3.6. Types of food and nutrition information needed by respondents during COVID-19
Respondents were asked on types of food and nutrition information they need in relation to COVID-19 and their responses are summarized in Figure 6. About 58% of the respondents required nutrition advice on what to eat during the COVID-19 outbreak, while 51.9% needed information on food availability in their area. Thirty five percent of the respondents required information on food subsidies and social protection programs they could potentially benefit from. The result is plausible, given that citizens wanted to know about the affordable mealie meal subsidized by the government in their respective area. Findings further revealed that 48.6% of the interviewed individuals required information on how to reduce and prevent food waste while 43.2% indicated that they needed advice on the actions they can take to ensure that they have enough nutritious and healthy food. About 39.5% of the interviewed respondents needed information on digital tools to help them access food. Our results are supported by (Ammar et al., 2020) who argued that digital tools are important to stay socially connected during the home confinement period.

4. Conclusion and policy implications
4.1. Conclusion
This study sought to investigated the changes on personal life, food related behaviours, food related habits, at the point of food acquisition, and access to food and nutrition information brought about by COVID-19 pandemic. This was done by surveying a cross section of 243 adult respondents via social media platforms during the COVID-19 lockdown in Zimbabwe.

4.2. COVID-19 and personal life
Though, the lockdown was essential to curb the spread of the virus, the study established that the COVID-19 pandemic had fundamentally disrupted all sectors of the economy and social life including agriculture, small to medium scale businesses, weddings, and funerals. The major disruptions caused by COVID-19 induced lockdown were in the areas of social events (82.7%), entertainment (76.1%) work (69.1%), and transport (58.9%). Formal and informal industries were operating at low or no capacity because of the lock down which made them less viable as profitability was adversely affected. This disruption generally meant a loss of income and possible loss of employment for adult respondents who relied on these sectors. Income loss generally led to increased food insecurity especially in urban areas. One positive adaptation noted was an increase in the use of virtual platforms for communications by business and individuals as a result of the lockdown.
4.3. COVID-19 and changes in food related behaviours

The study established that food consumption behaviours had changed during the COVID-19 lockdown. The survey respondents indicated a generally high level of anxiety and uncertainty about future food supply and availability. Results show that where individuals became anxious, panic-buying and hoarding became the cycle of instinctive behaviour. These behaviours exerted uncharacteristically high demand on the supply chain leading to a depletion of food stocks in some supply shops. Over sixty percent of respondents indicated that they had been involved in some stockpiling efforts. The depletion of stocks was particularly exacerbated by the lockdown that prevented the free movement of farmers to the markets to deliver their produce. While agricultural production had not been clearly impacted at the time of this study, it was clear that the rest of the value chain was operating under stress especially as regards marketing and food consumption patterns.

About 6% of the respondents reported reliance on social protection food aid. This was low given less urban footprint by organisations supporting social protection food aid in Zimbabwe. However, given the loss in business especially by formal and informal small and medium enterprises, more urban dwellers relying on these sectors may require social protection to cope with the food insecurity caused by their loss of income. On the positive side, respondents indicated that they were now more conscious in managing food wastages given the uncertain future of food security under COVID-19. Whilst panic buying and stock piling of food have the effect of disrupting food supply chains, they were evidence of the anticipatory nature of respondents to enable coping in the event of a total lock down.

4.4. COVID-19 and food related habits

Several respondents indicated that some positive changes in habits that assisted them to cope with expected food shortages. These included a reduction in eating out at restaurants (89%), eating out at someone’s place (81%) and ordering fast foods (71%). All these habits helped to save on income and also curb physical contact with people, hence reducing transmission of the COVID-19 virus. A decline in these food related habits also showed increased understanding of the importance of observing social distancing to curb the spread of COVID-19 and demonstrates respondents’ compliance with the WHO social distancing guidelines.

4.5. COVID-19 and changes at the point of food acquisition

Temperature checks, physical distancing, hand sanitation and restricted access to food stores when not wearing a mask were some of the changes made at the point of food acquisition. These were not only important compliance with the WHO and government guidelines but important in ensuring the safety of the food environment through reduction in spread of the disease.
4.6. Food related tools and resources used during COVID-19 lockdown

About 29.6% of the participants got social support and COVID-19 food related information from friends, family, and neighbors, while 27.6% used recipe applications to get information on how to prepare food. Twenty four percent of respondents received food related information via social media platforms such as twitter, WhatsApp, and Facebook. Thus, there is scope to use social media and internet to disseminate accurate information related to COVID-19.

4.7. Types of food and nutrition information needed by respondents during COVID-19

The study found that 58% and 51.9% of the respondents sought information on the best food types to eat and food availability in their area respectively. The generally high demand for knowledge on the best foods to eat during the COVID-19 crises could be associated with the desire by individuals to boost their immune system. In addition, 48.6% and 43.2% of the interviewed individuals required information on how to reduce and prevent food waste advice on the actions they can take to ensure that they have enough nutritious and healthy food respectively.

4.8. Policy implications

The following implications for policy emanate from the study findings. Retailers should ensure that food commodities are available and affordable and government and humanitarian organizations should roll social protection programmes targeting poor and vulnerable households during the COVID-19 lockdown. Policy makers should strive to remove all bottlenecks hindering efficient food supply chains. Temperature checks, physical distancing, hand sanitization and wearing masks should continue to be promoted in all food stores and public places. The public and private sector should provide information on nutritious foods, ways to reduce food wastages, and food safety during and after the COVID-19 pandemic. There is scope of using social media as one of the platforms to disseminate such information. To manage movements and increase food supply during lock downs, innovative interventions such as online purchasing and home delivery of food supplies should be piloted. This requires improved broadband connectivity and collaboration between mobile network companies and food suppliers to pilot online purchases.

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Competing interest statement

The authors declare no conflict of interest.

Data availability

Data available on request from the authors.

Highlights

COVID-19 lockdown disrupted personal life activities, work and social events  
Changed food consumption behaviours with uncertainty about food supplies  
Induced panic-buying and reduction in eating out and ordering fast foods  
Social distancing and wearing of mask increased at food acquisition points  
Nutrition advice on appropriate nutritious foods to eat, and food availability needed  
Nutrition advice needed on food safety and ways to reduce food wastages

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