

Exploring the implications of COVID-19 on widening health inequalities and the emergence of nutrition insecurity through the lens of organisations involved with the emergency food response

Elaine Macaninch ^{1,2,3} Kathy Martyn,^{1,2,4} Marjorie Lima do Vale ^{1,5}

To cite: Macaninch E, Martyn K, Lima do Vale M. Exploring the implications of COVID-19 on widening health inequalities and the emergence of nutrition insecurity through the lens of organisations involved with the emergency food response. *BMJ Nutrition, Prevention & Health* 2020;**0**. doi:10.1136/bmjnp-2020-000120

► Additional material is published online only. To view, please visit the journal online (<http://dx.doi.org/10.1136/bmjnp-2020-000120>).

For numbered affiliations see end of article.

Correspondence to

Mrs Elaine Macaninch, Brighton and Sussex Medical School, Brighton, UK; elaine.macaninch@nhs.net

Received 13 June 2020

Revised 13 August 2020

Accepted 15 August 2020



© Author(s) (or their employer(s)) 2020. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

ABSTRACT

Background This paper describes the impact of COVID-19 during the first month of containment measures on organisations involved in the emergency food response in one region of the UK and the emerging nutrition insecurity. This is more than eradicating hunger but considers availability of support and health services and the availability of appropriate foods to meet individual requirements. In particular, this paper considers those in rural communities, from lower socioeconomic groups or underlying health conditions.

Methods Semistructured professional conversations informed the development of a questionnaire which gathered insights from five organisations involved with the emergency food response in the South East, England, UK. Descriptive themes were derived through inductive analysis and are further discussed in relation to UK government food support measures and early published data.

Results Four themes emerged from conversations, including: (1) increasing demand, (2) meeting the needs of specific groups, (3) awareness of food supply and value of supporting local and (4) concerns over sustainability. All organisations mentioned changes in practice and increased demand for emergency food solutions. Positive, rapid and innovative changes helped organisations to adapt to containment restrictions and to meet the needs of vulnerable people. Although concern was raised with regards to meeting the specific needs of those with underlying health conditions and the sustainability of current efforts.

Conclusion Considerable gaps in food provision were identified, as well as concerns regarding increased long-term food and nutrition insecurity. The paper makes recommendations to improve nutrition security for the future and considers the lessons learnt from the COVID-19 pandemic. The generalisability of these early insights is unknown but these real-time snapshots can help to direct further research and evaluation.

INTRODUCTION

Ensuring individuals have access to healthy and well-balanced diets, especially among

What this paper adds

- This paper captures the “real time” experiences of organisations involved in the emergency food response one month into COVID-19 containment (quarantine and social distancing) measures in the UK.
- Highlighted are gaps in food provision; concerns for long term food and nutrition security and the widening of nutrition and health inequalities. In particular, the specific nutrition needs of rural communities, older age, lower socioeconomic groups or those with underlying health conditions are discussed.
- Captured are examples of positive, rapid and innovative responses to meet the increased demand for emergency food solutions.
- Discussed are potential opportunities to build on and learn from new innovations to help build fairer and more resilient food and welfare systems as we move towards a scenario of global economic recession.

those with underlying health conditions, should be integral to COVID-19 prevention efforts. As this is a novel coronavirus, there is limited understanding of the role of malnutrition or specific nutrients concerning its risk and severity.¹ However, we know that in acute settings, adequate nutrition improves recovery rates, reduces hospitalisation days and mortality among critically ill patients,² and that adequate vitamins and minerals are essential to support the immune system.^{3,4} All of which could enhance COVID-19 treatment and recovery.⁵ It also appears that increasing age, as well as comorbidities such as overweight, obesity, diabetes, hypertension or cardiovascular disease, increases the risk of more severe COVID-19 outcomes.^{6,7} These groups are also at risk of malnutrition and

sarcopenia impacting on frailty and worsening outcomes.⁸ There is some indication that adequate dietary management of underlying comorbidities could result in more favourable outcomes.⁹ As such, proper nutrition plays an essential role in COVID-19 prevention, treatment and recovery. However, the physical distancing measures and self-isolation put in place to prevent the spread of COVID-19 have created difficulties in accessing adequate quantity and variety of foods for these at risk groups. It is important that the measures designed to contain COVID-19 do not have unintended harmful consequences nutrition and health.

BACKGROUND OF HEALTH INEQUALITIES, FOOD AND NUTRITION INSECURITY

Over the last decade, the UK has seen an overall deterioration in health and a stalling in life expectancy¹⁰ with the poorest in society living on average 7 years less and spending 12 more of those years living with illness or disability.^{10 11} COVID-19 infection and the containment measures put in place have disproportionately affected those most socioeconomically deprived, thus widening health inequalities.¹²

Food insecurity means that individuals have limited access to foods in adequate amounts and variety. Although there is no systematic surveillance of food insecurity in the UK,¹³ estimates from the Food and Agriculture Organisation suggest that about 2.2 million people in the UK were severely food insecure (ie, experiencing hunger), which is the highest reported level in Europe.¹⁴ Before COVID-19, those aged 65 years or over already had difficulties in accessing foods with 11% reporting difficulty in accessing a corner shop and 12% finding it hard to access a local supermarket.¹⁵ Moreover, the Food Standards Agency identified that 13% of UK adults had problems or anxiety about accessing adequate food (marginal food insecurity) and 8% had reduced quality of food or reduced food intake (severe food insecurity).¹⁶ Also, individuals with long-term health problems or disabilities are more likely to be food insecure.^{17 18}

Nutrition security develops this concept to include having access to a safe and appropriately nutritious diet as well as adequate health services to support and maintain health.¹⁹ This is more than the prevention of hunger and undernutrition; it considers diet adequacy and the prevention of all forms of malnutrition, including nutrient deficiencies, as well as overweight and obesity. The causes of UK food and nutrition insecurity are mostly unexplored. Important factors could include low income, coupled with rising living costs and cuts to funding for local social care services.²⁰

AIM

Understanding the early experiences of food and nutrition services, organisations and providers can help to generate a global picture of the challenges experienced during

COVID-19²¹ and help to inform improvements in service delivery. This paper aims to describe the experiences and challenges of organisations in the South East, England, UK, providing emergency food responses during the first month of the COVID-19 containment measures and draws on these early insights to make recommendations for the future.

METHODS

Authors EM and KM were engaged with four third sector organisations and one National Health Service as these organisations adapted their systems and processes in the immediate response to the COVID-19 lockdown in the UK. COVID-19 has presented a unique situation, where a rapid response to an evolving situation was important.

In the absence of formal ethical review, ethical principles were applied, and consent given to use the findings in this publication. UK Health Research Authority (HRA) guidelines were consulted with regards to ethics. The HRA defines an investigation of the practices and measures during an outbreak as an investigation of current practice. This includes review of any current intervention based on best evidence or professional consensus, which can include the administration of an interview or questionnaire.²²

The authors obtained consent from the volunteers and professionals to capture the informal conversations, and for their views to inform the subsequent writing of this paper. These early conversations provided insight into the concerns and issues that were being resolved in 'real time' as the organisations adjusted to their new way of working.

As such, informal telephone conversations with organisations were conducted by EM, a registered dietitian and KM, a registered nurse and nutritionist. Both were known to the participants in a professional capacity. Informal conversations can enhance reflexivity for narrative inquiry²³ in studies with vulnerable and hard to reach populations, such as research on refugees.²⁴ In rapidly changing situations such as the COVID-19 pandemic, informal conversations can add context and authenticity to enrich published data.

Based on these initial conversations, a short questionnaire was developed (see online supplementary appendix) and emailed to the participants who had engaged with the discussions, to gather further written responses in April 2020, 1 month into UK containment measures. The responses were summarised and organised around the questions posed. Descriptive themes were derived through inductive analysis. Themes were reviewed and agreed by MLdV, EM and KM. This exploration of current practice further used UK government guidance for food support.²⁵

RESULTS

Four third sector organisations were evaluated, including one volunteer group and three community charities

consisting of volunteers and paid professionals. One NHS service supported by Macmillan funding was also included. All organisations were involved with food provision and/or education during the early COVID-19 period, with one organisation working in this area for the first time.

Four themes were developed following analysis of the interviews, including (1) increasing demand, (2) meeting the needs of specific groups, (3) awareness of food supply and value of supporting local and (4) concerns over sustainability. Table 1 provides a summary of responses organised across posed questions.

Increasing demand

Increased demand for food emergency solutions was a dominant issue. Box 1 summarises information available on the different packages to support the population announced on UK government websites up to the end of May 2020.²⁵

Despite of government support, organisations described a number of reasons for the increased demand for emergency food solutions, including the background of food insecurity in the UK, individuals' loss of income, delays in government payments, insufficient offer of food delivery services for those in need, along with limited awareness of alternative delivery and limited cooking skills. Also, organisations described that vulnerable people, in particular, reported difficulties in accessing central help such as priority shopping delivery and emergency food parcels.

The pandemic, however, did not affect everyone in the same way. For instance, it was described how the elderly, who may struggle to access online options due to poor IT infrastructure or no ownership of technology, including mobile phones, were more susceptible lack of access to food. Also, issues related to social isolation, poor awareness of where to get help and difficulties or unwillingness in asking for help were further discussed as important factors that could contribute to food insecurity. It was also reported that patients with existing comorbidities, such as diabetes or cancer, also found it more difficult to access suitable foods. For patients with cancers, where dietary needs are rapidly changing, it was reported that available services could be unsuitable or lacking in understanding of the specific dietary needs of patients with cancers—for example, diets high in calories and protein or with modified consistencies. Moreover, fatigue and nausea following treatment combined with scarcity of specific food products, relocation of patients to places with no/limited kitchen facilities, patient's reduced time for cooking and embarrassment in asking for help, further challenged patients with cancer access to appropriate foods.

There were different factors that influenced each organisations capacity to cope with the surge in demand for emergency food solutions. The community volunteer group reported increased engagement of people offering help. Additional financial support and flexibility in repurposing funder's resources helped third-sector organisations. The food bank, however, reported challenges related to reductions in workforce in complying with

social distancing guidelines and a reduction in public donations, although the percentage of this reduction was not quantified. Also, they reported the need to relocate and remodel entirely to a delivery-only service.

Meeting the needs of specific groups

Regarding the needs of specific groups, the NHS service secured food provision for their patients through a newly developed partnership with a food surplus redistribution centre. The support of and the continued screening for food insecurity by specialist dietitians led to the creation of tailored food parcels through the formation of an Oncology Food Bank. This repurposing of food destined for the Macmillan Cafe enabled patients to access foods that were appropriate for their health conditions. A registered nutritionist working within an elderly care project, described positive learnings from the pandemic, as the need for internet-based or technology-based solutions created an opportunity for elderly populations to adapt and learn.

The need to adapt to meet the emerging needs also reflected in opportunities to improve services and and create innovations. For instance, taking advantage of the newly established community networks to plan service provision and to continue interorganisational communication and collaboration.

Awareness of food supply and value of supporting local

Organisations mentioned that the pandemic brought attention to food supply fragilities, and increased appreciation of food supply workers and local food services and producers. An opportunity to build on an established willingness to change and create new models for more resilient food systems was also described.

Concerns over sustainability

A number of concerns were raised regarding the sustainability of the current measures with long-term food insecurity, especially in relation to the long-term financial consequence of the pandemic, the impact of Brexit and concerns on climate change.

DISCUSSION

Increased demand

The increased demand for food support highlighted by organisations is reflected in early reports that COVID-19 had placed a tremendous financial burden on UK individuals and households. A UK YouGov survey of nearly 3000 respondents found that 14% had lost their job or had their hours or pay reduced due to COVID-19.²⁶ Predictions produced by the Institute for Social and Economic Research have further suggested that the lockdown could result in a quarter of UK total jobs being lost.²⁷

Despite government efforts (box 1), many individuals and households were left financially vulnerable. For instance, individuals that apply for unemployment benefits (Universal Credit) must wait at least 5 weeks for

Table 1 Summary of informal conversations on emergency food provision during the first month of containment measures during COVID-19 in Southeast, England, UK

	COVID-19 impact on the team/ organisation	Main concerns regarding food provision	Positives/useful learnings	Future implications
Case 1 Community hub—an informal local volunteer group with the aim of supporting residents through the COVID-19 pandemic	<ul style="list-style-type: none"> ▶ Repurpose of service (from environmental cause to food collection, delivery and preparation). ▶ Increased numbers and engagement. 	<ul style="list-style-type: none"> ▶ Elderly people/people with health conditions unable to get food/ prescriptions (isolation combined with limited transport, access to technology or limited technology literacy). ▶ Elderly overwhelmed by changes and media reports. ▶ Hidden poverty. 	<ul style="list-style-type: none"> ▶ Increased interest in local food suppliers. ▶ Increased value on community engagement. ▶ Increased community generosity. ▶ Unsuitability of internet-based services to some groups. ▶ Susceptibility to financial hardships. 	<ul style="list-style-type: none"> ▶ Communities may continue using and supporting local suppliers/ services. ▶ To take advantage of community networks to plan service provision.
Case 2 A, non-profit, food partnership	<ul style="list-style-type: none"> ▶ Repurpose funders' resources. ▶ Additional funding. ▶ Online meetings. ▶ Increased demand. 	<ul style="list-style-type: none"> ▶ Background of food insecurity coupled with increase in demand. ▶ Current emergency food solutions not sustainable (global and local economy recession and increased dependability on government's resources). ▶ Local suppliers disproportionately unsupported and affected compared with big retailers. ▶ Brexit impact on food supply and food prices. ▶ Solutions for food resilience and poverty are entwined to climate change solutions. 	<p>Media exposure of the fragility of current food supply chains.</p> <ul style="list-style-type: none"> ▶ Increased interest/ use of local suppliers. ▶ Increased value attributed to food suppliers/workers. 	<ul style="list-style-type: none"> ▶ To build on changes and willingness to change and to develop new models for more resilient local food systems. ▶ To continue adapting.
Case 3 Third sector elderly support services registered nutritionist	<ul style="list-style-type: none"> ▶ Support on how to eat with minimal money and equipment. ▶ Additional funding from Brighton and Hove Food Partnership/Brighton Housing TrustT and Fareshare redistributed. 	<ul style="list-style-type: none"> ▶ Increased demand for emergency food provision via loss of income coupled with government payment delays. ▶ Increased food insecurity and anxiety in accessing foods, restricted amounts and variety. ▶ Food insecurity due to increased demand for food delivery along with insufficient offer or awareness of alternative options and limited cooking skills. ▶ Implications of food insecurity for those with comorbidities (eg, patients with diabetic). 	<ul style="list-style-type: none"> ▶ Increased awareness of local suppliers/ food schemes. ▶ Increased value in buying local/ seasonal; food storage/waste. ▶ Elderly adapted to new technologies. ▶ Learning that adapting and changing are possible. 	<ul style="list-style-type: none"> ▶ Social isolation has put more elderly at risk of malnutrition. ▶ Sustainability of current emergency help (eg, NHS volunteer scheme)

Continued

Table 1 Continued

	COVID-19 impact on the team/organisation	Main concerns regarding food provision	Positives/useful learnings	Future implications
Case 4 An established Urban Food Bank, which provides redistributes food donations to those in need to emergency food parcels.	<ul style="list-style-type: none"> ▶ The repurpose of services (eg, face to face to delivery, only monetary rather than physical donations) and resources. ▶ A reduced workforce. ▶ Changed location due to reports of looting and violence. ▶ Increased demand. 	<ul style="list-style-type: none"> ▶ Secure regular supply of essential items. ▶ Secure supply of sanitary and personal hygiene items. ▶ Brexit and the impact on food supply and cost. ▶ The long-term impact of financial crisis on welfare systems and food banks. 	<ul style="list-style-type: none"> ▶ Finding alternatives for service delivery. ▶ The current crisis streamlined the creation of a supportive network of local food banks. ▶ Increased organisation-wide communication and collaboration. ▶ Community and volunteers support. 	<ul style="list-style-type: none"> ▶ A review of changes needed in the long term. ▶ Continued volunteers support. ▶ Increased food banks resilience to address job losses and crisis in welfare systems.
Case 5 Oncology Food Bank. A new service established by oncology dietitians to meet the specific needs of patients attending for cancer treatment during the COVID-19 pandemic.	<ul style="list-style-type: none"> ▶ A repurpose of service and resources. Fare Share donations previously used in the café/and public donations made to staff now directed to patients. ▶ A wide variety of donations allowed to meet dietary needs (eg, gluten free/dairy free). 	<ul style="list-style-type: none"> ▶ Misconceptions around food requirements for oncology patients. ▶ Delays in government food parcels. ▶ Suitability of government food parcels to patients' needs. ▶ Big retailers insufficient offer of delivery services and limited technical support for patients. ▶ Patients' difficulties in relying on others. finding suitable alternatives for missing products and rapid changes in food preferences. ▶ Patients' longer waits for transport and reduced time for food preparation. ▶ Patients' rehousing and limited cooking facilities. ▶ Patients' pride in admitting struggles. 	<ul style="list-style-type: none"> ▶ Dietitians screening for food insecurity and redirecting patients to appropriate agencies. ▶ The oncology food bank can give food parcels appropriate to patients needs and preferences. 	<ul style="list-style-type: none"> ▶ To have a stock of food to use in starter packs over the long term. ▶ To continue better connecting patients to appropriate agencies. ▶ To continue partnering with food surplus redistribution services for increased sustainability. ▶ The need for better screening. ▶ To encourage other centres to have a café which can also help stock a food bank and to provide emergency meal provision. ▶ To identify other vulnerable groups who might benefit from a similar scheme.

a full payment.²⁸ Many people do not fit the criteria set by the government protection schemes, including those with fixed-term contracts or zero-hours contracts and people who are unemployed, facing a cut in hours, newly self-employed or small businesses exempt from business rates.²⁹ Although the full extent of the financial hardship experienced as a result of COVID-19 is still unknown, the *Guardian* reporting on a citizens advice survey in the UK (n=2016)³⁰ found that 20% of respondents had already missed payments for rent, council tax or telecom bills. Financial difficulties might also increase individuals' and families' reliance on more affordable foods that might be of poorer nutritional quality.³¹

In addition to the financial constraints, for many individuals and families, the COVID-19 pandemic has created physical challenges to access healthy foods. A survey

commissioned by the Food Foundation in April 2020 (n=4353) showed 37% of adults in the UK experienced some level of food insecurity since the official lockdown (ie, worried about not having food, skipping or reducing the size of their meals, experiencing hunger but not eating and/or going a whole day without eating) with about 40% of concerns being related to lack of food in grocery stores.³² Later data indicated that 9% (n=4352) of the UK population remained food insecure despite increased food availability in supermarkets. At 7 weeks into the lockdown period, 52% of people who were experiencing food insecurity did not receive or seek help.³³ The limited impact of government-centred efforts led to an increased demand for the pre-existing third sector, emergency food provision services—including community services, community kitchens, cafes and food banks,

Box 1 UK national and local efforts to support food insecure groups in the first month of containment measures during the COVID-19 pandemic (source <https://www.gov.uk/coronavirus>)²⁵

National government efforts

Providing free food parcels to people at high risk

Who is eligible: solid organ transplant recipients, people with specific cancers, severe respiratory conditions, rare diseases and inborn errors of metabolism that significantly increase the risk of infections, people on immunosuppression therapies and women who are pregnant with significant heart disease.

Process: government contact (letters) eligible individuals. Where necessary, individuals will be contacted in person. Contacted individuals must confirm their interest via phone or internet; individuals that have not been contacted can actively register.

What is provided: pasta, fruit, tinned goods and biscuits.

Coordinated efforts: the government is working in partnership with supermarkets, local government, local resilience and emergency partners and voluntary groups.

Concerns: it might take time for any support offered through this service to arrive at individuals in need. Many groups might be left out (not for healthy people who struggle to access food due to being on a low income; nor to support people shielding due to being aged over 70, but who are otherwise well). Adequacy of food parcels to individual's health conditions.

Priority supermarket delivery slots for those self-shielding at home

Who is eligible: anyone registered as vulnerable as above.

Process: people can enter their health number online in order to book shopping delivery.

What is provided: priority shopping delivery.

Concerns: you need to be IT literate or have access to someone who can do this on your behalf. Reports of health numbers not working and inadequate availability.

Continuing free school meals

Who is eligible: a national voucher scheme was put in place to support children entitled to free school meals.

Process: schools to send vouchers to be sent to families via email or mail delivery.

What is provided: £15 voucher each week for every child eligible for benefits-related free school meals, who are not attending school.

Concerns: only selected supermarkets participating, reports of vouchers not working and some families entitled to vouchers may not have access to them.

Redistributing surplus stocks

What is provided: allocation of £3.25 million million of government funding to support redistribution of up to 14 000 tonnes of surplus stock from business and charities during the coronavirus outbreak.

Repurposing food services

What is provided: a one-time limited permit was put in place to allow the temporary change of use of a pub and a restaurant to deliver hot foods for a period of up to 12 months only.

Supporting charities

Who is eligible: charities related to the relief of poverty, hardship or distress, the elderly, the advancement of education or advancement in life of young people, the advancement of health. Trustees of charities

Continued

Box 1 Continued

with other objects may also be able to adapt and respond to COVID-19 either directly or indirectly.

What is provided: allocation of a £750 million million package of support for frontline charities through direct cash grants.

Volunteer groups

Royal Voluntary Services

Who is eligible: Royal Voluntary Service has launched a national emergency appeal to raise £5 million to provide a lifeline to tens of thousands of vulnerable and older people in hospitals and in the community.

What is provided: deliver essential food, toiletries and prescriptions to people unable to leave their homes, and others.

New volunteer groups (eg, COVID-19 mutual aid)

Who is eligible: community networks aim to provide support to many people, including those who might traditionally be afraid of the authorities and would not go to them for help, and those who were previously not considered vulnerable.

What is provided: guidance for groups of volunteers aiming to support local community networks. They encourage local organising, on a street by street basis to help with shopping, food preparation, leaflet distribution and others. Work is independent of government bodies or departments, including the Home Office, Councils and local authorities, political parties, Non-Government Organisations and the police.

as illustrated by our cases. For instance, compared with the same time in the previous year, the Trussel Trust, which includes more than 1200 food bank centres in the UK, reported an 81% increase in emergency food parcels during the first 2 weeks of lockdown.³⁴ Similarly, the Independent Food Aid Network, which represents about 40% of the food banks in the UK,³⁵ reported an increase of 59% in food parcel distributions.³⁵

Concerns over sustainability

In line with the reporting from these organisations, increased use of food emergency solutions, such as food banks, has been observed across the UK³⁶ and Europe³⁷ as well as widespread concern about their sustainability to meet these demands in the long term. With fears of global and local economic recession, food banks and charities reported being unsure about their ability to continue accessing and providing supplies for their customers in the long term. For instance, in the UK, we have observed disrupted trade and supply chains, where suppliers and food producers have struggled to remodel their businesses to adhere to new social distancing requirements. The loss of employment and income are already reducing gross domestic product.³⁸ There are further concerns that the current food and economic crisis will be exacerbated by Brexit, the planned exit by the UK from the European Union later in 2020.³⁹

Some structures and processes made it easier for food banks and charities to help people to stay afloat. For instance, having adequate funding and infrastructure, being connected with social movements such as the Sustainable Food Places Network,⁴⁰ and, as was evident

from the descriptions provided by the organisations, building on existing food partnerships to take advantage of government funding opportunities. Despite these successes in responding to the emerging food crisis, food banks and charities in themselves do not address the long-term issues of nutrition insecurity. Individuals in long-term deprivation report using food banks regularly and often as their sole provider of food.⁴¹ UK charities are calling on more financial help for those unable to afford food³⁴ to avoid increased long-term reliance on food banks.

Volunteers and community engagement

In the UK, there was a centralised effort to recruit volunteers (box 1) to help with shopping and essential supplies, which yielded about 750 000 sign ups.⁴² Many community-led groups emerged to make up for the shortfalls in a complex food system slow to pivot to changing needs. The community hub, for instance, repurposed their mission and goals to assist with food collection, delivery and preparation. They observed increased engagement from the community. Overall, community groups, formed by a mix of volunteers (lay and professional), were able to respond quickly to those in need and who might otherwise have been overlooked. Community groups did not have to follow the complex infrastructure of professional organisations, which was essential in ensuring the timely delivery of food parcels to those in need.

Supporting local producers and responses

The media portrayal of empty supermarket shelves exposed the fragility of the current food system. In the search for alternatives as highlighted in our cases, there has been increased interest and demand for local food produced in the UK. For instance, the Food Foundation reported an increase of UK veg box sales by 111% in the 6 weeks leading up to mid-April 2020.⁴³ Also, anecdotally, some butchers and farm delivery services have reported an increase in sales, not dissimilar to Christmas. There is a concern that UK government resources have inadequately supported independent local producers. Without a shift in focus, the local provider may struggle to meet food demands.⁴⁴

Meeting the needs of specific groups

The organisations reinforced the vulnerability of the elderly and individuals with underlying health conditions to food and nutrition insecurity and malnutrition.⁴⁵

Rural communities and the elderly

Food services (grocery stores, food/meal delivery and food banks) are mostly centred around urban communities, which created access difficulties for individuals and families living in remote/rural locations, with limited transport, limited social network or internet access.⁴⁶ The rural volunteer group highlighted how reductions or cessation of public and community transport services was one crucial barrier for those relying on this to access public services (eg, pension, primary care services) and

grocery shopping in nearest towns. Increased offer of services online (eg, food/meal delivery) required connection to the internet and mobile/smart technology, which was not always compatible with individuals' technical skills or connectivity.⁴⁷ Although the Elderly Support Services highlighted that elderly residents had been supported and adapted to new technologies, this might not be a reality to many elderly groups in the UK.

Underlying health conditions

Concerns have been raised regarding the strict eligibility of the food parcels delivered by the government, which misses many groups also asked to self-isolate, including people with disabilities, the over 70s or pregnant women. The adequacy of food parcels for the specific nutritional requirements of those with long-term health conditions such as diabetes, cancer or already undernourished was questioned in our cases and more widely.⁴⁸

In addition to the difficulties in accessing foods, the impact of healthcare services modified to be delivered remotely (eg, phone or internet), and the loss of face-to-face contact, contributed to an increased sense of isolation, factors that are known to affect the appetite and eating habits negatively.⁴⁹

Many of the organisations discuss their concerns with regards to the impact of social isolation. For those with mental illness, changes to service delivery, including the loss of access to talking therapies, are likely to deteriorate mental well-being further. For the elderly and people living with long-term physical conditions, the fears of COVID-19, food insecurity and exposure to media coverage can be overwhelming. For those already vulnerable with limited physiological, psychological and sociological reserves, the detrimental effect on mental well-being is likely to be exacerbated. Similarly, a large UK survey of mental health during COVID-19 highlighted anxiety and isolation as dominant concern⁵⁰

RECOMMENDATIONS

Sustaining the provision of adequate and appropriate foods to all individuals has played a crucial role in the emergency response to COVID-19. Despite enormous challenges, the COVID-19 pandemic also created opportunities to learn and momentum and willingness to change, to remodel current food and welfare systems. Based on organisation insights and published data available, the authors make these following recommendations.

- There is an opportunity to influence agriculture and environmental, social and health policies to ensure equitable access to adequate food. Multisectoral and coordinated efforts are needed to address the underlying issues of food insecurity. Preventative measures to avoid institutionalisation of emergency food solutions are needed. Multisectoral responses to reduce nutrition insecurity can also help address widening health inequalities and the increasing demand for healthcare services. COVID-19 has demonstrated that

effective change can occur in a short space of time without unnecessary red tape or complex bureaucratic structures. The examples illustrated how local systems and solutions might provide faster and more context relevant responses. We can learn from these new solutions to complex problems, to build more local and flexible food, health and social care systems. Also, the government and local authorities could take advantage of established community networks to help prioritise service provision. Therefore, using pre-existing community resources to tailor programmes and respond to individualised community needs, driven by the people within those communities—who know what is available and what is needed better than anyone.

- As in the elderly support and oncology organisation, nutritionists and dietitians can ensure that foods are appropriate to individual needs. However, with an estimated 2.3 nutrition professionals per 100 000 population,⁵¹ capacity is currently inadequate to meet this demand. To expand nutrition support across health and social care requires the improvement of undergraduate nutrition education across all health professions. This is essential to embed food and nutrition in health and social care in the future.
- It is recommended that future research should involve input from those in research, clinical and public health practice to initiate further data-driven surveillance to define better the issues and the needs of these at-risk groups.

LIMITATIONS

These conversations capture the genuine, real-time experiences of those directly involved with the emergency food response 1 month into COVID-19 containment measures in the UK. However, this limits the generalisability to other groups and geographical areas. This paper reflects the limited research available up to the end of May 2020. The lack of published data and limited number of included organisations further limit the interpretation of results. These informal case reviews have been conducted by the authors adhering to ethical principles but in the absence of formal ethical review and the influence of professional bias cannot be ruled out.

CONCLUSION

These snapshots from one area of England illustrate how COVID-19 and containment measures (quarantine and isolation) have directly and indirectly hampered individual's access to foods and increased the risk of nutrition insecurity and malnutrition, particularly for those in rural communities, lower socioeconomic groups or those with underlying health conditions. This exposes some of the inequalities driving food insecurity and malnutrition in the UK. For nutrition researchers, professionals and organisations, this is not unfamiliar news, but there is widespread concern about the effects of COVID-19 on

widening health and nutrition inequality. The pandemic has also highlighted limitations in current food and welfare systems and created an opportunistic momentum to change and build more resilient and fairer responses. Empowered community groups and small charities have led key emergency responses previously thought of as unimaginable. However, the sustainability of current efforts needs to be considered as we move towards a scenario of global economic recession or to prepare for a potential second wave. Properly addressing nutrition and health needs now can help to avoid a tsunami of demand for health services in the future. More research is needed to capture more comprehensive experiences of other organisations, groups and locations.

Author affiliations

¹NNEdPro Global Centre for Nutrition and Health, Cambridge, UK

²ERimNN (Education and Research in medical Nutrition Network), Brighton, UK

³Brighton and Sussex Medical School, Brighton, UK

⁴School of Health Sciences, University of Brighton, Brighton, UK

⁵Department of Agriculture, Food and Nutritional Sciences, University of Alberta, Edmonton, Alberta, Canada

Twitter Elaine Macaninch @macaninch

Collaborators NNEdPro Global Centre for Nutrition and Health, Shane McAuliffe RD and Professor Sumantra Ray, The Brighton and Hove Food Partnership, Emily O'Brien, Fran Taylor, The Sussex Community Development Association, Hannah Sherman, Pat Buesnel, The Macmillan Horizon Centre, Mhairi Donald. The Rural Community Network, Chalfington.

Contributors EM and KM conducted the interviews. EM devised the questionnaire and restructured the paper. All authors agreed on the themes, and contributed to the research and writing.

Funding Publishing fees were supported by NNEdPro Global Centre for Nutrition and Health.

Competing interests None declared.

Patient consent for publication Not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data sharing not applicable as no datasets generated and/or analysed for this study. Data are available upon reasonable request. Qualitative written responses from participants are available on request. There were no further data gathered.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Elaine Macaninch <http://orcid.org/0000-0002-2163-2619>

Marjorie Lima do Vale <http://orcid.org/0000-0002-1384-5710>

REFERENCES

- 1 Derbyshire E, Delange J. COVID-19: is there a role for immunonutrition, particularly in the over 65s? *BMJNPH* 2020;3:100–5.
- 2 Cintoni M, Rinninella E, Annetta MG, et al. Nutritional management in hospital setting during SARS-CoV-2 pandemic: a real-life experience. *Eur J Clin Nutr* 2020;74:846–7.
- 3 Gombart AF, Pierre A, Maggini S. A review of micronutrients and the immune System-Working in harmony to reduce the risk of infection. *Nutrients* 2020;12:E236.
- 4 Calder PC. Nutrition, immunity and COVID-19. *BMJNPH* 2020;3:74–92.

- 5 Zhang L, Liu Y. Potential interventions for novel coronavirus in China: a systematic review. *J Med Virol* 2020;92:479–90.
- 6 Zhou F, Yu T, Du R, et al. Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study. *Lancet* 2020;395:1054–62.
- 7 Richardson S, Hirsch JS, Narasimhan M, et al. Presenting characteristics, comorbidities, and outcomes among 5700 patients hospitalized with COVID-19 in the new York City area. *JAMA* 2020;323:2052.
- 8 Gingrich A, Volkert D, Kiesswetter E, et al. Prevalence and overlap of sarcopenia, frailty, cachexia and malnutrition in older medical inpatients. *BMC Geriatr* 2019;19:120–10.
- 9 Laviano A, Koverech A, Zanetti M. Nutrition support in the time of SARS-CoV-2 (COVID-19). *Nutrition* 2020;74:110834.
- 10 Health equity in England the Marmott review, 10 years on. Available: https://www.health.org.uk/sites/default/files/2020-03/Health%20Equity%20in%20England_The%20Marmott%20Review%2010%20Years%20On_executive%20summary_web.pdf [Accessed 30 May 2020].
- 11 PHE. Health matters: Ambitions to tackle persisting inequalities in cardiovascular disease, 2019. Available: <https://publichealthmatters.blog.gov.uk/2019/03/04/health-matters-ambitions-to-tackle-persisting-inequalities-in-cardiovascular-disease/> [Accessed 30 May 2020].
- 12 PHE. Disparities in the risk and outcomes of COVID-19, 2020. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/889861/disparities_review.pdf [Accessed 30 May 2020].
- 13 Lambie-Mumford H, Crossley D, Jensen E, et al. Household food security in the UK: a review of food aid, 2014. Available: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/283071/household-food-security-uk-140219.pdf
- 14 FAO. Voices of the hungry, 2018. Available: http://www.fao.org/in-action/voices-of-the-hungry/en/#.Wb_qprKGOUk
- 15 Age UK. Sounding the alarm about the rising risk of malnutrition among older people during lock down, 2020. Available: <https://www.ageuk.org.uk/latest-press/articles/2020/05/sounding-the-alarm-about-the-rising-risk-of-malnutrition-among-older-people-during-lock-down/>
- 16 Bates B, Roberts C, Lepps H. The Food & You SurveyWave 4, 2017. Available: <https://www.food.gov.uk/sites/default/files/media/document/food-and-you-w4-exec-summary.pdf>
- 17 Loopstra R, Reeves A, Tarasuk V. The rise of hunger among low-income households: an analysis of the risks of food insecurity between 2004 and 2016 in a population-based study of UK adults. *J Epidemiol Community Health* 2019;73:668–73.
- 18 Maitra C. A review of studies examining the link between food insecurity and malnutrition, 2018. Available: <http://www.fao.org/3/CA1447EN/ca1447en.pdf>
- 19 FAO. The state of food and nutrition in the world, 2019. Available: <http://www.fao.org/3/ca5162en/ca5162en.pdf>
- 20 IFRC. Reducing the risk of food and nutrition insecurity among vulnerable populations, 2019. Available: <http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/127006/filename/127217.pdf>
- 21 Beyond sex and gender analysis: an intersectional view of the COVID-19 pandemic outbreak and response. Available: <https://www.qmul.ac.uk/media/global-policy-institute/Policy-brief-COVID-19-and-intersectionality.pdf> [Accessed 30 May 2020].
- 22 Medical Research Council and health research authority. Available: <http://www.hra-decisiontools.org.uk/ethics/> [Accessed 26th May 2020].
- 23 Swain JM, Spire ZD. The role of informal conversations in generating data, and the ethical and methodological issues. *Forum: Qualitative Social Research* 2020;21.
- 24 Mahieu R, Van Caudenberg R. Young refugees and locals living under the same roof: intercultural communal living as a catalyst for refugees' integration in European urban communities? *Comp Migr Stud* 2020;8.
- 25 Government UK. Available: <https://www.gov.uk/coronavirus> [Accessed 26 Jul 2020].
- 26 YouGov survey, 2020, how is COVID-19 affecting British opinions, jobs and wellbeing? Available: <https://yougov.co.uk/topics/politics/articles-reports/2020/03/24/how-covid-19-affecting-british-opinions-jobs-and-w> [Accessed 26 May 2020].
- 27 M R, Collado D. New analysis of the impact of lockdown on UK jobs, 2020. Available: <https://www.iser.essex.ac.uk/2020/04/18/new-analysis-of-the-impact-of-lockdown-on-uk-jobs>
- 28 Trussell Trust. End of year STATs. Available: <https://www.trusselltrust.org/news-and-blog/latest-stats/end-year-stats> [Accessed 25 May 2020].
- 29 New Economic Foundation,. Only a minimum income can ensure support for everyone, 2020. Available: <https://neweconomics.org/2020/05/only-a-minimum-income-can-ensure-support-for-everyone> [Accessed 25 May 2020].
- 30 Guardian newspaper editorial, 2020. Available: <https://www.theguardian.com/money/2020/may/01/financial-covid-19-citizens-advice-bill-payments> [Accessed 25 May 2020].
- 31 Food Foundation,. New report and infographic on the affordability of a healthy diet, 2018. Available: <https://foodfoundation.org.uk/new-report-on-the-affordability-of-a-healthy-diet/> [Accessed 25 May 2020].
- 32 R L. *Vulnerability to food insecurity since the COVID-19 lockdown*, 2020.
- 33 Food Foundation. 2020 new food Foundation data: food insecurity and debt are the new reality under lockdown, 2020. Available: <https://foodfoundation.org.uk/vulnerable-groups/>
- 34 Trussell Trust,. We need the government to act now, 2020. Available: <https://www.trusselltrust.org/news-and-blog/blog/> [Accessed 25 May 2020].
- 35 Loopstra R, Goodwin S, Goldberg B. A survey of food banks operating independently of the Trussell trust foodbank network, 2019. Available: https://uploads.strikinglycdn.com/files/0681ad7a-2d07-489f-9c11-77dc3d1aa968/Report_IndependentFoodBankStudy_Dec2019.pdf.pdf [Accessed 25 May 2020].
- 36 Goodwin S. Between the devil and the deep blue sea Coping with a tsunami of need and the Government's £16m aimed at food charities, 2020. Available: <https://www.foodaidnetwork.org.uk/blog/between-the-devil-and-the-deep-blue-sea>
- 37 Loopstra R, Reeves A, Stuckler D. Rising food insecurity in Europe. *The Lancet* 2015;385:2041.
- 38 ONS. Coronavirus and the effects on UK GDP, 2020. Available: <https://www.ons.gov.uk/economy/nationalaccounts/uksectoraccounts/articles/coronavirusandtheeffectsonukgdp/2020-05-06/conclusions>
- 39 Barons MJ, Aspinall W. Anticipated impacts of Brexit scenarios on UK food prices and implications for policies on poverty and health: a structured expert judgement approach. *BMJ Open* 2020;10:e032376.
- 40 Sustainable food places UK. Available: <https://www.sustainweb.org/sustainablefoodcities/> [Accessed 25 May 2020].
- 41 Bazerghi C, McKay FH, Dunn M. The role of food banks in addressing food insecurity: a systematic review. *J Community Health* 2016;41:732–40.
- 42 Royal voluntary services. Available: <https://www.royalvoluntaryservice.org.uk/news-and-events/news/nhs-volunteer-responders-250000-target-smashed-with-three-quarters-of-a-million-committing-to-volunteer> [Accessed 30 Apr 2020].
- 43 Wheeler A. COVID-19 UK VEG box report food Foundation, 2020. Available: <https://foodfoundation.org.uk/wp-content/uploads/2020/05/Food-Foundation-COVID-19-Veg-Box-Scheme-report.pdf>
- 44 Southey F. COVID-19 and self-sufficiency: is local food production capable of meeting demand? 2020. Available: <https://www.foodnavigator.com/Article/2020/04/22/COVID-19-and-self-sufficiency-is-local-food-production-capable-of-meeting-demand>
- 45 Chowdhury S, Senior L, Shaw S. Tackling food poverty in rural communities, 2019. Available: https://www.sustainweb.org/resources/files/reports/FoodPower_RuralFoodPoverty_FINAL.pdf
- 46 Fear C. Nutrition and frailty: current knowledge. *Prog Neuropsychopharmacol Biol Psychiatry* 2019;95:109703.
- 47 van Oppen JD, Thompson D, Tite M, et al. The acute frailty network: experiences from a whole-systems quality improvement collaborative for acutely ill older patients in the English NHS. *Eur Geriatr Med* 2019;10:559–65.
- 48 Fallaize R, Newlove J, White A, et al. Nutritional adequacy and content of food bank parcels in Oxfordshire, UK: a comparative analysis of independent and organisational provision. *J Hum Nutr Diet* 2020;33:477–86.
- 49 Macmillan Cancer Support. Allied health professional workforce survey, 2018. Available: https://www.macmillan.org.uk/_images/allied-health-professional-workforce-report_tcm9-344100.pdf
- 50 Worsely R, Williams R. COVID-19 and mental wellbeing. Ipsos-MORI, 2020. Available: <https://www.ipsos.com/ipsos-mori/en-uk/Covid-19-and-mental-wellbeing>
- 51 2016 global nutrition report. Available: <https://globalnutritionreport.org/reports/2016-global-nutrition-report/>