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**The right to adequate food: how the COVID-19 pandemic affected access to
food in Mexico and Scotland**



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Abstract

BACKGROUND: How people accessed food during the COVID-19 pandemic was influenced by factors such as: losing one's income; changes in households' routines and structure; a changed food environment; and the availability of social protection policies. This thesis explored how the COVID-19 pandemic, and the lockdown implemented by the Mexican and the Scottish governments, impacted food and nutrition security, and the right to adequate food, of individuals in these two countries.

METHODS: Using a case study methodology (Mexico and Scotland being the cases) with a critical realist ontology, and a contextualist epistemology, I built both cases from three different data sources, considered as studies 1,2 and 3. Study 1 involved a qualitative evidence synthesis of papers that had researched access to food by vulnerable populations using photo-elicitation interviews or focus groups. This review provided insight into how researchers have used photo-elicitation to research food/nutrition (in)security in different settings. Study 2 were online photo-elicitation semi-structured interviews with participants from households, where one or more members lost their jobs in Mexico and Scotland. Study 3 comprised online semi-structured interviews with stakeholders (academia, government and third sector organizations) in both countries.

FINDINGS: The findings from the review were used to inform the utilization of the method in the households' online interviews (study no. 2). It also provided valuable information to validate the findings of studies 2 and 3. In study 2, I interviewed members from 11 households in Mexico (from urban and urban areas) and 7 in Scotland (urban areas). The participants from Scotland experienced the COVID-19 pandemic in a less concerning manner, by showing less vulnerability to food and nutrition insecurity at the time of the interviews compared with the ones in Mexico. Social protection policies had an impact on how people in both countries experienced access to food. For example, the furlough scheme, availability of food aid, and a responsive food system contributed to a better experience for the families in Scotland. On the other hand, participants in

Mexico, from both rural and urban areas, experienced deep and chronic stress related to the financial constraints. Those living in urban areas reported adaptations to their food-related behaviours to cope with the challenges of accessing food and financial vulnerability. In rural areas of Mexico, despite losing their source of income, the ability to grow their own food provided a sense of security and put an emphasis on the value of land.

Fifteen stakeholders (eight Mexican and seven Scottish) were interviewed in study 3. Differences between Mexican and Scotland in terms of their understanding of the right to food and perceptions of the pandemic's impact were identified. The right to food in Scotland is widely and thoroughly known by stakeholders, as well as in its implications. In Mexico, most stakeholders had heard of it, but did not know all of its components. An association between provision of food and the right to food was highlighted in Mexico, which in Scotland was mostly criticized (food relief system has grown significantly and diverts focus from structural problems). Despite the criticism, in Scotland, food aid was plentiful during the pandemic, and a wide response from third sector organizations to provide food was reported. Stakeholders in Mexico widely referred to important ongoing social issues in the country such as the obesity and diabetes epidemic, poverty, violence associated to drug cartels which they felt amplified the negative impact of the pandemic.

CONCLUSION: Through triangulation of data, it was possible to understand how the pandemic impacted each of the countries regarding food and nutrition security. The impact of the pandemic was different in each country. The COVID-19 pandemic represented a situation that unveiled many of the issues that represented an obstacle for people to achieve food and nutrition security. The findings in this dissertation contribute to the literature on the benefits of social protection measures, as well as the need of strengthening mechanisms and institutions to make the right to adequate food achievable for everyone, with the active participation of the government, third sector organizations, and the private sector.

Lay Summary

The COVID-19 pandemic impacted the whole world in 2020. The virus caused severe illness and even death, which meant governments had to take actions to mitigate the spread of the disease, as well as to protect the healthcare system from overload. Lockdowns were put in place in many countries, which meant that people's movement was restricted, to promote social distancing and to decrease the chances of people getting the virus. This limitation in movement led to many people losing their stable income. This also affected the food environment and people's ability to access nutritious food (also known as food and nutrition security). Households' ability to cope with the challenges of these situations (the pandemic and its mitigation strategies) depended on factors related to the household itself but also to the economic, social and political scenario of countries.

In my thesis, I compare the cases of Mexico and Scotland in relation to the impact of the COVID-19 pandemic and the first lockdown on the right to food. The right to food can be understood as the right to be able to access nutritious food in a stable way, (also known as having food and nutrition security). It also considers the role of governments and non-government actors (such as the food industry and third sector organizations) in the creation of the right conditions for people to achieve the right. Mexico and Scotland are countries with different social, economic and political contexts. However, both countries have signed and approved the International Treaties (agreements) that recognise the right to adequate food. This means that both of them recognise it and aim to, progressively, build the institutions, legislations (laws) and environment that can make the right achievable and justiciable (capable of being decided by legal principle or by a court) for all. During the pandemic, Mexico and Scotland also put lockdowns in place in the first months of 2020.

Each of the cases (Mexico and Scotland) are built with data sources from households and stakeholders' interviews, as well as review of the literature. Households' interviews were conducted in May-June 2020 using online photo-elicitation interviews (which involved participants taking photographs to reflect on their

experiences during an online interview). Participants were from households that became “newly vulnerable” during the pandemic because of losing part of their income. In Mexico I interviewed people from urban and rural areas whilst in Scotland, only from urban areas. Stakeholders from universities, third sector organizations and the government (working with topics related to food and nutrition) were interviewed online in March-April 2021.

Findings show that the four pillars of food and nutrition security (accessibility, availability, utilization and stability) were impacted by the pandemic and the lockdown. Even though the shopping experience was similar in both countries (people feeling more comfortable shopping in places with rules in place, good layouts, planning shopping, cooking from home), the impact of the pandemic on people’s concerns about accessing food in the future was different in both countries. Social protection policies in Scotland, such as the job retention scheme (furlough scheme), played an important role in reducing some household’s vulnerability. Scotland put in place a wide range of social protection policies that aimed to protect the needs of the population. In contrast, Mexico put in place very few strategies. Other situations made the impact of the pandemic worse for some people. For example, the informality in employment in Mexico meant that there were no job retention schemes, therefore many families faced a sharp decrease in income. Families shared their concerns, as well as changes in their food-related behaviours, that indicated stress in food and nutrition security. However, rural households in Mexico experienced less concerns about food access in those first months of the pandemic because they produced their own foods through farming. This highlights the importance of local producers, agriculture and sustainable diets. Findings of both sets of interviews, including issues related with the food system, the healthcare sector, as well as food aid in both countries are also presented.

In addition to the two sets of interviews, a qualitative evidence synthesis (review) looking at the use of photo-elicitation to research access to food in vulnerable populations was conducted. This review provided useful information to inform my own photo-elicitation interviews. Also, the results found in the review were similar to some of the findings in the interviews.

In conclusion, the right to adequate food during the first months of the pandemic was not fully accomplished by all people. These two cases present information about families that were not previously vulnerable, hence the experience must have been very different for people who were already struggling with food insecurity, poverty and deprivation. This thesis provides useful information about the role of social protection policies in delaying vulnerability in families that experienced loss of income as a result of a lockdown.

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1. Chapter 1: Introduction

1.1 Introduction

Having stable access to adequate food - food security - has been considered a human right for over fifty years. Understanding the food security concept through a human rights lens makes it necessary to consider not only the elements that are related with availability of food, but also those that determine access to it. The right to food also considers elements involved with governance, policy, access to justice, equality, and regulations, among others.

In 2018, there were 820 million people (9.2% of the world population) suffering hunger, which is the expression of severe food insecurity (and measured by the prevalence of undernourishment), and around 2 billion people (26.4% of the world population) were experiencing either moderate or severe food insecurity worldwide (FAO, 2019b). These numbers are unevenly distributed across different regions of the world. For example, 20% of the population in Africa is undernourished, whilst in Latin America, it is estimated that 7% of the population experiences undernourishment (FAO, 2019b). On the other hand, whilst 8% of the population in North America and Europe is food insecure, they are mainly in a moderate level (not experiencing hunger but compromising food quality and/or quantity when dealing with uncertainty to access food) (FAO, 2019b).

Over the years, the world has been far from eradicating hunger and malnutrition, and in recent years, they seem to have exacerbated (FAO, 2020; UNDP, 2022). Economic recovery from the economic crisis in 2008 was still happening slowly, and it was still affecting the ability to access food in many countries, especially in low- and middle-income countries (FAO, 2019b). Some people suggested that the global economic scenario seemed to be “darkening again” (FAO, 2019b). By 2019, it had already been reported that hunger had increased in countries whose economy had contracted or slowed down, highlighting the relationship between the economic crisis and food insecurity (FAO, 2020).

The COVID-19 pandemic (the use of the term “pandemic” in this thesis refers to the COVID-19 pandemic) began in December 2019, it was caused by the virus SARS-CoV-2 (viral respiratory disease belonging to a family of viruses called coronaviruses) and impacted the entire world in ways we had rarely seen (Mardones et al., 2020). The spread of COVID-19 was fast, and soon became a pandemic, causing governments in different countries to take different strategies (such as social distancing and series of lockdowns, which restrict the movement of individuals) to contain the spread of the virus at different moments (Devereux, Béné, & Hoddinott, 2020; Ferraresi, Kotsogiannis, Rizzo, & Secomandi, 2020; Walensky & del Rio, 2020). These measures caused economic and social changes and also interfered with the fulfilment of some human rights (e.g., the right to life, the right to health, the freedom of movement, the right to personal freedom) (Spadaro, 2020).

The COVID-19 pandemic threatened the progress that was made in the last years (before the pandemic) to reduce poverty and hunger, healthcare and education (Béné et al., 2021). According to some research, the pandemic has pushed more than half a billion people into poverty (Mardones et al., 2020), and between 90 to 150 million people could have entered extreme poverty, especially in South Asia and sub-Saharan Africa (Laborde, Martin, Swinnen, & Vos, 2020). The global economy suffered a profound and long-term impact of the pandemic, causing loss of jobs and income in many households (Fernandes, 2020). Regardless of the timing and severity of the lockdown, social and economic impacts were seen throughout different population groups. Lockdowns had a more negative effect on those who were living in situations of inequality, poverty and food insecurity, making their situation worse (Besley & Stern, 2020; Bonaccorsi et al., 2020; O'Donnell, Buvinic, Bourgault, & Webster, 2021; Razavi, Behrendt, Bierbaum, Orton, & Tessier, 2020; Wouterse, Murphy, & Porciello, 2020). The impact on a households' economy affected people's wellbeing, caused mental distress, decreased ability to consume goods and services, amongst other consequences (Collie et al., 2020; Nichols, Mitchell, & Lindner, 2013). In the long term, research shows that unemployment can increase the likelihood of developing mental health issues (Thern, de Munter, Hemmingsson, & Rasmussen, 2017), trauma (Crayne, 2020), social

exclusion (Kieselbach, 2003), and food insecurity (Nord, Coleman-Jensen, & Gregory, 2014; Sarlio-Lahteenkorva & Lahelma, 2001). These economic losses affected, and may affect in the long run, the ability of households to access healthy diets (Devereux et al., 2020; Laborde, Martin, Swinnen, et al., 2020; Laborde, Martin, & Vos, 2020; Loopstra, 2020; Swinnen & McDeremott, 2021).

In addition to the economic impact, there were also fluctuations in food availability due to the changes in the food supply chain. This as a result of factors such as closure of roads, closure of food production facilities, changes in food trade policies (Aday & Aday, 2020; Hobbs, 2020; Luckstead, Nayga Jr, & Snell, 2021; Rizou, Galanakis, Aldawoud, & Galanakis, 2020). Furthermore, the food supply chain was impacted by the changes in demand and supply because of the lockdown, barriers in transportation, loss of income, and changes in shopping patterns (Sperling et al., 2022). Disruption of food supply in places where strict sanitary measures were put in place hindered some people's ability to purchase food, and limited the volumes of food traded from rural areas (Mardones et al., 2020). These changes in the food supply chain, combined with the decrease in income in some households, increased people's vulnerability to be food insecure (Laborde, Martin, Swinnen, et al., 2020). In 2020, it was estimated that the COVID-19 pandemic would increase the number of undernourished people in the world, adding between 83 and 132 million people to the total number (FAO, 2020).

The scenario created by the COVID-19 pandemic directed new research in food and nutrition security, and the right to food. Since the outbreak of the pandemic in March 2020 some researchers explored and wrote about food insecurity or changes in food behaviours as a result of the pandemic (Laborde, Martin, & Vos, 2020; Pereira & Oliveira, 2020). Much of this research focused on quantitative data obtained from population-wide surveys (Kent et al., 2020; Wolfe, Frongillo, & Valois, 2003). This data provided a good estimation of the impact of the pandemic on food insecurity in populations that were already vulnerable, and some of them have provided information regarding the social determinants that increase the likelihood of becoming food insecure, such as financial vulnerability (Canari-Casano et al., 2021; Lauren et al.,

2021; Mills, Albani, & Brown, 2021). However, understanding how people access food, shape their diets, and navigate the food environment is also necessary. Exploring their experiences can elucidate the factors, at individual and community level, that could improve resilience to the changes caused by the pandemic. Lived-experience research is relevant given that it can shed light on the nuances of accessing food and interacting with the food environment, providing valuable information of the drivers to the changes that individuals and families had to make to adjust to the strain derived from the pandemic.

With the pandemic, economic losses and changes in the food supply chain were some of the main impacts that were seen in different countries and populations across the globe. It is likely that high- income, middle-income, and lower-income countries dealt with the pandemic differently, which then impacted food security. In this PhD, two countries, Mexico and Scotland, are used as case studies to compare and contrast access to food of families affected by the pandemic and the measures taken to mitigate it; and how some of the social, political and economic factors of each country mitigated or hindered the way people coped with the challenges posed by the pandemic (see Chapter 2, pages 59 and 63).

The aim of this thesis was to explore the impact that the first lockdown during the COVID-19 pandemic had on Mexican and Scottish households' food and nutrition security (see Chapter 2, page 32) by conducting online (participant-generated-images) photo-elicitation interviews with households in both countries in which families had lost part of their income. In addition, stakeholders (academics, politicians, and members of organizations working with topics of food, nutrition and/or food provision) were also remotely interviewed to explore their perceptions and opinions. Understanding the changes around food access and preparation, its drivers and how people navigate a public health crisis whilst dealing with loss of income provided data that could inform further strengthening of social security policies, and the food system itself, to ensure the full exercise of the right to food.

Before presenting the background literature, the design of the research, and methodological approaches, I will start by introducing myself to provide a better understanding of who I am and how my identity, professional background and experience influenced and shaped the research ideas and methods for this thesis.

1.2 Biographical sketch

I am from Mexico, raised by Mexican parents, and lived there for a major part of my life. My professional background is in nutrition. I have a Bachelor's degree in Human Nutrition and a Master's in Clinical Nutrition from a University in Mexico. I have worked as a Lecturer in Nutrition, as well as a clinical nutritionist. In 2016, I undertook another Master's degree in Global Health and Management at the University of Aberdeen, which introduced me to public health, epidemiology, and global health policy. During that period, I gained more awareness of the complexities of health globally.

In my clinical nutrition experience, I had the opportunity to consult with patients from different socio-economic backgrounds. Additionally, I had the opportunity to interact with some of Mexico's indigenous communities whilst working on different projects. This allowed me to partially witness the impact of poverty and the food environment on people's lifestyles and food choices. These experiences made me realize I needed to expand my knowledge to understand food and nutrition from a more holistic framework, one that considers communities, local contexts, food policy, and higher-scale processes and regulations.

After my Master's degree in Aberdeen, I collaborated in the creation of an Observatory for the Right to Adequate Food in Jalisco, (a State in Mexico) (<https://blogs.iteso.mx/quecomemosmex/conocenos/>). This Observatory was created by a multi-disciplinary team. I had a close involvement in the selection and analysis of quantitative indicators to measure the achievement of the right to food. To support this task, I had to take some courses on statistics and econometric methods for impact evaluation. This numerical approach to the exploration of the right to food was fascinating to me, but I also felt attracted to knowing more about the nuances of the

behaviours, values, understandings, and underpinning world-views that guide people's relationship with food and the food environment. Here is where qualitative research finds a place in my professional interests.

Subsequently, my interest in the right to food (and food and nutrition security) is a result of the combination of both personal and professional experiences. I became interested in the role that the physical environment plays in how we access food, as well as the strong influence that the social, economic and political context exert over how people achieve the right to food. This interest took me to start my PhD study at the University of Edinburgh in 2019.

1.3 The pandemic and my PhD

Initially, in the first year of my PhD (2019), I had the intention of exploring the right to food and food citizenship. Food citizenship considers food as a human right, and states that people should have an active role when deciding what to purchase, amongst other characteristics (Lozano-Cabedo & Gómez-Benito, 2017). The aim of that proposal was to contribute to fundamental knowledge and theory of the right to food through the exploration of experiences of food citizenship of Mexican families in different food environments, and the perceptions of agri-food system stakeholders through a qualitative methodology. Due to the COVID-19 pandemic, I had to make some changes to my research proposal in order to be able to finish my PhD within the expected timeframe. However, time wasn't the most important reason for change. The pandemic created a new opportunity to look at food and nutrition security during a time of a worldwide crisis. Nevertheless, the core topic of my PhD remained the right to food.

Although it was difficult for me to adapt to the challenges of the pandemic, research-wise (but also emotionally), it provided a way of gaining new insights on food and nutrition security that I wouldn't have had and allowed me to harness the situation to my advantage. So, amid living through a global pandemic with a sense of catastrophe and uncertainty, I changed my perspective and understanding of it as a unique opportunity to research the effect of a world-wide public health crisis on the

determinants of accessing food when facing sudden income changes within the household.

1.4 My motivation for the research

The year 2020 was a year to remember. The start of the pandemic in March 2020 meant different things for all populations across the globe. It was a challenge for me personally, but a perfect moment to show resilience. I was surprised I was able to keep working on my PhD from home despite all the uncertainty, stress and distractions. Even though at the beginning I felt discouraged by the uncertainty and the idea of a potential interruption of my studies, I strongly felt there was a window of opportunity to keep working on my PhD topic of the right to food. The pandemic made me change what I intended to do initially but allowed me to study the pandemic as a disruptor of people's right to food. Basing my research on the right to food allows the integration of the following topics: food and nutrition security, food environment, impact of social and economic contexts and actions promoted by governments and other actors, vulnerability, and resilience.

The pandemic, and especially the lockdown, represented a scenario to visualize the role that governments and their actions have on the social and economic structures that determine how people access food. Also, this scenario exposed the complex interactions between the diverse layers (individual/household, regional and national) that influence how people access food. The global nature of the pandemic created comparable situations all around the world. However, the way people faced the challenges imposed by Governments to tackle the pandemic were significantly different. I argue that these differences were the result of different factors such as the economic and social status of people; the nature of their jobs; the existence of welfare policies in the country; and the social (COVID-19) support provided by governments.

Seeing all these changes, knowing (or not knowing back then) we were going to have to be at home for an indefinite time, and having access to technology and electronic devices, were factors that influenced my decision to change the focus of my

research. The rest of the story is the core of this thesis. Doing a PhD during a global pandemic, as a foreign student was definitely a challenge, it was an opportunity to learn and explore creative and remote ways of doing research.

The thesis is organised in the following way. Chapter 1 provided a background and the context for the PhD study. Chapter 2 presents a literature review of the core concepts of the thesis, as well as its aim and objectives. Chapter 3 presents a qualitative evidence synthesis of studies using photo elicitation to research access to food by vulnerable populations. Chapter 4 captures the methodology and the methods employed. Chapters 5 and 6 provide the case of Mexico (with households and stakeholders findings, respectively). Chapters 7 and 8 present the case of Scotland (with households and stakeholders' findings, respectively). Finally, Chapter 9 presents the discussion and conclusions.

2. Chapter 2: Background and objectives

2.1 Overview

This chapter provides a description and overview of the main concepts and theories that shape this thesis. It also describes and discusses the underpinnings to understand how the mitigation strategies implemented during the COVID-19 pandemic impacted “newly vulnerable” (families who had a stable and constant income before the pandemic, and lost part of it because of the mitigation measures) households’ food and nutrition security. The information presented here provides a rationale for my research. The structure of this chapter is as follows:

- Begins by defining the core concepts of my research: food and nutrition security.
- Then, the relevance of approaching the study from a systemic and ecological perspective, leading to the right to adequate food.
- After this, I describe the COVID-19 pandemic as the framing scene of my research.
- Then, a description of vulnerability and resilience in relation to food and nutrition security.
- Following this, an explanation of the reasons to explore the impact of these strategies in Scotland and Mexico.
- Finally, I conclude with the overarching aims and objectives of my thesis.

2.2 Understanding food and nutrition security

Food and nutrition security (referred as FNS in this thesis), is the core concept that underpins my thesis. These terms, therefore, need to be clearly defined.

2.2.1 Food security

The way food security is widely understood, especially in the field of food policy, is with the definition used by the Food and Agriculture Organization, lastly refined in 2001:

“Food security exists when all people at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life” (FAO, 2001, p. 49).

The construction of this definition took several decades since the 1940s. Initially, although the concept was not known as “food security”, a country’s food supply was understood –by the United Nations - as the constant and adequate availability of food at a country level (Clapp, Moseley, Burlingame, & Termine, 2022). Then, in the World Food Conference of 1974, food security was formally defined, and it had the same core understanding of food being available at stable levels to avoid potential shortages in case of production and prices fluctuations because of natural disasters or other events (United Nations, 1975). This definition had food supply at its core, aiming to improve food production. This incentivized the Green Revolution, which entailed an increase in agricultural productivity using high-yielding crops, and mechanization of processes in the 80’s (Gross, Schoenebereger, Pfeifer, & Hans-Joachim, 2000). Following this, the work by Amartya Sen and the development of the concept of entitlements changed the understanding of food security. Sen (1981) suggested that the causes of famines were related to a decrease in people’s economic ability to access food and an uneven food distribution, rather than food not being available. Then, in the 1990s, the right to food was reaffirmed, and goals of decreasing poverty were set internationally (Gross et al., 2000). Thus, after the long history of food security, the concept has been conceptualised categorically with four pillars (which follow the story of the evolution of the definition): availability, accessibility, utilization and stability (FAO, 2008; Gross et al., 2000).

- **Food availability:** the extent to which food is within reach of households.
- **Food accessibility:** when a household has the ability to obtain (through production, purchase or donation) food of sufficient quantity and quality to have a nutritious diet.
- **Utilization:** being able to utilize nutrients in food, and food being enough according to physical needs; diversity and nutritional content of the diet; and cultural appropriateness.

- **Stability:** being able to access food all the time, also when crisis arise.

The first three pillars (availability, accessibility and utilization) are considered the physical components of food security (Weingartner, 2009). As Webb et al. (2006, p. 1405s) describes: “*availability, access, and utilization are hierarchical in nature: food availability is necessary but not sufficient for access, and access is necessary but not sufficient for utilization*”. Stability, which is a temporal component of food security, has an influence on each of the three other pillars (Gross et al., 2000). The stability dimension means that despite going through a sudden shock, people should still be able to access adequate food (Hwalla, El Labban, & Bahn, 2016). Stability is concerned with what happens to food access when negative shocks take place (Pieters, Guariso, & Vandeplass, 2013). In addition to the four widely known pillars of food security, other authors have proposed additional pillars. For example, some authors (Berry, Dernini, Burlingame, Meybeck, & Conforti, 2015; Peng, Dernini, & Berry, 2018) have suggested adding sustainability, which involves elements of ecology, biodiversity, climate change, socio-cultural and economic factors. In addition, Clapp et al. (2022) has suggested including sustainability and agency, arguing that adding these pillars helps to address the inequalities of the food system as well as the future of the food system. For the purpose of this thesis, its universal recognition and wide utilization in the realm of food policy, I use the definition by FAO (2001).

2.2.2 Nutrition security

In order to describe nutrition security, I need to go back to the utilization pillar of food security. This pillar refers to going beyond to just accessing food that is available and aims to ensure nutritional security. Nutrition is the result of a combined effect of the food that is eaten and the health status of a person (Gross et al., 2000). Therefore, in order to achieve good nutrition, it is important to have access to food that is available; and having a body that works properly in order to use the nutrients in the food and promote nutrition. In addition, to promote health, individuals should be able to access healthcare, as well as having an environment that incentivizes good eating behaviours and physical activity.

Nutrition security has been defined as:

“A situation that exists when secure access to an appropriately nutritious diet is coupled with a sanitary environment, adequate health services and care, in order to ensure a healthy and active life for all household members” (FAO, 2012b, p. 57).

This concept considers non-food elements such as health services, healthy environment and caring practices. Nutrition security hence considers that food that is available, accessed and utilized by people has to be of good quality, quantity, and safe, so people cover their needs and preferences to have a healthy life (Pangaribowo, Gerber, & Torero, 2013).

2.2.3 Food and Nutrition Security

Food and nutrition security is a concept that integrates both food security and nutrition security. Using this concept (rather than only food security), helps the nutritional aspect of food security to be considered within interventions that aim to improve food security. This terminology has been widely used by some authors, and international agencies such as FAO and UNICEF (Pangaribowo et al., 2013). One of the definitions of FNS that encompasses all its elements is the one proposed by Weingartner (2009):

“Food and Nutrition Security is achieved, if adequate food (quantity, quality, safety, socio-cultural acceptability) is available and accessible, and satisfactorily utilized by all individuals at all times to live a healthy and happy life”.

Considering nutrition in the original terminology of food security could ensure that issues of traditionally marginalised groups such as disparities in the quality of food they access, and in diet-related conditions are also addressed (Mozaffarian, Fleischhacker, & Andrés, 2021). FNS must be ensured at national, household and individual level (Simelane & Worth, 2020). For my thesis, whenever I mention the term “food security”, I am considering nutrition security as part of it, explicitly or implicitly. I also focus on food and nutrition security on household and individual level.

Figure 1 shows the four pillars of food security: availability (in its three levels), accessibility (physical and economic), utilization, and stability. The utilization dimension is divided in food elements (e.g., quality food, nutritious, people’s preferences, culturally appropriateness), and non-food elements (e.g., access to healthcare, safe environment). The non-food elements have an impact on people’s health, which determines how food is used in the body. Including these elements in the definition of food security, makes it food and nutrition security.

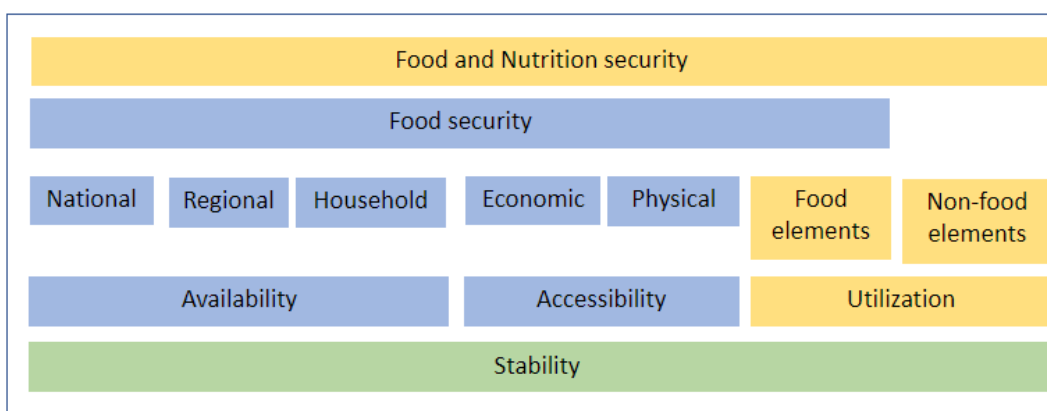


Figure 1 Diagram showing the elements of food and nutrition security and their interrelationship

2.2.4 Food and nutrition security at different levels

Food security at a household level can be an indicator of nutrition security, as well as food availability at a national, regional and local levels can determine household and individual FNS. Food security can be measured at these three levels (national-macro, regional-meso, household/individual-micro) (Gross et al., 2000; Perez-Escamilla & Segall-Correa, 2008). Differentiating these levels is relevant given that it could be possible that at a national level a country is considered food secure because it has a good and stable food supply, but some people (usually those living in deprivation or are socially vulnerable) face challenges to access adequate food. One of the main obstacles for people to achieve FNS is the lack of economic resources. However, it can also be the lack of food being available in the proximal environment, as well as not having a good health status. Finally, being vulnerable to challenges brought by crisis

and lacking resources and skills to be resilient can affect the stability dimension of households' FNS (Pieters et al., 2013).

Food and nutrition security at a household and individual level are not independent of the situations that take place in the macro system. Policies implemented by governments in different areas can have an impact on the four pillars of FNS. Table 1 shows some policies' impact on FNS.

Table 1 Table showing public policies and their impact on the different food and nutrition security pillars (adapted from Pieters et al. (2013))

Food and nutrition security pillars	Public policies
Food availability	<ul style="list-style-type: none"> a. Food self-sufficiency or food-reliance in governments' agenda b. Agricultural subsidy programmes, exchange rate policies, policies creating stable and attractive conditions for agricultural investments c. All drivers and determinants that have an impact on the domestic food supply and the ability to finance food imports d. Road and market infrastructure, market integration, local market institutions e. Public policies, economic growth policies, land and property right reforms, education policies
Food accessibility	<ul style="list-style-type: none"> a. Access to activities that provide income b. Health status; and education level, which impacts ability to develop a job, better allocation of resources, better nutritional decisions and health practices c. Quantity and quality of food determined by food prices (determined by food availability and food demand) d. Dietary preferences influenced by culture, religion and socioeconomic status e. Social protection policies
Food utilization	<ul style="list-style-type: none"> a. Care practices in the surrounding environment. b. Care in household depends on resources availability, knowledge of care (which can be related to education) c. Individual health status and distribution of food inside the household d. Health environment (depends on water supply, sanitation, housing conditions, waste disposal) and access to health services

	e. Health policies
Food stability	<ul style="list-style-type: none"> a. Livelihood's strategies are a determinant of household's vulnerability b. Strategies are adopted depending on resources, and ability to access savings, credits, and insurance c. Adopting livelihood strategies for risk prevention, or risk mitigation, or coping with risks d. Social protection policies, and aid policies

This table is a non-exhaustive list of different policies that can affect FNS. This table helps to understand the complexity of FNS, and how there are many determinants from different fields that have a direct impact on how people access food.

2.2.5 Food and nutrition insecurity

Failure to meet any of the four pillars from the FAO (2001)' s food security definition is known as food insecurity. Food insecurity occurs when one or more of the elements of food security is not met, because there is a *“limited or uncertain availability of nutritionally adequate and safe foods”*, or there is a difficulty to accessing them either for physical or economic reasons (Wolfe et al., 2003). Food insecurity has been defined as:

“Unreliable physical, social, and economic access to sources of adequate and nutritious food that meets people’s dietary needs and food preferences” (FAO, 2008).

Food insecurity can be chronic (when a person is unable to meet minimum food requirements over a sustained period of time) or transitory (there is a sudden drop in the ability to produce or access enough food to maintain a good nutritional status) (FAO, 2008). Failure in the utilization dimension of food security implies a failure in both, food security and nutrition security. The majority of the discourse of food security has focused on hunger and undernutrition (Al Aboosy, Grossman, & Dong, 2022). Focusing on nutritional security highlights the relevance of accessing adequate food in order to promote health and wellbeing. Hence, the concept could be extended from food insecurity to food and nutrition insecurity.

Supporting the importance of nutrition security, some researchers emphasize the role of availability of nutritious food (or lack of it) in the causation of malnutrition (including obesity) related to food insecurity (Dowler & O'Connor, 2012; Lobstein, 2009). For example, in upper-middle- and high-income countries, food insecurity can be related to higher prevalence of obesity in children and adults (FAO, 2019b). When people experience concerns about accessing food, they can compromise food choices leading to a reduction in intake of food diversity and good quality food, for products that are less diverse and with less nutritional quality (i.e., higher in sodium, fats, sugars). Diets with this type of foods have been linked to the development of obesity and overweight (FAO, 2018; Hendriks, 2015; Saint Ville, Po, Sen, Bui, & Melgar-Quiñonez, 2019). The exchange of good quality food to lower quality food has become an urgent topic to address in the realm of FNS, especially in developed countries or some specific contexts within developing countries (like in urban areas). The availability of high processed foods can contribute to unhealthy diets and thus to poor nutritional outcomes (Pieters et al., 2013; Schnabel et al., 2019).

Not having stable access to adequate food (i.e., food and nutrition insecurity) can have a myriad of negative consequences. Food insecurity can cause different forms of malnutrition, from undernutrition and nutritional deficiencies, to overweight and obesity (FAO, 2019b). Not having stable access to food leads to undernourishment given that individuals reduce the amount of food eaten, skip meals, or go for days without any food (FAO, 2019b; Saint Ville et al., 2019). This situation causes negative consequences on both physical (e.g., chronic conditions become more frequent, nutrient deficiencies, impaired learning and decreased productivity in children) and mental health (e.g., higher risk of depression, suicidal ideation in adolescents) (Mardones et al., 2020). Research has also shown that maternal and children health can be negatively impacted when women are food insecure (FAO, 2019b). Moreover, it can have a strong impact in decreased cognitive ability, low productivity, morbidity and mortality (Hendriks, 2015).

2.2.6 Measurement of food and nutrition security

Food security is often measured in order to identify households that are at risk of becoming food insecure and implement interventions to reduce this risk (Webb et al., 2006). Different methods to measuring food security at different levels have been developed (Perez-Escamilla & Segall-Correa, 2008). These include:

- **FAO method:** estimates calories per capita at a national level, using Food Balance Sheets and energy intake;
- **Household income and expenditure surveys:** report caloric intake per capita per household;
- **Individual's dietary intake:** reports individual's food group intake portions and nutritional intake;
- **Anthropometry:** measuring weight, size, body proportions as a reflection of the impact of food insecurity and health status on nutritional status;
- **Food insecurity experience-based measurement scales:** measure food insecurity by assessing the experience of food insecurity.

Each of these methods measure food security from different perspectives, but they should not be ranked in terms of importance but seen as complementary. For example, the FAO method measures food security at a national level, whilst the other four focus on household and individual level. All of them, other than the experience-based measurement scales, are indirect and assess the risk of food insecurity. Therefore, they are proxies for food supply failure and impaired utilisation (Perez-Escamilla & Segall-Correa, 2008). The experience-based measurement scales are the only ones that measure food insecurity in a more direct way (Perez-Escamilla & Segall-Correa, 2008; Webb et al., 2006).

In addition to these quantitative measurements, qualitative approaches to people's experiences of food insecurity have been widely conducted in the scientific literature (Burriss, S., Rykiel, & Himmelgreen, 2020; Chilton, Rabinowich, Council, & Breaux, 2009; Dailey et al., 2015; Dougherty, Schraedley, Gist-Mackey, & Wickert, 2018; Stevenson et al., 2021). This kind of research provides nuanced experiential data

that the other more positivist-orientated methodologies are unable to provide (Peng et al., 2018).

2.3 An ecological view of food and nutrition security

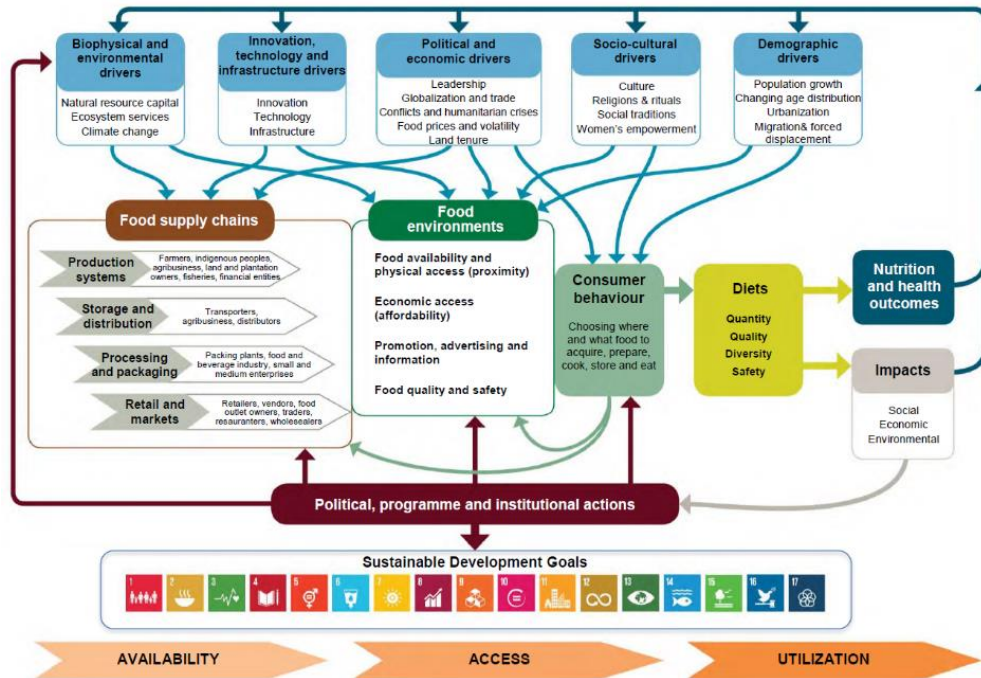
To understand what leads to food and nutrition security, it is important to conceptualise its determinants at different levels. Environmental, economic, and social systems are related and depend on each other; additionally, they have a direct, complex and dynamic relationship with food security (Kaiser, 2011). These systems, their functioning and the way they change depending on different circumstances have an impact on how people access food, and how communities and individuals cope with changes and challenges around FNS (Peng et al., 2018).

Food and nutrition security, at its different levels, can be approached and seen as an outcome of the interaction of different systems (i.e., economic, political, the food system). Food and nutrition insecurity is a problem with multiple manifestations and with multiple contributing causes that requires a comprehensive approach (Hendriks, 2015). Ecological approaches allow the identification of different factors (environmental, social and individual) and contexts that have an impact on people's food choices and diets (Herforth & Ahmed, 2015). There are different frameworks that consider different determinants and drivers to accessing food. Ecological models have been proposed and widely used to conduct research around public health (Kickbush, 1989; Sallis & Owen, 1996), food security, access to food, and nutrition (Glanz, Sallis, Saelens, & Frank, 2005; HLPE, 2017; Swinburn et al., 2013). For example, the socioecological model proposed by Bronfenbrenner (1979) considers different spheres of influence on an individual's behaviours and development. The model considers different levels of systems and their interactions. The levels (micro, meso, exo and macro) are characterised by the extent of the individuals' active engagement and the level of control individuals have on them.

The Bronfenbrenner (1979) model has been adapted and combined with other models to provide innovative frameworks such as the sociotype framework to coping

with food insecurity proposed by Peng et al. (2018). This model is a combination between the socioecological model, and the psychosocial framework of Engel (1977). The sociotype framework synthesises factors determining resilience of individuals during their lifetime (Peng et al., 2018). According to Peng et al. (2018) food security is a result of the coping mechanisms that a household or nation adopts when there are stressors in any of the four pillars of food security. This framework considers determinants of resilience, considering three levels: individual, relationships and contextual. The model considers that the stresses at any of the levels have an impact on the others. Also, the magnitude of the stresses as well as their length are a function of how effective coping strategies are.

Another framework is the one presented by the High-Level Panel of Experts (HLPE) on Food Security and Nutrition (from the United Nation's Committee on World Food Security, presented in their 2017 report "Nutrition and food systems"). It is a conceptual framework with the different elements of the food system, their interactions, and its impact on diets and nutrition. The framework shows drivers, actors and elements that interact with each other, and with other wider scale systems (e.g., energy, transportation, health). The framework was developed considering other models, but it differs in three different aspects: 1) emphasizes the role of the food environment in food choices; 2) highlights the role of diets as a link between the food system and health/nutrition outcomes; and 3) considers sustainability and how agriculture and food systems impact it (HLPE, 2017). Finally, the framework considers the integration of the network of drivers and systems within the 2030 Sustainable Development Goals (UNDP, 2022). Figure 2 shows the framework.



*Reproduced with permission from HLPE (2017)

Figure 2 HLPE framework of food systems for diets and nutrition

There are more ecological models applied to nutrition and access to food. For example, ANGELO, which stands for Analysis Grid for Environments linked to obesity (Swinburn, Egger, and Raza (1999)) which aims to identify factors in the environment that can promote obesity. The INFORMAS network (International Network for Food and Obesity/NCDs Research, Monitoring and Action Support), monitors food environments between countries to benchmark them; and support public and private sector in promoting food environments that are healthier and that contribute to reducing obesity and NCDs (Swinburn et al., 2013). I am not using any of the last two frameworks for my thesis, however it is important to mention them as examples of the work that has been done to understand the interaction between access to adequate food, food environments and health outcomes.

The frameworks by HLPE (2017) and Peng et al. (2018) are relevant for my thesis for the following reasons. Peng et al. (2018) helps to understand the COVID-19 pandemic as a worldwide-level stressor to FNS, and how governments and households coped with it, either increasing or decreasing resilience to further stresses. The HLPE (2017) framework allows the visualisation of the interaction of the different elements of i) the food environment; ii) the food supply chain and iii) consumers behaviours. These three main components were impacted by the COVID-19 pandemic; hence, this framework can contribute to the understanding of these changes and the relationships between them and are discussed in more detail below.

2.3.1 The food environment

As the previously mentioned frameworks (HLPE, 2017; Peng et al., 2018; Swinburn et al., 1999; Swinburn et al., 2013) indicate, the physical environment (including the food supply chain) has a strong relationship with FNS (Downs, Ahmed, Fanzo, & Herforth, 2020; Herforth & Ahmed, 2015; HLPE, 2017). Food environments can promote nutritious food choices, improving diets, or on the contrary, they can promote unhealthy diets. Unhealthy food choices can be influenced by misleading marketing, easy accessibility and wide availability of unhealthy foods, prices, amongst others (HLPE, 2017). The food environment also has an impact on how income itself impacts dietary consumption and nutrition (Herforth & Ahmed, 2015).

Following the framework by HLPE (2017), food environment can be defined as:

“The physical, economic, political and socio-cultural context in which consumers engage with the food system to acquire, prepare and consume food” (HLPE, 2017, p. 11).

It consists of the physical space (entry points) where food is available and accessed; the built environment (features and infrastructures) which allows accessing the physical spaces; personal determinants (income, values, education, skills) of choices related to food; and the cultural, social and political rules that shape the interaction of the previous components. In addition to this, the food environment is characterised by having four elements that shape diets and influence choices in

consumers: “*physical and economic access to food (proximity and affordability); food promotion, advertising and information; and food quality and safety*” (HLPE, 2017, p. 11). Herforth and Ahmed (2015) also consider availability of food, convenience and desirability (or promotion and quality) when talking about the food environment. Finally, most recently, sustainability has been considered as another important component of food environments (Downs et al., 2020). Food environments have been previously classified in four different types: physical (the food that is available in food outlets, and different settings, and non-tangible factors such as nutrition expertise, information); economic (costs related to food); political (laws, regulations and policies related to food); and, sociocultural (the attitudes, values and beliefs that a society or a community has in relation to food) (Swinburn et al., 1999; Swinburn et al., 2013).

In addition to acknowledging the relevance of the food environment and other systems in determining people’s access to food, and their health outcomes, it is also important to identify who is responsible of providing the right environment to promote health and FNS. Ecological models consider the influence the macro system has on lower levels, indicating the role of stakeholders. For example, INFORMAS framework aims to strengthen accountability of the public sector, such as governments at any level, and the private sector (especially the food industry) (Swinburn et al., 2013). Another approach to FNS that identifies responsible actors and seeks to create accountability is the human right to adequate food. Besides, this approach situates those who are more vulnerable at the centre, aiming to empower them (UNFPA, 2014).

2.4 The right to adequate food

I will begin this section by describing what the human rights-based approach is, and then I will describe what the right to food is, its history, its components, and how FNS is part of it.

2.4.1 Human rights-based approach

The human rights-based approach indicates that vulnerable people are not meant to be assisted with support, but instead they are individuals who should be able to claim their human rights, in this case their right to food (CONEVAL, 2018a). This internationally recognised approach is widely used in social development policies (but also programmes, legislation, projects) and intends to eradicate poverty and inequality (Ramos Robles, 2018). Besides recognising people as active claimants of the rights (and also having their own responsibilities), it considers that actions that ensure the rights should be realised by actors with responsibilities, where States are the main subjects with obligations (CONEVAL, 2018a). Human rights are characterised for having six principles: universality and inalienability; indivisibility; interdependence and interrelatedness; non-discrimination and equality; participation and inclusion; and accountability of stakeholders. (FAO, 2014a; UNFPA, 2005):

The human rights-based approach is distinguished by having a number of good practices that indicate the approach is being followed. Some of the practices are: it situates the fulfilment of human rights as the main goal; people are key active actors in development; there is constant monitoring of outcomes and processes of programmes; aiming to reduce inequality and encourage empowerment; considers contextual analysis to identify immediate, underlying and root causes of problems; States are the main duty bearers, and considers other stakeholders not related to the government; it promotes national accountability and assessment of government's actions; and, incentivizes strategic collaborations (UNFPA, 2014).

This approach considers the role of all stakeholders related to the right to food, calling for action not only at the individual level but also at the political and community levels; it is also expected to guide decision-making and implementation processes (FAO, 2019a). The application of the human rights-based approach to FNS can contribute to its realization for all people, with more sustainable actions, which contribute to fight against inequality, discrimination, and unfair power relationships (HLPE, 2012; WHO, 2017).

2.4.2 The history of the right to food

The right to adequate food is part of the economic, social and cultural rights. It originated after the Second World War, when in 1948 appeared for the first time in the 25th article of the Universal Declaration of Human Rights (UDHR) as part of the right to a standard of living adequate for the health and well-being of individuals and households, along with the right to security in events of capacities' deprivation to attain that standard of living (e.g., unemployment, sickness, old age).

“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control” (UN, 1948).

The concept was refined, and in 1966 was formulated in the 11th article of the International Covenant of Economic, Social and Cultural Rights (ICESCR):

“The States Parties to the present Covenant recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions. The States Parties will take appropriate steps to ensure the realization of this right, recognizing to this effect the essential importance of international co-operation based on free consent” (UN, 1966).

In the Covenant, it also includes the assertion of adequate living conditions as a continuation of the previous definition in the Universal Declaration. It also highlights the relevance of international cooperation, the differences between countries that import or export crops, the improvement of food system processes (including food production, conservation and distribution), and the development or improvement of agrarian systems to enhance local production and, at the same time, to promote the sustainability of natural resources (UN, 1966). The right to food has an individual and a systemic layer in its understanding. Individually, people should have sustained access to food and not suffer from hunger by ensuring availability, accessibility and affordability

to nutritious and safe food. System-wise, the right to food aims to ensure a functioning food supply chain, a solid agrarian system, promoting nutrition skills and knowledge, and to achieve an equal food supply distribution worldwide (UN, 1966).

Even though the definition in the ICESCR seemed to cover a broader understanding of the concept, some Member States of the Committee of Economic, Social, and Cultural Rights, during the World Food Summit in 1996, recognized the urge to have a more solid, deep and detailed description of the right, and the rights related to food mentioned in article 11 of the ICESCR. The Committee describes the right to food as:

“The right to adequate food is realized when every man, woman and child, alone or in community with others, has physical and economic access at all times to adequate food or means for its procurement” (OHCHR, n/d)

In addition to the definition of the right, in 1999, the General Comment No.12 was formulated by the Committee on the Economic, Social and Cultural Rights (CESCR, 1999). The core of the General Comment No.12 contains the conceptualization of the right to adequate food in the ICESCR, which considers the availability and accessibility of food, in a sustainable way, being sufficient, safe and free from contaminants, nutritionally adequate, and respecting the culture, knowledge, and traditions of every population (CESCR, 1999). Along with this essential definition, other important elements are contained in the document. These elements are related with the legal obligations that Member States have towards the fulfilment of the right to food, the description of what a violation of the right means, benchmark and framework legislation, monitoring of the right to food and the special requests to achieve this, remedies of the violations and accountability, and international obligations. The General Comment No. 12 also recognizes other actors, besides the government, that contribute to the right to food, and their obligations and responsibilities (CESCR, 1999).

2.5 Components of the right to food and its link with food and nutrition security

Social rights are characterized by having three components: accessibility (ensure that means to the right don't have obstacles), availability (services, equipment, mechanisms, and procedures are enough to provide the right for all) and adequacy (means, services, facilities with which the right can be achieved, with acceptable properties, and culturally appropriate) (CONEVAL, 2018a). For the right to food, the first component refers to the capability of an individual to produce or buy food. To achieve this, it is necessary to have resources (e.g., land, credits, seeds, water, and equipment) or to be able to exchange part of income (without neglecting other needs) for food that is affordable. Availability of food means it can be accessed anywhere by everybody, whether in a rural or urban setting, and considers the diversity of food options. Also, availability can be ensured at the following three levels: individual, household and national (OHCHR, 2010).

While the concepts of accessibility and availability can be evenly understood throughout different populations and regions, and the means to their realisation could slightly vary within different contexts, adequacy poses a stronger health-determinant element of the right to food. Adequacy of food not only depends on the individual biologic characteristics and specific dietary needs that allow the optimum physical and mental growth and development, but also on the context-specific culture, and the safety and quality of food and beverages *per se*. Adequacy points out quantity, quality and appropriateness of food (OHCHR, 2010).

Adequacy refers to the quality that enables food to be socio-culturally accepted, considering physiological needs, and the composition of food. In this regard, adequacy (linked to accessibility and availability) becomes a key point to promote healthier food choices for all. This emphasizes the importance of the food offer and recognises that energy dense and low nutrient food are an example of inadequate food (OHCHR, 2010). An inadequate food offer can be a determinant of both malnutrition (seen as underweight and obesity) and hidden hunger (i.e., low micronutrients intake due to low-

nutrient food, or scarce diversity of food options), situations that are also linked to the non-compliance of the right to food (Bump, 2018). Hence, adequacy plays a very important role regarding the right to food as it is critical to the proper interpretation of it. It is also considered the link between the right to food and the right to health given that it stresses the importance of not just caring about the quantity of calories, but the quality of the diet, which has a direct impact on nutrition and health.

The right to food is not just the right to be free from hunger. In a more comprehensive description, the right to food is better described when named “*right to adequate food*”, which considers the elements that “*culturally, socially and individually personalized*” food have, considering diversity and safety, which contributes to dignity and to the capacity to live an active and healthy life (OHCHR, 2010). Considering all these elements, it is evident the relationship of the previously explained four dimensions of FNS and the right to food (HLPE, 2020). Food and nutrition security could be understood as the outcome of the realisation of the right to adequate food.

2.5.1 Other characteristics of the right to food

Full accomplishment of the right to adequate food represents an essential component of people’s dignity (FAO, 2019a; La Via Campesina, 2018; OHCHR, 2010). Not being hungry is one of the first steps to be able to develop our capabilities as human beings, and to achieve good health and well-being (Dreze & Sen, 1990). Food shapes our nutritional and health status; and when is consistently adequate and sufficient to our needs, it allows us to focus on the fulfilment of other basic needs such as education and work. The outcomes of the compliance of the right to food are reflected in people’s health, nutritional status, growth and development, job productivity, prompt illness recovery, adequate cognitive skills, among others (Scrimshaw, 1994).

From the perspective of the right to food, FNS is understood as the logical and measurable consequence of the realization of the right (FAO, 2014b). The difference between food security and the right to adequate food is that the former is not a legal concept, and therefore it does not bring obligations to the different actors involved, and, but not less important, it does not entitle people to have it (OHCHR, 2010). The human

rights-based approach to food security includes regulations of the food environment, as well as the quality of the food offered. The right to food recognizes that the State and other actors are accountable for promoting and providing an enabling environment so people can access healthy and safe food (CESCR, 1999). This means the State has to promote the creation of the right conditions related to employment, access to education, access to social and health care services, among others (OHCHR, 2010). The right to adequate food does not need to be immediately and fully provided by the State. In other words, the States, and other responsible agents, should be committed to progressively promote an optimum environment so each person can fulfil the right by their own means (CESCR, 1999).

Food and nutrition security could benefit if understood within the framework of the right to adequate food. To promote its achievement, it is necessary to consider all the underlying elements that have been mentioned before. Without a change in the system and the underlying structures and institutions, it will be difficult to achieve FNS for all, and especially for those living in conditions of vulnerability and deprivation. These populations have a higher risk of experiencing hunger and neglecting the fulfilment of other basic needs.

When a country ratifies the Covenant of Economic, Social and Cultural Rights, it means they consent, and they are bound by a human rights treaty under international law. The commitment of States to the right to food implies having three main obligations, which are to respect, to protect, and to fulfil the right. A State respects the right when it does not take actions that stop or negatively alter it; protects the right when it stops companies or individuals' actions that could affect a population or other individual to access food, for example; and fulfils the right in two ways: facilitating or providing the right. Facilitating the right involves an active participation of the State and other actors with activities that impulse people to utilize resources to ensure their livelihood. Providing the right means the State must actively grant food to those who are not able to access or produce food (e.g., victims of natural disasters, political crisis, terrorism) (CESCR, 1999).

To summarize, ensuring FNS for all relies on understanding the profundity of the complex net of elements that build the right to adequate food, and to propose changes in all the elements that are involved (e.g., food production, agriculture, economy, social institutions, among others). Furthermore, it is of great importance to identify the main stakeholders to incentivize a change of perspective and motivate a coordinated action to ensure a human-rights based approach that yields results for all in terms of FNS.

2.6 Integration of food security and the right to food

To monitor the right to food it is necessary to operationalise the concept, following the normative precepts of the right. To accomplish this operationalisation is necessary to include the components of FNS, which favours monitoring and evaluation of the right. Food and nutrition security are concepts that have reached wide consensus and have established indicators which can be used as part of the monitoring of the right. Enjoying the right to food is then reflected when someone is food and nutritionally secure, reflecting a good nutritional status, as well as health and wellbeing.

CONEVAL (which stands in Spanish for Consejo Nacional de Evaluación de la Política Pública) is an institution that evaluates the Social Development Policy in Mexico. CONEVAL started measuring the exercise of social rights at a national level, including the right to food. In order to do this, they proposed a framework that integrates the right to food and FNS (CONEVAL, 2018a). This framework contains four dimensions: availability, accessibility, quality and nutritional status. These four dimensions are interconnected and each of them is necessary for the accomplishment of the others.

The framework considers nutritional status as the main outcome of exercising the right. It integrates both concepts of food security and nutrition security, pairing them with the three dimensions of the right to food: availability, accessibility and adequacy/quality. This framework considers the subdimensions of the right and their drivers. It also presents sub dimensions – and their drivers - of the previous three components/ dimensions (CONEVAL, 2018a):

- Dimension of the right: Availability
 - Subdimension: food availability (supply)
 - Drivers: macroeconomic level (production, reserves, imports/exports, storage capacity, waste, capacity to commercialize, transport/communication infrastructure).
- Dimension of the right: Accessibility
 - Subdimension: food accessibility (economic and physical)
 - Drivers: a) affordability (income, prices, transfers, household food production / food exchange); b) physical accessibility (food offer and demand, food aid or food production aid, job status, distance home-job)
- Dimension of the right: Quality
 - Subdimensions: food intake (energy intake); nutritious food intake; biological utilization of nutrients.
 - Drivers: habits and culture (preferences, publicity); groups and types of food (variety, intake frequency); for both habits and types of food (getting ingredients and food preparation, nutritional information); health conditions of people (diseases prevalence); hygiene conditions of the environment (access to water, drainage and sewage; physical conditions to prepare and store foods)

I consider this framework presents a clear and logic integration of FNS within the construct of the right to food. The following sections present an overview of the COVID-19 pandemic, the mitigation strategies put in place to slow its spread, and their impact on accessing food.

2.7 The COVID-19 Pandemic and mitigation strategies

COVID-19 caused high morbidity and mortality, overloading healthcare systems, challenging their stability and resources. In order to prevent this, there were some strategies that were used to buy time for healthcare systems to adapt to the pandemic

(OECD, 2020a). Many countries around the world introduced lockdowns, where non-essential businesses had to close, people had to work from home when possible, and refrained from using public transportation. Lockdown was one of the strictest measures, intended to restrict movement of individuals to minimise the infection rate (Ferraresi et al., 2020; Flaxman et al., 2020; Walensky & del Rio, 2020) but also caused substantial disruptions (Acemoglu, Chernozhukov, Werning, & M., 2020; Hamadani et al., 2020; Poudel & Subedi, 2020).

Even though the essence of a lockdown everywhere was to ensure that people stayed at home, the severity of the measure, enforcement, duration, and the 'economic hit' differed greatly within and between countries and regions. These differences emanated from each country's characteristics such as institutional structures and government's priorities (Alfano & Ercolano, 2022), government's political ideologies, corporate governance institutions (Chow, Petrou, & Procopiou, 2022), female leadership (Sergent & Stajkovic, 2020), economic structure, level of public indebtedness, quality of governance (Sapir, 2020), amongst other characteristics. The implementation of lockdowns led to a feeling of commotion and a high level of uncertainty. In addition, the severity of the impact of the pandemic was heterogeneous, where those with more wealth and power were almost shielded from the hardships brought by the pandemic, whilst those living in more precarious situations suffered more, and their situations became even worse (Mardones et al., 2020).

Moreover, the economic cost of the mitigation strategies was significant, with estimations of the world economy declining around 5% in 2020 (Laborde, Martin, Swinnen, et al., 2020). The pandemic and its restrictions had a global impact. Even situations that were happening in higher income countries impacted low- and middle-income countries. For example, the reduction in trade, oil, restrictions in travel and freight were situations that impacted poorer countries as a result of the economic aftereffect on countries such as China, United States and countries in Europe (Laborde, Martin, Swinnen, et al., 2020). Also, for a short period of time, at the start of the pandemic, there were some restrictions on specific trades, like wheat in Russia (Sperling et al., 2022).

The pandemic itself, and measures like the lockdown caused important economic and social changes and somehow interfered with the fulfilment of some human rights (e.g., the right to life, the right to health, the freedom of movement, the right to personal freedom, the freedoms of assembly and association, the right to work, amongst others) (Spadaro, 2020). However, even though this appears to be an issue of concern at first sight, human rights law allows the temporary interruption of some (non-absolute) rights to protect public health, as long as States adhere to what is strictly necessary and do not fall in a long-term limitation of human rights harming vulnerable people (Lebret, 2020; Spadaro, 2020).

2.8 Vulnerability and resilience

The pandemic was an event that could have increased households' and individuals' vulnerability to be financially insecure and food insecure. Vulnerability in the area of food and nutrition security means being at risk of losing FNS because of a negative shock (Pieters et al., 2013). Vulnerability has been described by Sarris and Karfakis (2008, p. 1) as: "*the likelihood of experiencing future loss of welfare, generally weighted by the magnitude of expected welfare loss*", which can be understood as the effect a shock can have on FNS. Vulnerability is a combination of exposure (to the pandemic and its measures), sensitivity (to the shock), and adaptive capacity (availability of resources and their utilization) (Pieters et al., 2013). Food insecurity can be understood as a manifestation of vulnerability, which can occur at individual, household and national level (Paloviita, Kortetmaki, Puupponen, & Silvasti, 2016). Vulnerability depends on the availability of resources and assets, and how well a household/individual responds to shocks. However, using resources and assets to overcome crisis, means they are being eroded and decreasing the ability to cope with future shocks, impacting households' livelihoods in the long run (HLPE, 2012). Pieters et al. (2013) describe resilience as the ability to recover from the challenges created by a shock. Resilience and vulnerability determine which risk coping strategies are

adopted, and these measures, in turn, also impact both vulnerability and resilience in the future.

So, in the words of Pieters et al. (2013, p. 16),

“Vulnerability is the probability of a household becoming food and nutrition insecure after, say, a food price shock. Resilience is the time needed for the household to get back to its food and nutrition status as it was before the shock”.

In the situation of the COVID-19 pandemic, vulnerability would be the likelihood of becoming food insecure, and resilience would be the ability families could have to go back to the FNS status they had before the pandemic. Resilience is also considered in the Sociotype Ecological Framework (section 2.3, page 38), regarding the stress and coping strategies to FNS (Peng et al., 2018). Recalling, this framework considers the features of the environment and how they impact on the way people cope with challenges to accessing food. It considers three domains: individual, relationships and contexts, which interact and influence how people respond and cope with challenges. Challenges are firstly evaluated by individuals and then actions are taken to cope with them. Finally, resilience is related to the availability of coping systems in the long-term, whilst coping is related to a short-term approach to handling stresses to FNS (Peng et al., 2018).

To decrease vulnerability to negative shocks, households often adopt coping strategies, which depend on the number of resources they have, and the ability to access credits, insurance and savings. The strategies can be to prevent (before the shock actions); mitigate (reduce the impact of a shock); or cope with risk (action taken after the shock to limit the impact) (Pieters et al., 2013). Given that access to food is directly related to the economic situation of a household, coping strategies are also related with the management and utilization of economic resources. Also, relying on social safety nets, as well as modification of food-related behaviours are strategies that can be taken to handle a food access crisis (Maxwell & Caldwell, 2008). However, these strategies impact the availability of resources in the future, which could decrease their ability to cope with future crisis (Peng et al., 2018; Pieters et al., 2013).

2.9 Social protection

To reduce the social and economic impact of the mitigation measures, many governments (more than 195 countries) also put in place some short-term social protection schemes, or food aid programmes (Gentilini, Almenfi, Orton, & Dale, 2020 ; Laborde, Martin, Swinnen, et al., 2020). Households in their own capacity and resources available, also developed some coping mechanisms to decrease their vulnerability and improve their resilience. The extent of risk exposure and the ability to handle the risk are factors that influence how risks affect households (Capaldo, Karfakis, Knowles, & Smulders, 2010). In this section, a brief overview of how governments intended to neutralise the impact of the mitigation strategies on those who were more vulnerable or were at risk of being vulnerable are presented.

Social protection policies can have a direct impact on the ability of people to access healthy food in a stable way according to their requirements. Normally, economic growth happening simultaneously with the creation and application of public policies (especially those that promote education, access to health services, and health and nutrition policies) can improve FNS in the population. Also, those that are specifically targeted to reduce food poverty, or those that are meant to improve the current problems of overweight and obesity can improve FNS. Other policies that could contribute to FNS, are those related to land rights and property, as well as those that support productive activities of women and promote gender equality (Pieters et al., 2013); food price stabilisation, food subsidies, school feeding, cash transfers, crop and livestock insurance, (production) input subsidies, grain reserves, amongst others (HLPE, 2012).

According to Capaldo et al. (2010), FNS policies should consider vulnerability of households in terms of those at risk of being food insecure, which means considering their future status and not just their current state. This approach to policies can generate better results than only focusing on helping those who are food insecure at the moment of the assessment (Capaldo et al., 2010; Jaramillo Mejía, 2021). Households can be chronically or transitory food insecure, or transitory food secure, or permanently food

secure (Capaldo et al., 2010). Each of these categories have different needs in terms of which public policies would help them to overcome food insecurity. Policies could range from one-time transfers to mix of transfers and asset-building initiatives (Capaldo et al., 2010). Social protection has the goal of tackling vulnerability and poverty, and many definitions consider the idea of managing risks and assisting people who are poor, and some also add a human rights dimension (HLPE, 2012).

There are many different definitions of social protection, and they all focus on poverty and vulnerability. The European Communities (2010, p. 1) describes social protection as:

“A specific set of actions to address the vulnerability of people’s life through social insurance, offering protection against risk and adversity throughout life; through social assistance, offering payments and in-kind transfers to support and enable the poor; and through inclusion efforts that enhance the capability of the marginalized to access social insurance and assistance”.

Social protection from a perspective of human rights means that the state is seen as a duty bearer, and people are seen as rights holders. This view of social protection is the opposite to the “instrumentalist view”, which considers social protection to reduce poverty and a way to promote economic growth (HLPE, 2012). Social protection is, in fact, regarded as a human right, the same as the right to adequate food (CESCR, 2008). Social protection policies aim to address poverty and vulnerability through social assistance, social insurance, and social inclusion. These policies have livelihood promotion as a goal to increase people’s income, which in turn will impact their health and FNS, and will decrease the likelihood of experiencing hunger, destitution, and premature mortality. Social protection policies help people to deal with uncertainty and volatility, especially when shocks arise. *“Well-designed and well-implemented social protection programmes can insulate people and communities against the worst consequences of rapid changes and shocks”* (HLPE, 2012, p. 21).

Many people lost their jobs during the pandemic and did not receive any state support or didn’t have any kind of social protection nets to neutralize the risk of suffering

food insecurity (Mardones et al., 2020). Social protection policies (short term such as food aid; or long-term such as social safety nets, insurance mechanisms, social assistance policies and inclusion programmes for vulnerable people) could minimize the negative effects of a shock - food and non-food related- on a household's wellbeing (Pieters et al., 2013). Temporary extra social safety net policies were put in place in many countries to try to minimize the impact that losing one's income had on access to food, given that the main facilitator of accessing food is the economic ability of households. Social protection policies during the pandemic could be divided in three (Gentilini et al., 2020):

- *Social assistance policies*, which included cash transfer programmes, in-kind transfers, school feeding programmes, waivers and subsidies in utilities, goods, services and financial obligations;
- *Social insurance responses*, including paid sick support, health care insurance support, pensions, social security contribution waiver/subsidies, unemployment benefits; and,
- *Labour market (supply programmes)*, which included wage subsidies, activation (training) measures, labour regulation adjustment, and shorter work time benefits.

Some of these policies, like the ones involving cash transfer (conditional or unconditional) are seen as good options given that they allow people to choose what they want to buy, contributing to living with dignity (as the human rights-based approach dictates) (Laborde, Martin, Swinnen, et al., 2020).

The need of having social protection policies during the pandemic also indicates the magnitude of the structural problems that many societies had even before the pandemic. In the words of Jaramillo Mejía (2021): "*the global policy community has been putting bandages over systems that require major surgery*". The pandemic, a public health crisis, revealed the urgent need of solving these structural problems, but also required urgent action in the moment to protect the most vulnerable. Jaramillo Mejía (2021) considered that FNS should be at the core of the social protection policies, given that malnutrition is not only an outcome of poverty, but it can also cause it. For

example, cash transfer should also consider the cost of accessing a healthy diet and not only the income threshold for poverty. The implementation of mitigation measures might have contained the spread of the pandemic, but on the other hand, they made -for some - the problem of hunger, poverty and malnutrition worse (Jaramillo Mejía, 2021).

To summarise, the previous section presented the main definitions of the core concepts of my thesis. These definitions help to shape the scenario of my research, providing a rationale for the focus of my PhD. In the next sections I provide the rationale for the countries that I have chosen to explore these concepts more thoroughly.

2.10 Rationale for a cross country case study approach

My research for the thesis is carried out in two countries, Mexico and Scotland (UK). These two countries are essentially different in their socio, cultural, economic and political context. However, they share a common ground, which is the recognition and acceptance of the right to adequate food. These differences and similarity make these two countries an interesting source to explore how a global pandemic has different impacts in the realm of the right to food, and the vulnerability and resilience to FNS.

These countries are two of 171 countries which see the right to food as a pillar to ensure FNS. As it was presented earlier in this chapter (section 2.6, page 49), the right to food is a framework that considers FNS as the outcome of the realization of the right, and it also considers the State and other actors responsible of providing an enabling environment for the realization of the right. Mexico and the United Kingdom signed and ratified the International Covenant on Economic, Social and Cultural rights, in 1981 and 1976 respectively (OHCHR, 2021). Despite having ratified the Covenant, and multiple efforts to implement legislation around the right, none of the two countries had a domestic law in place to protect the right to food at the time of this study. This means that both countries recognized the value of the right to food, abided with the guidelines in the international treaties, but they were still working towards making it justiciable, legally protected and institutionally embedded.

These similarities -accepting the right but not having a specific domestic law that protects the right - the pandemic and its' lockdowns set the appropriate ground for this research. Mexico and Scotland are very different countries in many regards, from their socio-economic indicators (the UK is considered a high-income country by the World Bank, and Mexico is an upper middle-income country) to their social protection system. These differences are worth being explored to learn from those countries that provide social security to their people, in addition to other factors, to decrease the vulnerability of the population to be food and nutrition insecure. Table 2 presents some of the characteristics and differences in a wide range of indicators between Mexico, the UK and Scotland.

Table 2 Different indicators in Mexico, the UK and Scotland in 2020

	Mexico	UK	Scotland
Population	128 million people*	67.1 million people*	5.4 million people (8.1% of UK population)**
GDP	18 963 US\$ (13 077 GBP) per capita*	46 576 US\$ per capita (32 100 GBP per person, in 2020)**\$	43 210 US\$ (29 800 GBP) per capita considering onshore and offshore activities (8% of total UK GDP in 2019)**\$
HEALTH			
Health spending	1 198 US\$ (826.2 GBP) per capita*	5 268 US\$ (3 633 GBP) per capita*	
Life expectancy at birth	72.4 years (males) ¹ 78.1 years (females) ¹	79 years (males)** 82.9 years (females)**	76.6 years (males)*** 80.8 years (females)***
Overweight or obese population	75.2% of those aged 15+*	64.2% of those aged 15+*	65% of adults ^{\$}
JOBS			
Average annual wage	16 229.9 US dollars (12 443.62 GBP)*	47 147.2 US dollars (35 992.97 GBP)*	41 399.38 US dollars (31 605 GBP)&
Employment rate	61.5% of working age population*	75.4% of working age population*	72.8% of working age population ^{\$}
SOCIETY			
Social spending	7.5% of GDP *	20.6% of GDP*	

Sources: * (OECD, 2020b, 2020c), ** (ONS, 2020a, 2020b, 2021), *** (NRS, 2022), ¹ (INEGI, n/d), \$ (Scottish Government, 2020f, 2021b, 2022c), & (Scottish Parliament, 2021). Italics: conversion made with an exchange rate of 1GBP = 1.3099 US dollars, in March 2020 (beginning of the pandemic) (Exchange Rates UK, 2020).

The rationale for doing this research in two countries is to compare and contrast the impact that having short-term social protection policies -as well as different economic, social and political environment- have on FNS on people who experienced a financial shock during the pandemic. Comparing Mexico and Scotland allows learning of how wider contextual factors affect people's food-related activities during a pandemic. In the following sections the situation around the right to food and the pandemic in both countries is described in more detail.

2.11 Situation in Mexico

In this section I present an overview of the situation in Mexico in relation with the right to food, as well as food insecurity, and a brief narration on how the pandemic was approached by the Mexican authorities.

2.11.1 Status of the right to food

Mexico mentions access to food within its Political Constitution -since 2011 - in the 4th article (paragraph 3), stating that every person has the right to a nutritious, quality and sufficient food, and the State will guarantee it (CPEUM, 1917, article 4). Also, article 27th considers the sufficient and timely provision of basic food for sustainable and integral rural development. These two mentions fall into the understanding of the right to food. In theory, having this recognition of the entitlement of people to have access to quality food is responsibility of the State, and it is required to progressively work towards the provision of an enabling environment. In addition to the Constitution, there is a law called "General Law for Social Development", which considers the right to food as well, and promotes its inclusion in the planning, development and evaluation of programmes and actions. Moreover, access to food,

understood as a right, is considered an indicator in the multidimensional measurement of poverty (CONEVAL, 2019).

In addition to the Constitution and the social development law, there was an initiative (General Law of Adequate Food) to protect the right to food, which was presented in 2014, and approved by Deputies in 2015. However, it was still on revision by the Senate at the time of this study. On 3rd of November 2021, the initiative was presented by Senator Ana Lilia Rivera Rivera (from Morena, political party), and it was published in the Senate Newsletter (Gaceta) (LXV/1PPO-44/121786), but it is still pending to be enacted into law

(https://www.senado.gob.mx/64/gaceta_del_senado/documento/121786). This legislation aims to make the right to food real for all people, considering the participation of the Federal and Regional States, as well as the private industry, and the social sector. It also considers achieving FNS, as well as food sovereignty. Also, it aims to make the right justiciable, generate accountability mechanisms for those who have responsibilities towards the right, as well as sanctions when the right is not respected or protected. This law would allow to put into practice what is stated in the 4th article of the Constitution (CONEVAL, 2018a).

2.11.2 Food insecurity

In Mexico, food insecurity is measured in the National Survey of Health and Nutrition (ENSANUT in Spanish), which has questions that are based on the Latin-American and Caribbean scale of Food security (ELCSA in Spanish) (FAO, 2012a). This survey considers the definition of food security by FAO (1996), which is very similar to the one from FAO (2001), but without the word “social”. This survey has 15 questions that have to be answered by the person who is in charge of preparing and getting food for the household; and the questions have a time reference of three months prior to the time of the interview. This scale classifies food insecurity in mild, moderate and severe depending on the positive answers and if the household has members under 18 years old (FAO, 2012a; Shamah-Levy et al., 2021).

Food insecurity has been a constant problem in Mexico regardless of the increase in expenses in food assistance by the government throughout time (Vilar-Compte, Gaitán-Rossi, Flores, Pérez-Cirera, & Teruel, 2020). Besides, food insecurity prevalence is very different depending on the State (Mexico has 32 states) and municipality (each state has a different number of municipalities). For example, Chiapas and Guerrero (south of the country) had a prevalence of food insecurity of 80% in 2014, whilst in Nuevo Leon (north of the country) 30% of the population was food insecure (Vilar-Compte et al., 2020).

In 2020, 59.1% of Mexican households had a degree of food insecurity, with 20.6% living with moderate and severe food insecurity. The distribution of these prevalence was higher in rural areas (28.8%) and in the Peninsula (33.6%) (Shamah-Levy et al., 2021). The COVID-19 pandemic has decreased the prevalence of food security in household with children from 38.9% in 2018 to 24.9% in 2020 (Gaitán-Rossi, Vilar-Compte, Teruel, & Pérez-Escamilla, 2021). Evidence suggests that the increase in moderate and severe food insecurity figures has been greater in households with lower socio-economic status, however mild food insecurity has been reported at any socioeconomic status (Gaitán-Rossi et al., 2021). On the other hand, Mexico has a very high prevalence of overweight, obesity and diabetes (13.7% in 2016, (Basto-Abreu et al., 2020)). In 2018-19, the prevalence of overweight and obesity for adults aged 20 years or over was 39.1%, and 36.1%, respectively (Barquera et al., 2020). These conditions can also be associated with food insecurity (Herforth & Ahmed, 2015).

2.11.3 The pandemic and its mitigation strategies

Mexico had an initial countrywide lockdown of two months starting the 23rd of March 2020 and finishing the 1st of June 2020. After this time, economic activities restarted, and restrictions were lifted in around 300 municipalities in the country. Despite the numbers indicating that cases of COVID-19 were low, an investigation by a Mexican NGO showed that most of those municipalities did not even carry out Covid-19 tests (Agren, 2020). Besides, these municipalities were small, isolated and with a great level of marginalization; they were also ruled traditionally by a code known as “uses and

customs”, usually put into practice in indigenous communities (Agren, 2020). Internationally, foreign media outlets claimed that the Mexican government was undercounting COVID-19 cases (Agren, 2020; Mahase, 2020). Mexico had a testing rate among the lowest in Latin America with around 0.4 tests per 1000 people. Tests were only realized in people with severe symptoms (Agren, 2020). Far from reducing infection rate as the reason to ease the lockdown, there were other reasons that led the Mexican government to lift the national lockdown (Mahase, 2020). The United States of America put pressure on Mexico to reopen its economy given that some businesses and factories from the USA are in Mexico, and they were essential for the continental supply chains (Agren, 2020).

In addition to the lockdown, Mexico, in line with the WHO guidance, also encouraged the population to have good hand hygiene; avoiding touching eyes, nose and mouth; clean and disinfect surfaces and objects of general use; coughing and sneezing etiquette; people experiencing respiratory symptoms but not in difficulties were encouraged to recover at home; and keep social distance (1.5 to 2 meters; and in case of not being able to socially distance wear a mask). Then, the country used an “Epidemiological risk traffic light system”, which helped with the transition to normality. This was a monitoring system to regulate the utilization of public space according to the COVID-19 infection risk (Gobierno de Mexico, 2020).

2.11.4 Social protection during the pandemic

The Mexican Government put in place some short-term policies to mitigate the impact that the mitigation strategies could have caused in Mexican households, especially those that were more vulnerable. According to a review of policies during the pandemic conducted by the World Bank (Gentilini et al., 2020), Mexico established some policies related to social assistance (cash transfers, social pensions, public works, utility waivers) and social insurance (pensions, social security contributions). For example, advanced payments were given to students within a scholarship programme, as well as for older adults and people with disabilities receiving social pensions. In other instances; support to more beneficiaries was given (like in a programme for children

with working mothers); more housing loans were provided as well as electricity waiver for domestic high energy use; deferments on the payment of mortgage, capital and interest; financial support to microenterprises, non-farm informal family micro-businesses, and independent workers for three months to be paid in three years; increase grace period to pay microcredits of other programmes; interest-free short-term microcredits.

2.12 Situation in Scotland

This section, similarly, presents an overview of the situation and progress in Scotland in relation with the right to food, as well as food insecurity, and a brief narration on how the pandemic was approached by Scottish authorities.

2.12.1 Status of the right to food

The UK consists of four nations: England, Scotland, Wales and Northern Ireland. Scotland, Wales and Northern Ireland are considered devolved nations which means that they have certain legislative and executive powers, independent of the central government (Westminster) (UK Parliament, 2022). This means that the nations, and talking about Scotland, have some independence in passing certain legislations; but exceptions apply, because some issues are just reserved for the central government. The Scottish Parliament can pass primary legislation, and there is no second revising chamber (UK Parliament, 2022).

The UK signed the International Covenant of Economic, Social and Cultural Rights (ICESCR) first, and after some years of domestic revision, ratified it (OHCHR, 2021). And Scotland, as a devolved nation of the UK, is also signed up to the international laws that consider the right to food (Scottish Human Rights Commission, 2022). Scotland has a Human Rights Commission (independent of the Scottish Government and Parliament) since 2008, and it was created by the Scottish Commission for Human Rights Act 2006. In 2014, Scotland began its work to become a Good Food Nation, which intended to create a fairer, healthier and more sustainable

food system, which in turn promoted the right to food, to health, to equality and to a healthy environment (Scottish Government, 2014). To achieve this, the Good Food Nation Bill was created. This Bill not only considers the right to food in article 11 of the ICESCR, but also aims to consider the rights that contribute to achieving the right to an adequate standard of living. In 2015, the Scottish Food Commission was created to advise the Scottish Government about how to incorporate the right to food within the Scots law (Scottish Human Rights Commission, 2021). Scotland aimed to enshrine the right to food in the Good Food Nation legislation by presenting the Good Food Nation Bill, which passed the first stage in October 2021 (Scottish Parliament, 2022a), and passed the third stage in June 2022, which means that now there is a law for the Scottish government to show its commitment to be a Good Food Nation (Scottish Government, 2022b).

2.12.2 Food insecurity

The UK defines household food security in the following way: “*There are various complex factors that determine whether a household is food secure. At a high level, household food security can be broken down into affordability, access, utilisation, and stability. Affordability, access, and utilisation provide three key links in the chain, or tests, for households to get food on their plates. Simply, these are whether they can fill shopping bags, pay for them, and prepare nutritious meals. Stability is determined by the consistency with which the previous three tests are met*” (UK Government, 2021). This definition is very similar to the one from FAO (2001), with its four main pillars.

The UK had already had an increase in severe food insecurity for several years before the pandemic hit (Pool & Dooris, 2021). Researchers estimated that in the UK, 500 thousand people need food aid, with 13 million people living below the relative poverty line (Purdam, Garratt, & Esmail, 2016). Three million people are at risk of being malnourished (Purdam et al., 2016). More and more people are using food banks to access food; in 2014, one million parcels were provided by the Trussell Trust (one of the main food banks in the UK) (The Trussell Trust, 2015). The main referrals to the bank were people suffering delays in benefits payments; people living in areas with high

unemployment prevalence; and people suffering financial insecurity (Purdam et al., 2016). A systematic review found a relationship between austerity policies in the UK and the increase in food insecurity in the population and the utilization of food banks (Jenkins et al., 2021).

In the UK, also in Scotland, food insecurity is not routinely measured. Food Insecurity Experience Scales are not used to measure people's food security as in other countries, and instead, utilization of food banks has been used as an indicator of food poverty. However, this indicator does not work well as a proxy of food insecurity, given that a lot of people who struggle to access food, do not access food banks because of different reasons, including stigma (Douglas et al., 2015; The Food Foundation, 2015). This situation means it is difficult to estimate the number of people living with food insecurity in the UK and Scotland (Douglas et al., 2015). In 2014, the Gallup World Poll suggested that there were around 8.4 million people in the UK living in food poverty, situating the UK in one of the worst positions in relation to other countries in Europe (The Food Foundation, 2015).

In the UK, during the first lockdown due to the pandemic, food insecurity quadrupled in the population due to different causes: lack of food in food outlets, people living with disabilities or with children, unemployment, having to shield, income losses, and increased economic vulnerability overall (Loopstra, 2020). However, some evidence suggest that food poverty was already increasing in the UK before the COVID-19 pandemic hit in 2020 (as previously described) (Pool & Dooris, 2022).

2.12.3 The pandemic and its mitigation strategies

The UK started a national lockdown the 23 of March (Allen-Kinross, 2020; Doyle, 2020; Scottish Government, 2020g). Scotland followed the same timeline with the setup of the restrictions associated with lockdown. Scotland put in place some actions as part of the lockdown, such as encouraging people to stay at home and work from home when possible; only go out to exercise once a day, buy food or to give support to a vulnerable person; shielding of very high-risk individuals; and, all non-urgent health care services stopped, prioritization of safety and wellbeing of care home residents and staff

(Scottish Government, 2020e, 2020g). By the end of April 2020, it was estimated that most people were working from home, less than 1% of children were attending the emergency provision in schools and other settings, public transport utilization decreased 90%, and people were following the social distancing advice (Scottish Government, 2020g).

To monitor lockdown progress and plan how to end it, a route map was created to facilitate the decisions about transitioning out of the lockdown arrangements (Scottish Government, 2020b). On the 28th of May the First Minister confirmed that Scotland had seen progress in suppressing the virus to allow the country to move from the Lockdown to Phase 1 of the Route Map (Scottish Government, 2020d). This Route map consisted of Four Phases, each of which had indications of how to ease the different restrictions happening countrywide.

2.12.4 Social protection during the pandemic

During the pandemic there was close coordination between the UK and its devolved nations. Public services impacted by COVID-19, such as public health and education were responsibility of each of the devolved nations (Paun, Sargeant, Shuttleworth, & Nice, 2020). Besides, additional funding was given to the devolved nations to deal with the coronavirus (Paun et al., 2020). The UK put in place a wide range of short-term policies to minimise the negative impact of the mitigation measures to stop the spread of the pandemic since the beginning (Gentilini et al., 2020). Social assistance (cash transfers, in-kind transfers -food, vouchers, school feeding -, utility waivers), social insurance (paid sick leave, pensions, social security contributions), labour markets (activation measures, labour market regulations, wage subsidies) were some of the social protection policies put in place in the UK. Some concrete examples were: raise of the Universal Credit by £20 per week; relaxation of requirements to get Universal Credit and upfront payments; financial support to low-income people who had to isolate; support for people who had to self-isolate because a next of kin in the same household tested positive; continuation of holiday and food programme in schools; vouchers for children to access school meals; suspension of mortgage payments, and

new evictions; tax relief for people working from home; support grant for families to get back on their feet, helping them with bills for food, key utilities; statutory sick pay; the furlough scheme (Government paid 80% of people's wages), amongst others.

Scotland also set a wide range of support packages for individuals, communities and businesses throughout the pandemic (Scottish Parliament, 2022b). Some of the measures were similar to the ones previously mentioned, but others were specific to Scotland. For example, the Scottish Government established a £5m package of emergency financial support to university and college students; £50m Wellbeing Fund to assist charities, community and voluntary groups and social enterprises; £120m fund to support small business relief (which increased through the pandemic); amongst others (Scottish Parliament, 2022b). Also, the government provided guidance for different population groups, work fields, and even a campaign to raise awareness of the support for people, like the increase in Universal Credit (Scottish Parliament, 2022b).

2.13 Rationale for this research

In 2020, 746 million people worldwide were experiencing severe food insecurity, and more than 1.25 billion people experienced moderate food insecurity. This type of food insecurity has been increasing progressively since 2014 (FAO, 2020). With recent world events, including the COVID-19 pandemic, it appears that the world is far from reaching the targets of eradicating hunger and malnutrition from the Sustainable Development Goals (SDGs) (FAO, 2020; UNDP, 2022).

Reviewing the literature around the core topics of this thesis, hopefully, has provided a clearer idea of the rationale to conduct this research. The COVID-19 pandemic was a worldwide situation that had an impact on people all over the world, but which extent was different depending on the country, its politics, its economic system and food system; also, depending on people's degree of vulnerability provided by their resources and their socioeconomic characteristics prior to the pandemic. In addition to these factors, the availability of recently created or enhanced social protection policies had a role in how people experienced the challenges posed by the mitigation strategies.

Mexico and Scotland are different countries in terms of their political systems, as well as in their economic context and social policies. Their reaction during the pandemic was initially similar (putting a lockdown in place), but the length of it, as well as its enforcement differed with time. Equally, differences in social protection policies were evident, and this had an impact on how people who became vulnerable or were at risk of being vulnerable, coped with the pandemic-related challenges around food access.

Exploring these differences in both countries can enhance knowledge about the value of having social protection policies, as well as to shed light on the structural issues that increased people's vulnerability to be food insecure during a financial shock in the middle of a worldwide pandemic. Talking to stakeholders after one year of the first lockdown can also provide insights and reflection on how both countries reacted to counteract the challenges with food access.

2.14 Aim and research questions

The goal of this thesis was to achieve the following aim and objectives. Aim: To examine how the COVID-19 pandemic and the mitigation strategies impacted food and nutrition security in Mexico and Scotland from the perspective of the right to food.

Objectives: To build the case studies of Mexico and Scotland by conducting a comprehensive body of research that achieves the following:

- I. Exploring challenges, enablers and coping mechanisms to access healthy food in people living with any degree of vulnerability (qualitative evidence synthesis).
- II. Understand how photo-elicitation contributes to the research of access to food (food and nutrition security) (qualitative evidence synthesis and empirical evidence of the online photo-elicitation interviews).
- III. Understand how drivers to the right to food are affected during a pandemic through the perspective of Mexican and Scottish families which were at

risk of being vulnerable during the COVID-19 pandemic lockdown (online photo elicitation interviews).

- IV. Understand the impact the COVID-19 pandemic had on people's ability to achieve the right to food during the pandemic through the perspective of key stakeholders involved in policymaking, research and practice of strategic actions to improve food and nutrition security in Mexico and Scotland (stakeholders' interviews).
- V. Identify systemic barriers and facilitators that impact the accomplishment of the right to food during the pandemic by comparing the findings of both cases.

2.15 Summary

This chapter provided the rationale for my thesis as well as the core concepts that underpin my research. The COVID-19 pandemic was a worldwide situation that impacted all countries, and all people. Mexico and Scotland are two countries that recognise the right to food and are actively trying to include it in their domestic laws. However, important differences in their social, cultural, economic and cultural contexts had a role on how the pandemic impacted the right to food of their people. In other words, how the pandemic and its mitigation strategies in conjunction with the wider context, impacted people's ability to access adequate food in the midst of a pandemic. Vulnerability to food insecurity, as well as resilience, are related to the stability dimension of FNS, and they depended on households' characteristics as well as contextual factors in each country. Additionally, the food system, as well as the health system, both suffering impact of the lockdown, have a role in the availability and utilization dimension of FNS.

Exploring how the pandemic and its lockdown was experienced can give an insight on the strengths and weaknesses of different systems that could change in order to progress towards the realisation of the right to food.

3. Chapter 3. Eliciting data with photographs to research access to food: a qualitative evidence synthesis

3.1 Background

As covered in chapter 2, food security is met when all people have physical, social and economic access to sufficient, safe, and nutritious food in order to cover dietary requirements and food preferences, allowing a healthy life (FAO, 2001). Failure to achieve this can lead to different health problems (e.g., mental health problems, anaemia, poorer general health, nutrient deficiencies, etc.) (Gundersen & Ziliak, 2015). Also, in addition to undernutrition, being overweight can be a result of food insecurity which in turn accentuates social and health inequalities (Ayala & Meier, 2017; Bump, 2018).

Food insecurity is more prevalent in certain populations, such as people living in poverty, low educational background, women, single parents, children under five years old, indigenous people, and people living in rural areas (CONEVAL, 2018a; FAO, 2019b; Flores & Amiri, 2019; Scottish Government, 2018). Continentally, Africa has the higher prevalence of moderate or severe food insecurity (more than 50% of population) followed by Latin America (more than 30%), then Asia (23%), and finally Northern America and Europe (8%) (FAO, 2019b).

Access to food has been studied both quantitatively and qualitatively. Qualitative research allows to “see the world” by interpreting the meaning people give to phenomena through what we live, belief, perceive and experience (Denzin & Lincoln, 2005). In the realm of FNS, qualitative research can facilitate the understanding of its drivers (Cauchi, Bambrick, Correa-Velez, & Moncada, 2021; Spyreli, McKinley, Woodside, & Kelly, 2021); its link with diseases or risk behaviours (Mahajan et al., 2021; Onono et al., 2021); and the strategies people develop in order to cope with food insecurity (Fortin, Harvey, & Swearingen White, 2021; Manboard, Johnson, Thornton, & Biediger-Friedman, 2021), amongst other aspects. At the time of conducting this

qualitative evidence synthesis (QES), no systematic review regarding food security and visual-research methods was identified.

Visual research focuses on the production, organization and interpretation of images (Prosser, 2007). Visual data can be drawings, photographs, paintings, videos, diagrams, and others (Wall, Higgins, Hall, & Woolner, 2013). Visual research methods have been increasingly used in different research fields, from anthropology (Pink, 2011) to social work (Clark & Morriss, 2017) food and nutrition (Martin, Garcia, & Leipter, 2010) and health (Alves, Rodrigues, Salvador, & Fernandes, 2021). These methods offer a different landscape of knowledge compared to traditional data collection methods (Denzin & Lincoln, 2005; Spencer, 2011). Visual methods can elicit information that is not necessarily obvious to the researcher, and that many times is also taken for granted by the participants; they can elicit memories, and stories linked to deeper beliefs and understandings (Denzin & Lincoln, 2005; Wang & Burris, 1997).

Photographs as visual data for research have been more recently used (Gonzalez-Gil, 2008; Spencer, 2011). Some of the most common visual research methods that use photography are photovoice (Wang & Burris, 1997), and photo-elicitation (Collier, 1957). Photovoice, is a participatory action research method, which allows participants and researchers to collaborate in the research process to understand what the specific needs of a particular context are, allowing to offer solutions that are context-tailored, and that are identified and formulated by the participants (Wang & Burris, 1997). Photo-elicitation is a method characterised by the utilization of photographs taken by either the researchers or the participants to guide a discussion that elicits information for research (Lapenta, 2014; Liebenberg, 2018).

Photo-elicitation has its origins even before photovoice, and it was first reported in 1957 by Collier (1957), who studied the impact of environment on families and their neighbourhoods. Photo-elicitation focuses on researching visual data of shared interest for both the participants and the researcher (Padgett, Smith, Derejko, Henwood, & Tiderington, 2013). Photo-elicitation can be done with photographs taken by the researcher or by the participants (Lapenta, 2014). In contrast to photovoice, photo-

elicitation can focus on any topic that is relevant for study, including topics that are difficult to be shared with more participants (Padgett et al., 2013). Usually photovoice, because its participatory nature, focuses on improving community's health by influencing local policy (Wang & Burris, 1997).

The following arguments provide the rationale to conducting this qualitative evidence synthesis. Given that FNS can only be achieved when the combination of access and availability factors coexist favourably, along with utilization and stability (Turner et al., 2018), it is relevant to consider research methods that acknowledge this interrelation and allow the understanding of nuances in the dynamic of people and their own resources, with the food environment. The physicality of the food environment is experienced in different ways, expressing the interrelationship of access and availability (Turner et al., 2018). Studies have shown that the food environment where socially vulnerable individuals dwell has an impact on what foods they access (Garasky, Morton, & Greder, 2006; Rose, 2010). Systematically reviewing the literature for studies that explore the interaction of vulnerable populations with their food environment (to access food) through photo-elicitation, is important to explore the benefits of using this visual method that allows obtaining more nuanced and context-oriented data of this dynamic and recommend their utilization.

This QES focuses on photo-elicitation for the following reasons. First, photo-elicitation works as a bridge between the researcher's interest and the participants' worldview of the topic of interest. The produced photographs work as an interface that provides a more detailed information on the participants unique personal experience, facilitating a better and more accurate understanding of their experiences by the researcher. This is a good fit in the field of FNS, given that the physical food environment differs widely within communities, influencing how it is experienced by different people. Second, I planned to use this method in order to elicit information of people living a stressful situation (the COVID-19 pandemic), the sensitive nature of this required a method that allowed a more individualistic approach rather than community-based one. Third, how to conduct photo-elicitation is not standardised and there are no

specific guidelines on how to perform it (Padgett et al., 2013); hence the need of this review to know what has been done in the field of access to food and how.

Prior to starting my field work (interviews), I reviewed the literature to see how this method was utilized in the field of access to food. I undertook a preliminary analysis of methods to inform my field work, but then the review was paused to give priority to the fieldwork. After finishing conducting interviews and doing their analysis, I continued with the review, updating the search strategy to include more recent papers. This review shaped my primary research methods.

3.2 Aims and objectives

The primary aim of this qualitative evidence synthesis was to describe and explore vulnerable populations' challenges, enablers and coping mechanisms to access food. The secondary aim was to identify how photo-elicitation has been used to research FNS. The research questions that guided this review were:

1. What are the challenges and facilitators to access food that vulnerable populations face?
2. How do vulnerable people cope with the challenges associated with accessing food?
3. How does photo-elicitation aid in understanding how vulnerable populations access food and navigate the food environment?
4. How photo-elicitation is used to research food and nutrition security?

3.3 Methods

I followed the guidance for conducting qualitative evidence synthesis provided by Cochrane (Noyes et al., 2022). And after finishing the review I followed the ENTREQ (Enhancing Transparency of Reporting the Synthesis of Qualitative Research) guidelines for qualitative synthesis reporting (Tong, Flemming, McInnes, Oliver, & Craig, 2012). I also followed the Preferred Reporting Items for Systematic Reviews and Meta-

Analysis (PRISMA) to present the result of the different screening stages (Page et al., 2020).

3.3.1 Criteria for considering studies for this review: SPIDER

There are a range of tools for helping reviewers to be systematic about which studies to include. PICO is the tool that has been regularly used to conduct systematic reviews of quantitative studies. It stands for Population, Intervention, Comparison and Outcomes. There is a modification for PICO's tool, which is PICOS and the "S" stands for "study design", offering the possibility to search for papers using a qualitative approach (Methley, Campbell, Chew-Graham, McNally, & Cheraghi-Sohi, 2014). However, it still contains the component "Comparison", which is more indicative of quantitative study designs. Given the characteristics of qualitative study designs and the limitations of PICO and PICOS, I considered the SPIDER tool more appropriate for this review. The following (slightly modified) Table 3 by Cooke et al. (2012) shows the components of SPIDER, and their justification.

Table 3 Table by Cooke, Smith, and Booth (2012) showing the SPIDER tool and justification of its components

SPIDER	Justification
Sample	Smaller groups of participants tend to be used in qualitative research than quantitative research, so this term was deemed more appropriate.
Phenomenon of Interest	Qualitative research aims to understand the how and why of certain behaviours, decisions, and individual experiences. Therefore, an intervention/exposure per se is not always evident in qualitative research questions.
Design	The theoretical framework used in qualitative research will determine the research method that is used. As inferential statistics are not used in qualitative research, details of the study design will help to make decisions about the robustness of the study and analysis. In addition, this might increase the detection of qualitative studies in the databases in which titles and abstracts are unstructured.
Evaluation	Qualitative research has the same end results as quantitative research methods: outcome measures. These differ depending on the research question and might contain more unobservable and subjective constructs when compared to

	quantitative research (e.g., attitudes and views and so forth), so evaluation was deemed more suitable.
Research type	These research types could be searched for: qualitative, and mixed methods.

I used the SPIDER strategy to conduct the search in this qualitative evidence synthesis as it is more relevant to the types of studies that were sought. This search tool accounts for the characteristics of qualitative and mixed-methods studies (Cooke, Smith, & Booth, 2012). For this QES, the eligibility criteria in Table 4 have been developed using the SPIDER framework.

Table 4 Eligibility criteria following SPIDER

	Inclusion criteria	Exclusion criteria
Sample	Adults 18 years and over; low-income; living in deprived areas; using food banks/pantries; receiving income benefits; receiving food aid; with an underlying health condition; indigenous population; living in rural or urban areas; being food insecure (explicitly stated)	Children, teenagers (under 18 years old); participants following any intervention for weight management, nutritional education, health promotion; participants with eating disorders; not vulnerable populations (not explicitly stated)
Phenomenon of interest	Access to food at individual/household level. Studies focusing on food access, focus on elements of the food environment. Other terms: food poverty, nutritional poverty, hunger.	Studies that do not mention access to food; eating behaviour disorders; portion size estimation; measuring food intake; food safety; impact/findings of interventions (clinical/increase of fruits/vegetables intake). Focus on public health crisis/conflicts.
Design	Qualitative research using photo-elicitation; full papers published in peer-reviewed journals; thesis	Quantitative research; research protocols; expert opinion articles; editorials; policy documents; conference abstracts; photovoice (because it is participatory action research); photo-elicitation within a participatory research framework

Evaluation	Enablers and challenges associated to the food environment to access healthy food; experiences, attitudes, perceptions of the food environment.	Experiences not related to food access (e.g., experiences, perceptions of interventions)
Research type	Qualitative studies (data collection and data analysis); mixed methods studies	Quantitative studies; photos analysed quantitatively

This QES focuses on the experiences of accessing food of adults living in food insecurity, and populations that were explicitly referred as living in deprivation and/or living in low-income areas. I included qualitative or mixed-methods studies that used photo-elicitation for data collection and analysed data qualitatively.

I excluded papers using photos to show food portions because their focus was mainly on assessing dietary intake (including macro and micronutrients). Papers using content analysis of photographs were also excluded because of their focus on quantifying frequency of visual elements appearance, rather than people’s experiences. I also excluded studies that used photovoice, as it is participatory action research, and has a clear participation and interaction with stakeholders (Wang & Burris, 1997). The scope of this review covered only studies that used photo-elicitation as a method for data collection. If authors mentioned photovoice in the methods section, but it was not a participatory action research (i.e., there was no engagement of participants in any of the stages of the research, and/or involvement with stakeholders), then they were considered for inclusion. This review did not have any geographical or publication time limits. If mixed-methods studies were identified, data that was collected with photo-elicitation and analysed separately using qualitative methods was extracted and included in this review.

3.3.2 Search methods for identification of studies

After developing the search strategy and agreeing on the key search terms (Appendix 1, page 368), I conducted electronic searches. The focus of this review is how photo-elicitation has been used to research access to food amongst vulnerable

populations. In the search strategy, search terms indicating use of photography for research (e.g., visual research methods, photo-elicitation, photovoice) were used. I also used search terms related with food security, and with vulnerable populations. Search terms were combined using Boolean operators.

3.3.3 Electronic searches

I searched the following electronic databases:

- MEDLINE and In-Process & Other Non-Indexed Citations (1946 to January 11, 2022)
- APA PsycArticles PsycINFO (1806 to January Week 1 2022)
- Embase (1974 to 2022 January 11)
- Global Health (1910 to 2022 Week 01)
- ASSIA (Applied Social Sciences Index and Abstracts) (1987 to 2022)
- Proquest Dissertations & Theses Global (1997 to 2022)
- Web of Science (restricted databases, to date)

I searched all databases up until the second week of January 2022. I developed a search strategy for each database, based on the terms outlined in Appendix 1 (page 368). See Appendix 2 (page 369) for the MEDLINE search strategy, which I adapted for other databases. I did not use any limit on language, I screened titles, abstracts and full texts when they were in English or Spanish.

3.3.4 Searching other resources

I reviewed the reference lists of all the included studies, and I searched key references in papers I had found previously (i.e., relevant systematic reviews, or relevant papers). I also searched Google Scholar. This process helped me to reduce the likelihood of missing some relevant studies. Evidence shows that qualitative research presents some disadvantages when conducting a review given that title and abstracts can be sometimes non-informative; there is poor indexing, and diffuse terminology (Cooke et al., 2012; Flemming & Noyes, 2021; Methley et al., 2014). I directly contacted authors of studies/thesis when the full text was difficult to find or

access to request if they could send it. I contacted a couple of researchers with expertise relevant to the topic to enquire whether they knew about studies that could meet the inclusion criteria.

3.4 Data collection, management and synthesis

3.4.1 Selection of studies

After doing the search and removing duplicates, I exported titles and abstracts to Covidence. A later deduplication was conducted automatically by Covidence. To reduce bias and ensure robustness of the selection process as required in systematic reviews, a fellow PhD student (Martin del Valle) and I collaborated to independently conduct title and abstract screening using the predefined eligibility criteria. When there was a disagreement, consensus was sought between both reviewers through discussion. After that, I retrieved the full text of all the papers identified as potentially relevant by both reviewers. I then assessed these papers independently for inclusion, consulting with my supervisors when I had doubts. Where appropriate, I contacted the study authors for further information. A PRISMA flowchart diagram (Page et al., 2020) is used to show the search results and the different screening stages until the final number of included papers was reached. Reasons for exclusion at full text screening stage are also provided in the appendices section (Appendix 3, page 371).

3.4.2 Data extraction

After screening full-text studies, data extraction took place. I followed the Guidance for Inclusion of Qualitative research in Cochrane Systematic Reviews of Interventions of the Cochrane Collaboration Qualitative Methods Group (Noyes & Lewin, 2011) as it is aligned with the requirements of data and analysis of my review. Descriptive data regarding each study was extracted: country and year of publication, field of researchers, population, aim, and methods (Appendix 4, page 378). Also, information regarding the data collection method, elicited data, data analysis, and conclusions (from the authors) about the method (Appendix 5, page 381), and a brief summary of themes and final conclusions (from the authors) (Appendix 6, page 388) were extracted. Key qualitative themes, authors' interpretations of the findings, relevant

images, and supporting quotations as presented by the authors to support their findings are included in the results section.

3.4.3 Management and synthesis

Findings of the included studies were analysed using thematic synthesis, with the method by Thomas and Harden (2008). This approach consists of three stages. The first one, coding line by line; the second one, developing descriptive themes; and the third one, when necessary, developing analytic themes. I used the components of FNS (see page 32) to help identify and categorize the facilitators and barriers to accessing healthy food. This concept provided several elements that work as determinants and drivers to the main four pillars of FNS. I started coding one paper using some of the codes that reflected the aforementioned components. This led to a list of codes being produced, without them being in hierarchical order. I had my codebook after two further coded papers, and then the codebook was applied to the rest of the papers. I added new codes when necessary and went back to check those papers that were already coded to see if the new codes could be applicable to them. To reduce bias and ensure robustness of the coding process, double coding of some of the included papers was performed by a colleague researcher (Sinha de Silva). After finishing coding all articles, I looked at links between codes, removing those that referred to similar issues. I coded studies using NVivo 12 Pro software. I worked to generate descriptive themes by grouping codes in categories, which in turn were grouped to form analytic themes.

3.4.4 Quality assessment of included studies

I conducted a quality appraisal of all the included studies utilizing the CASP (Critical Appraisal Skills Programme) tool for assessing the methodological limitations of qualitative studies (Critical Appraisal Skills Programme, 2019). I chose CASP because of different reasons. First, this tool is commonly utilized to appraise quality and it is not associated with any particular research discipline, which makes it suitable to any research field (Majid & Vanstone, 2018). In this review, the field is food access and public health, which requires a tool that can easily adjust to it. Second, CASP, has been reported to serve as an educational tool for those with less qualitative research

experience because of its format as a short checklist, and it also provides additional information that helps to explain each of the items contained in the tool (Majid & Vanstone, 2018). Third, it can be utilized as a reporting standard for qualitative studies. Fourth, it has an ethics appraisal component, which is very relevant for this review given that visual research methods require specific ethical considerations. Some of the aspects to consider are the emotionality of the images as they can evoke feelings and emotions that can be difficult to process by both the interviewee and the researcher (Copes, Tchoula, Brookman, & Ragland, 2018); getting consent for participants to take photographs that are sent to researchers; and getting consent to be interviewed; ensuring that people appearing in photographs have given their consent to the person taking the photograph and respecting their privacy (Bugos et al., 2014; Lapenta, 2014).

I did not exclude studies based on the assessment of methodological limitations. This decision was made because excluding papers based on their quality assessment could have left out significant results for applied research. Majid and Vanstone (2018) mentioned that quality appraisal of qualitative research can be limited to assessing what is presented in the paper, but not in the whole research. In fact, the structure of CASP tool presents this disadvantage as it seems to be rather evaluating the way that research is reported in the journal rather than the contribution the research is doing to the field, analytic rigour and originality (Majid & Vanstone, 2018; Melia, 2014). This disadvantage could incentivize the inclusion of papers that are coherent with the expectations of reporting practice, but are not having strong and solid contributions to the field (Dixon-Woods et al., 2007).

The intention of this synthesis, besides identifying the way vulnerable populations navigate the food environment and the challenges of accessing food, was to identify the challenges and advantages of utilizing photo-elicitation when researching this issue. Based on this, it was important to keep all included studies to be able to identify areas of opportunities when using photo-elicitation to research food security. Besides, the utilization of visual methods is not bounded to a particular epistemology or ontology, ranging from critical approaches that help to dismantle oppressive structures (e.g., photovoice) (Wang & Burris, 1997), or feminist approaches to encourage women to

address violence in their lives and initiate social change (Frohmann, 2005), phenomenology (reflective narratives of experience and being) (Giacomini, 2010), such as the study by Burton, Hughes, and Dempsey (2017) to study the experience and meaning of quality of life of people living with paraplegia and chronic pain, amongst others. Based on the previous arguments, for this QES, I performed quality appraisal of the included studies, and did not exclude any study based on it. Finally, to my knowledge, after active researching the literature, there wasn't a quality appraisal tool that is dedicated to appraising quality of qualitative studies using visual methods.

3.4.5 Review author's reflexivity

Reflexivity when conducting a QES allows for considering the potential influence that author's beliefs, views and philosophies might have on some of the choices that are made when developing the search strategy, choosing eligibility criteria, and interpreting the findings (Cochrane Effective Practice and Organisation of Care (EPOC), 2017). My background is in clinical nutrition, and some experience in food security. I recognise this could bring a bias when analysing the data because of having previous knowledge. In order to minimise the risk that my perspectives as author could influence the analysis and interpretation, I remained attentive to how my own position influenced any of the stages of this systematic review.

3.5 Results

I identified 11 papers published between 2010 and 2021 that fulfilled the inclusion criteria and are included in this qualitative evidence synthesis. Figure 3 shows the flowchart of the screening process and the number of papers involved at each stage.

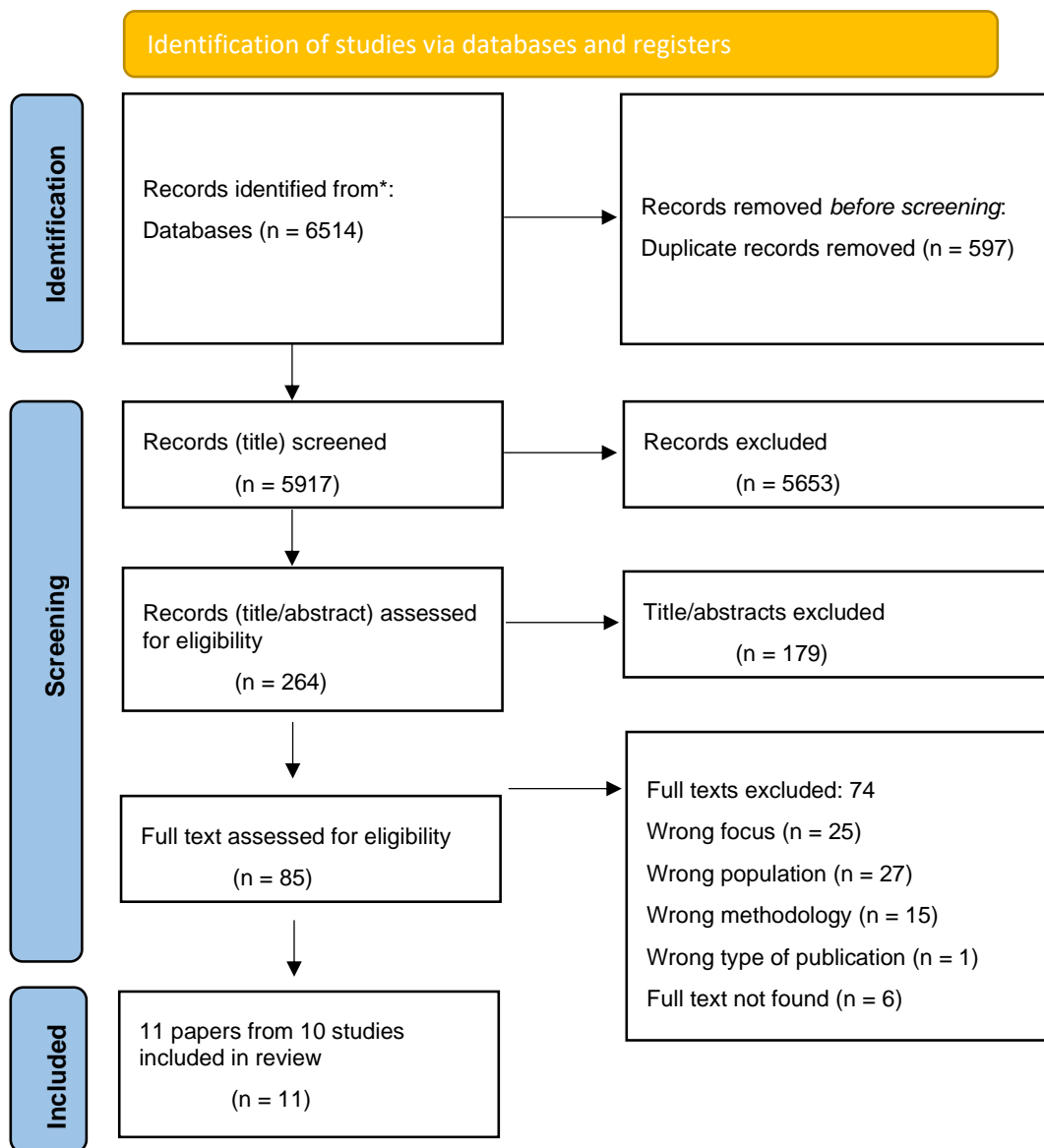


Figure 3 . Study flow diagram

3.5.1 Characteristics of studies - participants and setting

The participants in the included studies were from different populations, but all of them were characterised as economically vulnerable. Two studies had immigrants as participants (Henderson, Epp-Koop, & Slater, 2017). One study recruited veterans

(Kamdar, True, Lorenz, Loeb, & Hernandez, 2020), and one recruited indigenous people from Canada (Akande, Fawehinmi, Ruitter, & Kremers, 2021). Only one paper included community stakeholders (Rodriguez, Dean, Kirkpatrick, Berbary, & Scott, 2016). All papers had a majority (or were only) of women participants.

The included studies were conducted in different countries. Nine studies were in three high income countries: Canada (Akande et al., 2021; Henderson et al., 2017; Rodriguez et al., 2016), The United States of America (Cannuscio, Weiss, & Asch, 2010; Folta et al., 2021; Kamdar et al., 2020; Lindow, Yen, Xiao, & Leung, 2021; McClain, Dickin, & Dollahite, 2019), and Chile (Galvez-Espinoza et al., 2018; Vizcarra et al., 2019) (World Bank, 2021). One study was conducted in South Africa (Spires, Delobelle, Sanders, & Puoane, 2021), an upper-middle income country. This last study also had participants from rural and urban areas.

Of the 10 included studies, seven used photo-elicitation interviews and named the data collection method photo-elicitation (Akande et al., 2021; Cannuscio et al., 2010; Folta et al., 2021; Galvez-Espinoza et al., 2018; Kamdar et al., 2020; McClain et al., 2019; Spires et al., 2021; Vizcarra et al., 2019). Three studies (Henderson et al., 2017; Lindow et al., 2021; Rodriguez et al., 2016) mentioned using photovoice or an adaptation of photovoice, but after reading the methods section, non-participatory element was identified, hence they were included as the essence of the method was photo-elicitation (according to my inclusion criteria).

3.5.2 Critical appraisal of included studies

The eleven papers were peer-reviewed articles, which means that in order to be published, researchers must have taken the word count into consideration. Having a smaller word count can impact the amount of information that is provided influencing how other researchers assess its quality (Blignault & Ritchie, 2009). All the studies had a description of the setting, participants, sampling, data collection and data analysis. All the included papers had a qualitative methodology and used photo-elicitation interviews to collect data, and authors presented detailed descriptions of how data collection was conducted. There was a general lack of reflexivity and positionality discussion. For a

more detailed understanding of the quality appraisal of the eleven papers, please see Appendix 7 (page 392).

3.5.3 Themes identified in the synthesis

After conducting the thematic synthesis, I developed four themes based on the research question. They followed the next structure:

1. Individual and household barriers and facilitators to access food
 - a. Individual/household barriers to access food
 - b. Individual/ household facilitators to access food
2. Contextual and environmental barriers and facilitators to access food
 - a. Contextual/environmental barriers to access food
 - b. Contextual/environmental facilitators to access food
3. Environmental, social and individual determinants of food choices
 - a. Role of the food environment
 - b. Interpersonal determinants of food choices
 - c. Intrapersonal determinants of food choices
4. Food insecurity experience
 - a. Perceptions/attitudes food insecurity
 - b. Coping strategies adopted to access food

The following section explores each of the themes and subthemes.

3.5.4 Individual and household barriers and facilitators to accessing food

The first theme concerns information related to the individual and household barriers and facilitators to accessing food. The majority of the papers mentioned elements that are relevant at an individual or household level to access food on a regular basis. This theme is divided in two: barriers to access food; and facilitators to access food, both at this level of influence.

Individual and household barriers to access food

The main barriers to accessing food mentioned in eight of the eleven papers were: not having enough economic resources (e.g., income, savings, assets such as

cars), not having a job or having a limited job, and living in poverty (Folta et al., 2021; Galvez-Espinoza et al., 2018; Henderson et al., 2017; Kamdar et al., 2020; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021; Vizcarra et al., 2019). The numerous reasons for the financial constraints were related with the precarious and unstable nature of jobs, or the inability to secure employment (Henderson et al., 2017; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021). Participants across studies reported a link between the financial struggle and the ability to access food for their families. Access to food, when struggling financially, was determined by the cash flow rather than what they needed and wanted to eat (Galvez-Espinoza et al., 2018; Kamdar et al., 2020).

Another reflection of the financial constraints was not having a vehicle, or even being able to afford transportation costs (Folta et al., 2021; Henderson et al., 2017; Spires et al., 2021). This was relevant because accessing food outlets, or food provision services/programmes, could require transportation, either their own or public. This situation was related to the characteristics of the food environment, where a lack of food outlets with affordable food meant people having to incur in transportation costs to access food (Spires et al., 2021).

Quote from participant: *“How much [I am] spending on gas affects how much [I have] left over for food, because even though food is a necessity, gas is one too. So, when it comes to deciding between food and gas, gas comes first over food. I can’t lessen the gas” (Kamdar et al., 2020)*

Moreover, even when participants received financial support from public programmes or social assistance, it was usually used up before the end of the month, making them struggle to cover their needs for the rest of the month (Folta et al., 2021; Henderson et al., 2017; Kamdar et al., 2020; Rodriguez et al., 2016; Spires et al., 2021). For participants in the paper by Henderson et al. (2017) support being delayed was also a barrier to getting food. For others, the problem was not having access to any kind of support (including from community-based organizations) because of not knowing what

options were available (Henderson et al., 2017; Kamdar et al., 2020); or because of social exclusion, feeling of not belonging, or language barriers (Henderson et al., 2017).

In addition to the struggle caused by the lack of economic resources, in three papers (Galvez-Espinoza et al., 2018; Kamdar et al., 2020; Rodriguez et al., 2016), references to stress related to accessing food and paying bills were reported. Competing costs were housing costs, children's needs, car maintenance, cost of gas, and unexpected expenses. Also, in one paper (Rodriguez et al., 2016), immigrants used their savings to cover their migration processing costs, which impacted on their ability to cover their food needs.

Lack of time was also mentioned in four papers (Folta et al., 2021; Henderson et al., 2017; Kamdar et al., 2020; Vizcarra et al., 2019). Participants referred being busy with activities that interfered with their ability to buy, prepare and cook the food that their families needed. Kamdar et al. (2020) concluded that *"time could influence type, quality, and quantity of food given to the family"*. For participants in the paper by Henderson et al. (2017), moving to a different country required doing a lot of activities that demanded time, putting them in survival mode, leaving cooking at the bottom of their priorities. In a different note (Folta et al., 2021; Lindow et al., 2021), time was also mentioned as a widely used resource when planning food shopping on a budget because of the great amount of time and effort that this required.

Quote from participant: *"When I am running out of time, I eat this (Figure 1) . . . Can you see what is it? A piece of fried meat with a glass of juice and bread . . . I have so many things to do during that day . . . this (Image) was my lunch; I did not have time to cook [something else]"* (V22-NW) (Vizcarra et al., 2019)

Photograph No. 1: by Vizcarra et al. (2019).




Individual and household (internal) facilitators to access food

Household food production was mentioned by six of the papers (Henderson et al., 2017; Kamdar et al., 2020; Lindow et al., 2021; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021). Growing one's food was seen as a beneficial way of providing resources, providing food at a very low expense (Henderson et al., 2017; McClain et al., 2019; Spires et al., 2021). This meant having food available most of the time and being able to cope when income was not enough (Lindow et al., 2021; McClain et al., 2019). In a study with people living in urban areas, being able to cook and having the tools and equipment was referred to as a way of mitigating time constraints and promoting independence when having children or young people at home (Kamdar et al., 2020). Participants mentioned that growing their own food was linked to a feeling of happiness (Henderson et al., 2017; McClain et al., 2019).

Having enough economic resources was a facilitator to access food. Having a stable income and being able to have savings were related to having better access to the food participants wanted and needed (McClain et al., 2019). Having relatives or siblings old enough to work was also seen as a facilitator to accessing food because of the increase in income (McClain et al., 2019). Receiving grants and funding from the government was also associated with accessing food in a more stable way (Spires et al., 2021). In one paper, McClain et al. (2019)'s Mexican born participants in the US also referred to being able to prepare traditional dishes when having more income, which in turn helped to preserve their culture. Hence, resources fulfilled the need of accessing food, but also allowed the continuation of traditions when talking about immigrants or diaspora.

Having a family and social network was equally mentioned as a facilitator to access food because participants could get food through relatives or friends. Family support was also mentioned when leaving children with other relatives to be fed or having relatives in the household to help with different food-related tasks (Kamdar et al., 2020). Food sharing practices took place with household's food production and hunting,

as in the paper by Akande et al. (2021). In the paper by McClain et al. (2019), there was also a reference made to food being obtained from farm employment.

<p>Photograph No. 2: Produce picked by participant 0020 at the farm employment of a neighbour's relative.</p> <p>Quote from authors: <i>“Some urban and rural mothers acquired free fresh produce through their own farm employment, or through that of a spouse, friend, or relative”</i> (McClain et al., 2019).</p>	<p>Photograph No. 2: by McClain et al. (2019).</p> 
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3.5.5 Contextual and environmental barriers and facilitators to accessing food

The second theme explores contextual and environmental barriers and facilitators to accessing healthy food. This theme is divided into two: barriers to access food; and facilitators to access food, both at an environmental scale.

Contextual and environmental barriers to access food

The included studies put an emphasis on several characteristics of the food environment that were perceived as barriers to access healthy food (Akande et al., 2021; Cannuscio et al., 2010; Henderson et al., 2017; Kamdar et al., 2020; Lindow et al., 2021; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021). Firstly, the distribution of different types of food outlets in neighbourhoods was mentioned, identifying more convenience stores, corner stores and fast-food restaurants in more deprived areas and in those with different racial composition (Cannuscio et al., 2010; Spires et al., 2021). The lack of supermarkets and infrastructural development were part of this inequality associated with worse access to food (Akande et al., 2021; Cannuscio et al., 2010). In addition to the density and distribution of food outlets, the lack of healthy food options being available within these outlets was also mentioned (Akande et al.,

2021; Cannuscio et al., 2010; McClain et al., 2019; Spires et al., 2021). In some places, the inconsistency of food supply was an issue (Akande et al., 2021), in others the affordability and abundance of unhealthy food offer (Cannuscio et al., 2010; Lindow et al., 2021; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021). For participants in the paper by Lindow et al. (2021), food outlets were seen as actively promoting unhealthy eating behaviours, due to the great availability of unhealthy food, as well as the pricing and messaging.

<p>Photograph No. 3: fast-food outlet inside a large grocery store with a promotion for fried chicken.</p> <p>Quote from participant: <i>‘It smells like grease from the fried chicken hut. If you buy chicken from the meat area, they will fry it for you. It’s like ‘come in and get fat,’ you know? Buy this cheap soda. Don’t buy all this other high-quality stuff, because we don’t want you to make a decent quality meal. We want you to eat fried chicken and drink cheap dollar gallon soda” (Lindow et al., 2021)</i></p>	<p>Photograph No. 3: by Lindow et al. (2021)</p> 
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In the paper by Cannuscio et al. (2010), corner stores were associated as a “social menace” because of the power they have in shaping children’s food choices, increased contact with tobacco and alcohol, as well as being associated with worse nutrition and health of people from all ages.

A very particular issue mentioned by three papers (Akande et al., 2021; Henderson et al., 2017; Rodriguez et al., 2016) was the importance of the availability of food outlets that have food that is traditional for some population groups (e.g.,

immigrants). Not having access to ethnic stores, or traditional food being available, was also mentioned as a barrier to having access to healthy food.

Furthermore, participants cared about the quality of the food that was available and affordable to them. The quality of traditional foods, and the food provided by food provision services was a source of concern (Henderson et al., 2017; Kamdar et al., 2020; Lindow et al., 2021; Spires et al., 2021). Concerns of food safety were reported in the paper by Kamdar et al. (2020), and participants referred to getting rid of the food they received instead of using it, or they ate it despite their concerns.

Culturally appropriateness of food in food support was also a source of concern for participants in the paper by Henderson et al. (2017), where participants mentioned food not being appropriate and then went to waste.

Quote from participant: *“[...] clients might receive a nice big package of food but they’re foreign ingredients and the food maybe ends up going to waste [...]”* (Henderson et al., 2017)

These two issues, lack of culturally appropriate food and quality of food, compromise the “utilization” pillar of food security. Almost expected, high prices of food, and especially of healthy food, was identified as another barrier to access food. This was mentioned in almost all the studies for traditional and non-traditional food (Akande et al., 2021; Folta et al., 2021; Henderson et al., 2017; Kamdar et al., 2020; Lindow et al., 2021; Rodriguez et al., 2016; Spires et al., 2021; Vizcarra et al., 2019).

Another important issue of the food environment that hindered access to food was the distance between people’s households and food outlets. Having food outlets at a distance that required transportation was seen as an issue by participants in some studies (Cannuscio et al., 2010; Folta et al., 2021; Henderson et al., 2017; Kamdar et al., 2020; Rodriguez et al., 2016; Spires et al., 2021). Food outlets that were not at a walkable distance, and the lack of public transportation, as well as its’ cost, had an impact on which food people accessed, as well as in the expenses destined to purchase it. For some participants, food outlets that were not easy to reach prompted buying food that did not necessarily cover their nutritional needs. Unexpectedly, in one paper,

participants (which were immigrants), did not mind commuting to access the food that was culturally appropriate to them (Rodriguez et al., 2016), showing the importance of cultural appropriateness in FNS.

Climate change as well as differences in climate due to seasonality were issues mentioned in four papers (Akande et al., 2021; Galvez-Espinoza et al., 2018; McClain et al., 2019; Vizcarra et al., 2019). In the paper by Akande et al. (2021), participants were concerned about climate change and how it had had an impact on their traditional ways of accessing food, such as hunting and fishing. In addition to the ongoing reduction of these activities, their traditions were starting to be lost. In the three papers (Galvez-Espinoza et al., 2018; McClain et al., 2019; Vizcarra et al., 2019), the issue was related to the changes in climate in different seasons (summer and winter), where more food is grown and available during warmer months. This means that in wintertime there was less employment for those working in agriculture, and there was also less food available.

Contextual and environmental facilitators to access food

Participants in many of the included studies talked about features of the food environment that were seen as facilitators to access food (Akande et al., 2021; Folta et al., 2021; Galvez-Espinoza et al., 2018; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021). Having supermarkets and food outlets close to their homes was a factor that improved access to food (Galvez-Espinoza et al., 2018; Spires et al., 2021). Having food outlets that were easy to access by public transport was perceived as a facilitator too (Spires et al., 2021). The availability of other food outlets, such as markets and nonregulated options like food vendors were important because they had healthy food available and that translated into being easier to cook (Spires et al., 2021).

Quote by participant: *“I prefer to have a fruit and veg street vendor that makes it easy for me to buy vegetables in the street. It makes it easy for me to cook because I don’t have to go to town to get vegetables. It is also good for people like me to have veggies for my health as I am diabetic” (Spires et al., 2021)*

Photograph No. 4: by Spires et al. (2021)



In another paper, these food vendors were also valued because they offered culturally appropriate food for immigrants (Rodriguez et al., 2016). Traditional food being available in the food environment was seen as a facilitator of access to food (Henderson et al., 2017; McClain et al., 2019; Rodriguez et al., 2016). Participants also appreciated healthy food being available, at prices that were affordable (Cannuscio et al., 2010; Folta et al., 2021; Spires et al., 2021). Highlighting the importance of the food environment to promote access to healthy food, the study by McClain et al. (2019), reported a clear difference between availability and affordability of food in Mexico and the US.

Finally, in two papers (Akande et al., 2021; Rodriguez et al., 2016), authors recommended (based on what participants shared) actions that would improve the environment, making it more favourable for people to access healthy food. The actions were: having adequate and strategically located facilities to help with hunting and fishing (Akande et al., 2021), having consistent regulations and land use policies to make food environments more adequate for immigrants (Rodriguez et al., 2016), and trying to have more healthy food supply in order to decrease prices and make it more affordable for people (Akande et al., 2021).

Besides having an environment that facilitates access to food, participants in five papers talked about their way of obtaining food through food programmes, food charities (e.g., community cooking classes) or food banks (Folta et al., 2021; Henderson et al., 2017; Kamdar et al., 2020; McClain et al., 2019; Rodriguez et al., 2016). For women who became mothers, being able to access food assistance programmes was a new and welcomed way to access food (McClain et al., 2019). These sources were relevant to participants.

Quote by participant: *“You’re looking at a National Military Family Associate weekend where literally for three days, all meals were provided for us. Housing was provided for us while we gained communication skills . . . to communicate as a family . . . It was beneficial for us to go to these things because at that point, we’re no longer providing food, and we also got a 200 USD stipend for going as well, so it was very beneficial” (Kamdar et al., 2020)*

Other benefits associated to using food assistance programmes were presented in some papers (Folta et al., 2021; Kamdar et al., 2020; McClain et al., 2019; Rodriguez et al., 2016). These benefits were: medically tailored meals to people with certain conditions or diseases (Folta et al., 2021); developing skills and covering other basic needs (Kamdar et al., 2020); education and monitoring of child development (McClain et al., 2019); increased interest in cooking healthier when understanding the role of nutrition in children’s development (McClain et al., 2019); and socializing (Rodriguez et al., 2016).

3.5.6 Physical, social, and individual determinants of food choices

Role of food environment

Participants in the included papers mentioned their perceptions about the food environment, and how it had an influence on how and where people choose to purchase food. The main perceptions were around prices and associations of different types of food outlets with health. Fruits and vegetables were perceived to be cheaper in street markets (Galvez-Espinoza et al., 2018; Spires et al., 2021). In one paper (Galvez-Espinoza et al., 2018), some products such as rice, pasta or oil were perceived to be

cheaper in supermarkets. On the other hand, in the paper by Spires et al. (2021), supermarkets were perceived as having the most expensive food, which participants accessed only when having income. Small corner shops were commonly perceived as having lower quality food as well as higher prices (Cannuscio et al., 2010; Spires et al., 2021). In addition to looking for food that was more affordable, participants in some of the papers mentioned choosing foods that satisfied their need for convenience either because they were more readily available, or because of the types of food outlets that were easier to access (Cannuscio et al., 2010; Kamdar et al., 2020; Rodriguez et al., 2016).

Difference in food prices in different regions of the country (Canada) were perceived by participants in the paper by Akande et al. (2021). There were also comments related to differences in types of food outlets and their density and distribution in different regions (Cannuscio et al., 2010; Rodriguez et al., 2016). For participants in Henderson et al. (2017) paper, the food offer in Canada raised concerns because of their high content in fat and sodium, and because of the cultivation methods of crops and not having control in food ways.

Participants in three papers (Henderson et al., 2017; McClain et al., 2019; Spires et al., 2021) commented on features of the physical environment that had an influence on the possibility of growing food. The main facilitator was having the space to grow food, which is usually easier to be found in rural areas. Bigger spaces allow a more diverse and greater number of foods to be grown. In urban areas, spaces are smaller, and diversity of food to be grown is reduced. However, space is not all what is needed to grow, but also having good weather and ways to protect the crops (Spires et al., 2021). Henderson et al. (2017) also identified that for some refugees not having access to seeds of foods from their home countries, unfamiliarity with the pests and climate of the new country were also barriers for people to grow food at home.

Interpersonal determinants of food choices

Culture

In six studies culture was identified as a determinant of food-related activities, as well as food choices (Akande et al., 2021; Galvez-Espinoza et al., 2018; Henderson et al., 2017; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021). Culture was seen as a determinant of the role that food plays in social celebrations, cultural heritage, and cultural identity (Henderson et al., 2017; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021). Culture and environmental cues can be associated with what people think is acceptable within the community in terms of food behaviours, shaping lifestyle (Henderson et al., 2017) and ways of providing food (Akande et al., 2021). For example, in the paper by Henderson et al. (2017), some participants referred that adults and their children did not want to bring traditional food for lunch to the school because of the strong odours and feeling it was not like their peers’.

Quote from participant (community worker): *[Newcomers will say] “show me how to make a lasagne, a vegetarian lasagne, show me how to do, you know, more Canadian stuff.” You know, because if they take it to work, you know it doesn’t smell as much, right? (Henderson et al., 2017)*

In four papers the topic of preserving one’s food cultural heritage was highlighted (Akande et al., 2021; Henderson et al., 2017; McClain et al., 2019; Rodriguez et al., 2016). For example, in the papers by Henderson et al. (2017) and Rodriguez et al. (2016), immigrants referred to having a strong cultural attachment to their culture and food practices despite having external pressure to not do it, but people would try to keep accessing their traditional foods. For the participants in the study by McClain et al. (2019), participants were clear on how their culture, in this case Mexican, permeated in the way food was provided to their families. However, moving into a different culture had an impact on how people shaped their food-related activities, showing that cultural situations can change food choices (Galvez-Espinoza et al., 2018; Henderson et al., 2017; McClain et al., 2019; Rodriguez et al., 2016).

However, people don't necessarily need to change to a different country to experience a change in their food habits. The paper by Akande et al. (2021), mentioned how colonization and sociocultural assimilation had changed cultural practices and traditional values, having a repercussion on traditional diets. Hence, people interact with the food environment according to their food-related needs (Rodriguez et al., 2016).

Social connections

Social interactions with relatives, friends and the community were also acknowledged as a social determinant of food choices (Akande et al., 2021; Galvez-Espinoza et al., 2018; Henderson et al., 2017; Lindow et al., 2021; McClain et al., 2019; Rodriguez et al., 2016; Vizcarra et al., 2019). For immigrants, getting in touch with other immigrants was a way of understanding the cultural food landscape of the place where they were, and to share resources and information (Rodriguez et al., 2016). Also, the role of elders in the community was highlighted in the paper by Akande et al. (2021), where they were seen as having a key role in the knowledge transfer of traditional ways of getting food (e.g., hunting, fishing), and the traditional foods of the Nunavut diet.

Family was also mentioned as a strong influence on eating behaviours and food-related activities. The way this influence came from was through knowledge exchange, where knowledge acquired from relatives was put into practice in daily life (Galvez-Espinoza et al., 2018). There were perceptions of how parents teach their children what is associated with a healthy or unhealthy diet (Rodriguez et al., 2016), or like in the paper by Lindow et al. (2021), parents cared about making their children feel normal when going out to eat. In other cases, the influence of the family was identified when those who were in charge of providing and preparing food in the household considered the preferences of the relatives to choose which foods to get and how to prepare them (Galvez-Espinoza et al., 2018; Henderson et al., 2017; McClain et al., 2019; Vizcarra et al., 2019).

Photograph No. 5: Plain white rice with a little oil and salt that participant 0009 learned to prepare in the U.S. for her children, as they preferred it over traditional “red” rice with tomato, onion, and seasoning.

Quote from participant: “... if I try a few seasonings and say ‘Oh, well, these tastes good with this,’ then I put it ... and these are also new dishes that I can invent. That’s what I enjoy [about] preparing meals ... [that] I know my husband and my daughter will enjoy” [0014, 7 years in U.S., 2 children] (McClain et al., 2019)

Photograph No. 5: by McClain et al. (2019)



Intrapersonal determinants of food choices

Preferences, beliefs, knowledge

Another set of determinants of people’s food choices were related to very personal factors, such as preferences, beliefs, knowledge and previous experiences. People’s personal food preferences shaped their food choices (Rodriguez et al., 2016; Spires et al., 2021; Vizcarra et al., 2019). Also, the characteristics of the food environment shaped people’s preferences. In Henderson et al. (2017) study, participants reported that foods that were part of their traditional diets were also their preferred foods. In this study researchers referred to the photographs participants’ pointed at (green vegetables) when asked about favourite foods.

Quote by participant: *I don’t know, I cannot say that I am eating healthy food but I mean, it’s just the way that I like to eat, so I’m not sure it’s healthy or not.*

But I know that we eat fresh food, we eat green vegetables and we eat [...] so [...] what we make, so [...] what's healthy [...]" (Henderson et al., 2017)

McClain et al. (2019) paper reported that participants with previous experiences close to fresh produce acquisition or production tended to prefer fresh food over frozen or tinned food. Also, Henderson et al. (2017)'s participants mentioned wishing to grow food because of their previous experiences doing it. Preferences also applied to which shops people preferred to go to, and how to prepare their food (Rodriguez et al., 2016).

Changes in food preferences were also mentioned, either in a long-lasting lifestyle change, such as changing to vegetarianism or veganism (Folta et al., 2021), to choosing different foods during different seasons (winter/summer) (Galvez-Espinoza et al., 2018; Vizcarra et al., 2019). These changes were inspired by a desire to cope with climate change as in the case of vegetarians and vegans, or simply because of the way food made the participants feel. Another reason for big changes in food choices was the transition into motherhood, a finding shown in McClain et al. (2019) paper. These changes were mainly positive, and were associated with gaining more knowledge, as well as caring about their children's health.

Another driver to food choices was participant's beliefs, knowledge and skills related to food. Having knowledge about the relationship between certain foods and health was a driver for choosing healthier options (Folta et al., 2021; Henderson et al., 2017; Spires et al., 2021; Vizcarra et al., 2019). However, understanding the link between food and health did not mean that healthy food choices were made automatically. They were conditioned by the financial ability of participants (Folta et al., 2021).

In addition to the knowledge of which foods were healthier, participants in some papers also mentioned having beliefs or myths around food. These beliefs were related to perceiving food as an ally or an enemy of health or for weight management purposes (Galvez-Espinoza et al., 2018; Vizcarra et al., 2019). In other papers, food was not only assigned a health value, but also a social and environmental one (Folta et al., 2021).

Some diet choices were perceived as promoting a more efficient use of food (having more leftovers with a healthier type of diet) (McClain et al., 2019).

Health and food-related activities

Having physical or mental health conditions was identified as having an impact on food choices and how participants accessed food. Having health issues made some participants change their diets to healthier ones (Folta et al., 2021; McClain et al., 2019; Vizcarra et al., 2019), even if that meant stopping using traditional ways of preparing food and starting to use healthier techniques (McClain et al., 2019). Besides the improvement in health, other benefits associated with changing to a healthier diet were gaining knowledge, skills and adjusting shopping strategies and budget (McClain et al., 2019).


Quote from participant: *“It's been around a month and a half since [my husband] went to see the doctor, and [the doctor] told him it's been a huge breakthrough. And he even congratulated him, because he said this thing about ... changing a food like we have, we grew up with this, to a meal that is only vegetables and they're things that don't have too much fat, and no more sodas, coffee, nothing. [The doctor] says this is ... it's very hard” (#0003, 8 years in U.S., 1 child) (McClain et al., 2019)*

In relation to the impact that mental or physical health could have on food-related activities, two papers mentioned specific situations. For example, in the paper by Vizcarra et al. (2019), anxiety and sadness were referred to as emotions that made participants eat more than what they needed. In the study with veterans (Kamdar et al., 2020), issues with mental and physical health impacted participants' activities such as going shopping. This happened because of anxiety and not feeling like being in a place with a lot of people, or because of having physical pain when shopping. Also, participants in that study referred to having frozen and ready meals to be used when they had bad mental health days, so their children didn't go without any food.

3.5.7 Food insecurity experience

Perspectives and attitudes about food insecurity

Participants in the included studies talked about food insecurity and the challenges they faced in order to access (healthy) food. In this theme, patterns of information related to the experience of food insecurity are shown. In four papers (Akande et al., 2021; Folta et al., 2021; Kamdar et al., 2020; Lindow et al., 2021) participants expressed their feelings when struggling with access to food. Feelings such as anger (for not being able to access food) (Akande et al., 2021); sadness (for not being able to provide food for the family) (Kamdar et al., 2020; Lindow et al., 2021); frustration (for the unequal situation that people faced compared to others) (Kamdar et al., 2020); and guilt, shame and distress (because of having to get low quality food, or not being able to get any food) (Lindow et al., 2021) were shared.

<p>Photograph No. 6: photo of beans and rice.</p> <p>Quote from participant: <i>You run out of hope. That's how it feels right now... the end of the month is like a week and a half (away) He comes home every day now and says there's nothing to eat"</i> (Lindow et al., 2021)</p>	<p>Photograph No. 6: by Lindow et al. (2021)</p> 
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On the other hand, for some participants in other papers, attitudes that reflected acceptance and even stoicism were mentioned. Acceptance could be seen when people acknowledged the inability to purchase the foods they wanted, and they only got a small quantity and dealt with hunger (Folta et al., 2021). Also, seeing food in a utilitarian way was seen as a way of not being too worried about not being able to access food that (in a participant's perspective) only satisfies taste (Folta et al., 2021). For veterans, taking a military stance towards food meant not accepting food support

and being able to prove self-sufficiency (Kamdar et al., 2020). Finally, in the study by Lindow et al. (2021), authors found that participants would try to have a snack or a tasty meal occasionally to promote a feeling of normalcy.

Coping strategies adopted to access food

Coping strategies for food insecurity were identified in different papers (Folta et al., 2021; Galvez-Espinoza et al., 2018; Kamdar et al., 2020; Lindow et al., 2021; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021; Vizcarra et al., 2019) and are compiled in this subtheme. For some participants, having dealt with food poverty in the past gave them an idea of how to cope with challenges such as unemployment and high food prices (McClain et al., 2019). For some people, even though coping strategies were adopted, having stable access to food remained a challenge that made them disregard nutrition as a priority (Folta et al., 2021; Henderson et al., 2017), or skip meals to give food to their children instead (Kamdar et al., 2020).

Some of the coping strategies that participants mentioned were the following. People referred buying foods that were filling (e.g., tortillas, noodles, fast food). Participants actively looked for foods that would make them feel full, and minimize the need to buy other foods that were more expensive (Kamdar et al., 2020; McClain et al., 2019; Spires et al., 2021; Vizcarra et al., 2019). Also, people preferred to access cheaper foods, even if they were not healthy (Galvez-Espinoza et al., 2018; Kamdar et al., 2020; Lindow et al., 2021; Rodriguez et al., 2016; Spires et al., 2021; Vizcarra et al., 2019). Participants also looked for shops with lower prices (Galvez-Espinoza et al., 2018; Rodriguez et al., 2016; Spires et al., 2021). In the paper by Lindow et al. (2021), a participant also referred to buying a box of produce that could not be sold normally because they were part of surplus, damaged or had imperfections.

Photograph No. 7: weekly Community Supported Agriculture box which contained produce that could not be sold due to “imperfections or surplus”

Quote by participant: *“Even though the produce isn’t perfect, it feeds my family well. I have to get creative to use something from the box in every meal”* (Lindow et al., 2021)

Photograph No. 7: Lindow et al. (2021)



Going to different shops with the intention of getting products at lower prices was also a coping mechanism (Folta et al., 2021; Kamdar et al., 2020; Lindow et al., 2021; Vizcarra et al., 2019). Participants in some of the papers also mentioned using coupons, trying to get deals or sale items (Folta et al., 2021; Kamdar et al., 2020; Lindow et al., 2021; Rodriguez et al., 2016; Spires et al., 2021; Vizcarra et al., 2019). This action was taken to be able to access healthy food, but in some cases accessing foods on sale would be done regardless its nutritional content.

Quote by participant: *I think that’s almost two or three different places, because sometimes I’ll also look at the flyers and see who got the better deals. Even if it’s just by a few cents, you know what I mean, it all adds up at the end of the day.* (Participant 6, stay-at-home mother) (Folta et al., 2021)

As part of this intention of using their scarce resources in a more efficient way, some participants in three of the included papers mentioned also being more organized with their shopping (Folta et al., 2021; Kamdar et al., 2020; Rodriguez et al., 2016). This meant they were planning their menus (Folta et al., 2021; Kamdar et al., 2020), having a shopping list (Kamdar et al., 2020), and budgeting (Rodriguez et al., 2016). In one paper (Folta et al., 2021), there was a mention of using the freezer regularly as a way to have a security blanket to manage food in a better way.

3.6 Use of photo-elicitation

Included papers had a description on how they used photo-elicitation to collect data. Three papers (Henderson et al., 2017; Lindow et al., 2021; Rodriguez et al., 2016) used a modified photovoice method, which turned out to be photo-elicitation given that they lacked the participatory elements of photovoice. The way that photo-elicitation was conducted differed between papers. For some of them, photographs were taken by researchers and presented to the participants to elicit information (Akande et al., 2021). For the paper by Cannuscio et al. (2010) it was a combination of both, where researchers and participants took photographs. For the rest, participants generated the photographs (Folta et al., 2021; Galvez-Espinoza et al., 2018; Kamdar et al., 2020; Lindow et al., 2021; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021; Vizcarra et al., 2019).

In all the included studies, photographs were discussed between participants and researchers, during interviews. In one paper, a focus group took place before the photograph-taking and journaling activity, and then short interviews with participants were held to clarify any doubts (Spires et al., 2021). The time to take photographs varied greatly from some studies allowing only 1 week, 2 weeks, up to a maximum of 3 months. In most papers cameras were offered to participants to facilitate the activity (Folta et al., 2021; Galvez-Espinoza et al., 2018; Henderson et al., 2017; Kamdar et al., 2020; Rodriguez et al., 2016; Vizcarra et al., 2019). In just one paper, Lindow et al. (2021), participants used their phones to take the photographs. Other details regarding the methods provided by researchers were the provision of instructions or training on how to take the photographs, or provision of sample photos (Henderson et al., 2017) or asking for which photos participants would take (Lindow et al., 2021). Four papers mentioned the utilization of the SHOWeD method by Wang and Burris (1997), (Galvez-Espinoza et al., 2018; McClain et al., 2019; Rodriguez et al., 2016; Spires et al., 2021). Two papers (Kamdar et al., 2020; McClain et al., 2019) also conducted a food insecurity experience scale survey in addition to the photo-elicitation interviews. More details about the method are found in Appendix 4 (page 381).

In relation to FNS, researchers mentioned the type of information they elicited with the photographs during the interviews. Most of the papers focused on aspects that were related to food, food choices, including activities such as food purchases, and food preparation (Akande et al., 2021; Galvez-Espinoza et al., 2018; Henderson et al., 2017; Kamdar et al., 2020; Lindow et al., 2021; McClain et al., 2019; Vizcarra et al., 2019). Other papers focused on the food environment (Folta et al., 2021; Henderson et al., 2017; Rodriguez et al., 2016). Also, researchers focused on barriers and facilitators for healthy eating (Akande et al., 2021; Cannuscio et al., 2010; Spires et al., 2021). One paper focused on the experience of food insecurity expressed through photographs as well as its impact on participants' wellbeing (Lindow et al., 2021).

All the included papers presented how they analysed the data of their interviews. The main description of analysis was in relation to the textual data obtained from the interviews' transcripts. For almost all the papers, authors did not specify if they conducted any analysis on the photographs as such. However, according to Guillemain and Drew (2010) this is expected in visual methodologies, given that the only one who can interpret an image is the person who created it (i.e., the participant). The researcher has to conduct the analysis of the dataset as a whole. Some authors mentioned the images were used to triangulate data, facilitate discussion and represent participant's perspectives (Lindow et al., 2021; McClain et al., 2019; Spires et al., 2021). In just one paper (Kamdar et al., 2020), authors mentioned following polytextual thematic analysis (Gleeson, 2020) of both, texts and images. The rest of the papers used thematic analysis, either (predominantly) inductive (Akande et al., 2021; Folta et al., 2021; Galvez-Espinoza et al., 2018; Henderson et al., 2017; Lindow et al., 2021), or deductive (Rodriguez et al., 2016; Spires et al., 2021; Vizcarra et al., 2019). Finally, one paper used (deductive) content analysis (McClain et al., 2019), and one (Cannuscio et al., 2010) was not specific on how analysis was conducted.

Despite all included papers indicating that they used photographs to elicit information from their participants, four papers did not present any photographs (Akande et al., 2021; Cannuscio et al., 2010; Galvez-Espinoza et al., 2018; Henderson et al., 2017), and authors only provided quotations to illustrate their findings. This is not

necessarily inappropriate, because it can also be related to agreements on ownership and privacy of the photographs during the research process (Guillemin & Drew, 2010). The rest of the papers presented photographs as well as quotations.

Authors from the studies commented on what they thought were the benefits of using photographs to collect data. For example, PEI helped to keep the focus on the topic of research (Akande et al., 2021); it was seen as an “ice-breaking” method (Akande et al., 2021); it was seen as promoting insightful contributions and allowed deep discussions of the topic (Folta et al., 2021; Kamdar et al., 2020; Lindow et al., 2021; McClain et al., 2019; Spires et al., 2021); as well as having enough time to reflect on the purpose of the study (Kamdar et al., 2020); and facilitated triangulation of data (McClain et al., 2019). On the other hand, some limitations were reported: people with less time could have refused to participate in a project that required taking photographs (Folta et al., 2021); and participants might take photographs of what they believed researchers want to see (Galvez-Espinoza et al., 2018; Vizcarra et al., 2019).

3.7 Discussion

I found 11 papers involving 10 studies, conducted in high income countries and one upper-higher middle-income country, where most participants were women. All the participants were considered low income, and some of them were also socially vulnerable because of their immigration status in their host country, or because of having a chronic health condition. Almost all the studies used photographs taken by participants as a data collection method, and these were discussed during interviews. The included studies looked at how participants made food choices, accessed food to provide for their families, and navigated their food environment.

Four themes were developed. The first two themes included barriers and facilitators to access food at both individual/household and community/environmental levels. These two levels were inspired by the socioecological model of health by Bronfenbrenner (1979). This framework highlights the individual and environmental determinants of behaviour, from an ecological perspective that takes into consideration

microsystem, systems of microsystems, macro system and exosystem (Bronfenbrenner, 1979; McLeroy, Bibeau, Steckler, & Glanz, 1988).

The most definitive barrier to access healthy food was the lack of economic resources, and the financial struggles that comes with it, such as competing expenses. An individual facilitator is having the resources, including those related to household food production. In the context/environmental level of influence, the main barriers to access healthy food were related to the nature of the food environment such as lack of food outlets near people's households, lack of healthy food offer, and high prices. The facilitators in this level were the opposite, an enabling physical food environment (e.g., proximity of shops), and the existence of food provision services (e.g., community-based initiatives, public programmes).

The third theme was a compilation of environmental, social and individual determinants of food choices. This theme also emphasized the relevance of the food environment. In addition, it showed the role culture plays when choosing food, as well as the social connections. In the intrapersonal level, preferences, knowledge, beliefs, and health condition also had a strong influence on what people chose to purchase. Finally, the fourth theme described the experiences of food insecurity reported by participants in the included studies. The experience focused on people's attitudes towards the challenges associated with accessing food, and the coping strategies adopted to deal with food insecurity. These strategies included getting foods that are filling, opting for shops and foods that are cheaper, purchasing foods from different shops, using coupons and looking for deals, as well as planning shopping in a detail way.

These findings highlight the importance of the food environment to promote healthy diets. The availability of healthy and culturally appropriate food is a strong driver to healthy food access. However, access can't take place when economic resources are scarce compromising household's ability to purchase food and cover other expenses. Food insecurity and poverty are worldwide concerns that have been enacted as goals (ending hunger and ending poverty) in the Sustainable Development Goals for 2030

(United Nations, 2015). Hence, changes at a global, regional and local level are required to improve people's right to access adequate food and be food and nutritionally secure.

3.7.1 Discussion about photo-elicitation

Photo-elicitation was used successfully in the eleven papers included in this review. In their design, all the papers were similar, as they all provided instructions to their participants. However, the degree on how broad the topic was understood by participants varied depending on the method. Some authors tried that the focus of the photographs and discussions stayed closed to their research focus by providing the photographs (Akande et al., 2021; Cannuscio et al., 2010), or having a topic guide (Folta et al., 2021), or giving examples of the photography participants could take (Henderson et al., 2017).

Some researchers described the strengths of using photo-elicitation. Their perspectives aligned with what other researchers have reported, such as being preferred over traditional interviews, building rapport, allowing triangulation of data to improve rigor, bridging psychological realities with the physical world, and promoting a critical dialogue (Hurworth, 2003; Lapenta, 2014). Besides, using photographs in research has been used to facilitate research with hard-to-reach populations (Aldridge, 2012; Pettinger et al., 2017).

The photographs reported in the included studies showed different items and situations related to access to food. Based on Lapenta (2014)'s work, the photographs have an encyclopaedic value, which means that they portray a realistic reconstruction of objects, persons or social circumstances; and have a projective value as they (the photographs) portray unpredictable and multiple meanings for the participants.

Regarding the approach used for the analysis, as already reported in the results' section, it varied a lot. This shows a heterogenous and non-standardised practice on how to conduct PEI (Balomenou & Garrod, 2016; Padgett et al., 2013). However, at the same time, this shows the pragmatic nature of the method, which it can adapt to the best way to answer the research questions and align to the aim of the study. The

utilization of PEI allowed participants to talk about their personal perceptions and experiences around food insecurity by showing material and visual elements that reflect their lives, making them experts on what they are sharing (Collier & Collier, 1986). Moreover, FNS is tightly related with the physical environment, making the utilization of photographs a suitable method as taking descriptive photographs of elements of the physical environment is relatively easy. Within the included papers, PEI also provided insight to the cultural differences in eating practices, which is a benefit of the method allowing readers external to the participants' culture to better understand the findings. As Harper (2002) said, photographs can reflect one's identity connection with the social, cultural and historical context.

3.7.2 Strengths and limitations

The main strength of this review is the focus on PEI to research access to food. At the time of conducting the review there wasn't any similar review. It provides specific findings that can help to better understand people's food access experiences within the food environment. Also, it supports the utilisation of visual methods to research FNS.

On the other hand, one limitation is the lack of standardisation on how to refer to the method. In the review by Balomenou and Garrod (2016), that examined papers using participant-generated images methods across five decades, found that different names have been used for the same method, changing constantly. Also, only including papers in English and Spanish could have excluded other relevant papers published in other languages.

Finally, another important limitation is that the findings are not a thorough and detailed compilation of what the evidence around food insecurity reports. Therefore, means, the findings of this review should not be taken as a definitive representation of the challenges and facilitators to access food at both individual and community levels. The findings of this QES are originated from a very particular data collection method – PEI – which means that employing other methods could have yielded different findings (although other previous studies that utilised other methods had similar findings to this

review). However, the data presented here resonates with the wider literature of food and nutrition security.

3.8 Conclusions

This QES is important for three main reasons. First, photo-elicitation might provide information that could be difficult to elicit with other methods in the realm of FNS. This data might allow better-focused food-related interventions at different levels – individual, community or regional. Second, it will allow the understanding of people experiences accessing food, broadening the body of literature that could further inform the creation or modification of public policies that have a direct impact on the food environment and the wider food system. Third, for researchers in different fields that have an interest in the topic of access to food, this review can provide practical guidance on how to conduct research utilising this visual method.

After presenting the results of the qualitative evidence synthesis, the next chapter describes the approach taken, and the rationale for the methodology to cover the aims and objectives of this thesis.

4. Chapter 4: Methodology

4.1 Introduction

The following chapter presents the methodological underpinnings of this thesis. I discuss my philosophical assumptions, and the rationale for choosing the most appropriate methods to recruit participants, collect and analyse data in order to answer the research questions.

4.2 Philosophical assumptions and research paradigms underlying my doctoral research

The next paragraphs aim to provide an understanding of me, both personally and professionally, and to explain the origin of my philosophical assumptions, the interpretive framework and research approach that underpin my doctoral thesis. The first part shows a travel in time around my professional development, as well as the shifts I have experienced that took me where I stand as a PhD candidate. After this, an in-depth analysis of the *why* and *how* of my research is presented.

My academic and professional journey before starting my PhD had a strong quantitative research predominance. The three previous dissertations I have carried out are the following:

- Developing regression equations to estimate height in hospitalized patients utilizing the measurement of the length of the ulna (forearm) bone (undergraduate).
- A double-blind crossover randomized controlled trial to assess the anti-inflammatory effects and clinical impact of consuming either a particular strain of probiotics, with or without a prebiotic, or a placebo in patients with irritable bowel syndrome (IBS) in an outpatient setting for a two-month period (Master's in clinical nutrition).

- A systematic review regarding incentives to recruit and maintain participants in RCTs (Master in Global Health and Management).

Reflecting on this, made me realise the strong positivist orientation my previous research had. However, my clinical practice in nutrition and working in an Observatory for the Right to Food made me realise the importance of personal experiences and socioeconomic and cultural contexts when doing research and awoke my interest on learning more about the qualitative paradigm. This would allow me to start leaving the positive stance that I adopted for so many years, enriching my professional research journey.

Even though I had some research experience when I started my PhD, I did not have a lot of knowledge regarding the philosophical assumptions that underpin research. Learning about this became one of the first endeavours I embarked on. Philosophical assumptions and research paradigms are a set of beliefs that influence how research is conducted to collect and interpret data in order to answer research questions (Bryman, 2003; Creswell, 2017). Because they are beliefs, they are intrinsically related to the researcher's own beliefs around reality and construction of knowledge, values and principles. Knowing this, to me, represented a very poetical way to see research, especially when taking a qualitative stance. From the beginning to the end of the research, researcher's inner essence and understanding of life are embedded in the process. The extent to which the researcher allows these inner characteristics to permeate into the research process depends on the research paradigm too.

Denzin and Lincoln (2011) proposed a model to reflect on how contextual and personal aspects of the researcher (which are shaped by personal experiences, professional discipline, and other factors) define the philosophical assumptions around research. These assumptions apply to what the researcher believes is the nature of reality (ontology), how knowledge is produced (epistemology), what are the values around research (axiology), and which are specific processes and procedures taken through the research process (methodology). These four elements sit behind research

paradigms (or worldviews) and theories, which means that they are applied through them (Creswell, 2017). Clearly defining how these elements shape my PhD is, and in any research, necessary to justify the choice of research approach and methods – which includes data collection and analysis – to appropriately answer the research questions. These assumptions will permeate all the steps of the research, and will provide coherence, as well as sense.

Before moving to explaining my choice of interpretive framework I would like to present clear definitions of what ontology and epistemology are, and my position towards them. Firstly, ontology refers to what the researcher understands as reality, and its nature. In the qualitative approach to research, ontology suggests that there is not one only reality, but there are “*differing realities*” depending on who sees the situation (e.g., researchers, participants, readers) (Creswell, 2017; Ravitch & Carl, 2019). This is acknowledged when looking deeply into the experience and perceptions of participants; when the researcher recognises their position in relation to research and acknowledges their influence in the research process; and when considering who will be the readers of the study and their own perspectives about it (Creswell, 2017).

I recognise that my ontological view is critical realism which is situated in between realism (truth is independent of observer) and relativism (reality depends only in how it is interpreted by each of us) (Braun & Clarke, 2014). Critical realism acknowledges that there is a reality out there that can be approached by the “*subjective and socially-located*” knowledge a researcher can access (Braun & Clarke, 2014, p. 42). Critical realism sees knowledge as socially influenced, and it can be seen through the cultured-history-experience-shaped view of people. This is the reason why it takes elements of realism and relativism ontologies. Accessing food, its determinants and navigating the food environment whilst a global pandemic is taking place, seemed to be a situation where critical realism could fit. The situation was happening everywhere, but the experience of individuals around food depended on specific personal and contextual characteristics. Recognising the subjective nature of the perception of reality means knowledge has to be accessed in a particular way, which leads to the next philosophical assumption: epistemology.

Epistemology is the understanding of how knowledge is constructed, and what counts as valid knowledge (Braun & Clarke, 2014). In qualitative research, getting to know the subjective experience of participants around any situation is the way to know their perception of reality, and their process of meaning-making. Therefore, interacting with people living the situations a researcher is interested in is of great importance when conducting qualitative research (Creswell, 2017). My epistemological position is contextualism, which is akin to critical realism, which sees knowledge “*as emerging from contexts*” (Braun & Clarke, 2014, p. 46). Given the complexity of the interactions of so many elements in the food, health, social, economic and political systems, a way of constructing knowledge that considers all these features to interpret reality is required. Linked with my ontological assumption, my epistemological position requires approaching different individuals and their experiences during the pandemic to understand how the mitigation measures (i.e., lockdown) impacted and affected their access to adequate food. Table 5 shows my personal philosophical assumptions, and how they are reflected in my doctoral thesis.

Table 5 An overview of my philosophical assumptions

Philosophical assumptions	In qualitative research	In my thesis
Ontology	Different realities, therefore different perspectives	Findings of other studies (QES), households and stakeholders in Mexico and Scotland. Reflection on my own experience in research.
Epistemology	How knowledge is built, what counts as knowledge	Semi-structured interviews with households and stakeholders. Findings from QES.
Axiology	Values, social position, personal experience, political and professional beliefs and their impact on research	Reflexivity and positionality are elaborated within the thesis to give clarity on my own influence in the research.
Methodology	Inductive, emerging and shaped by researcher’s experiences and beliefs	Comparison of two case studies. Analysis followed a combination of deductive and inductive template thematic analysis.

4.3 Axiology and reflexivity: the researcher, “human as instrument” (Guba & Lincoln, 1981)

Besides ontology and epistemology, it is also important to consider the researcher’s active role within the qualitative research process. The researcher is another entity that is involved in the process of knowledge generation and interpretation. Positionality is a concept that refers to the “*role and social location/identity*” of the researcher within the research process (Ravitch & Carl, 2019, p. 6). Positionality is part of axiology, which in qualitative research means the researcher acknowledges his or her social position (such as profession, age, race, gender) and values in relation to all the inquiry process (Creswell, 2017; Denzin & Lincoln, 2018; Ravitch & Carl, 2019). Social position and social identity have to be considered when reflecting on the role as researchers in the research process, and recognise that role and identity are dynamic, changing all the time depending on the research stage we are at, and also with whom we are interacting (Ravitch & Carl, 2019).

It is also important to consider reflexivity. This is the constant acknowledgement and assessment of the researchers’ positionality, identity and subjectivities. Because the researcher plays an active role in the design and conduct of research, it is necessary to be reflective and record this throughout the whole research process (Denzin & Lincoln, 2018; Ravitch & Carl, 2019, p. 6). From the early stages of the research design to the interpretation of data, the understandings, values, political orientations and other intrinsic values and orientations of the researcher permeate the research (Dodgson, 2019). Reflecting on all these elements means we are aware of our own self as researchers, and our ability to adapt with whom we engage, and with each stage in the research process; and, how this (and our beliefs, values, experiences, role and identity) can affect our collection and interpretation of data (Berger, 2015).

According to Berger (2015), all the different characteristics of the researcher (described above) have an influence on three main aspects of research: 1) how easy is to enter the world or field where the participants are based; 2) determine the kind of relationship established between the participants and the researcher; and 3) how the

researcher designs the study, frame questions and collect the data. I have previously mentioned (see Chapter 1: Introduction) how my professional and research biography has influenced the choice of my research topic. My personal and professional journey has influenced to some extent my decision of doing a comparison of the case studies of Mexico and Scotland. In the following paragraphs I will briefly elaborate how some of my personal and professional characteristics impacted the three research aspects suggested by Berger (2015).

In terms of accessing the world where participants are based (Berger, 2015), having participants from two different countries offered some advantages and disadvantages when considering my personal cultural identity and background (Mexican) and my native language (Spanish). Being Mexican created a sense of familiarity with the people interviewed in Mexico. This familiarity came from an intrinsic understanding, and almost taken for granted assurance that I was able to understand nuances of the culture, practices, traditions, and language. On the other hand, when interviewing people in Scotland, especially stakeholders, I felt a slight distance when talking to them given that I am not entirely familiar with the Scottish culture, family values, politics and social system. This perceived distance could have limited the way I accessed and explored the information that stakeholders shared with me during the interviews. However, in Scotland, I interviewed four households where at least one member (usually wife) of the family was Mexican and had been living in the UK for more than two years. These wives were married to Scottish men and had a good understanding of the Scottish culture, as well as being already adapted to the way of living in the UK. I am a migrant in the UK, and have been living here for over 4 years, and even though I do not consider myself as fully integrated into the British culture and society, I do understand some practicalities of accessing food in the Scottish food environment.

In terms of the relationship between me and the participants I decided to keep my identity as a nutritionist hidden. The reason for this decision was to prevent people (those who were part of the household interviews) from the tendency of giving answers they thought I wanted to hear and judge as correct. In my practice as a nutritionist, I

identified that people tended to under report what they ate in a day, and tended to enhance the nutritional quality of the food they ate. This has also been reported by researchers in the field of nutrition and public health in different populations (Gemming & Ni Mhurchu, 2016; Jones, Ness, & Emmett, 2021; Martínez-Arroyo, Duarte Batista, Corvalán Aguilar, & Mara Fisberg, 2022; Pfrimer et al., 2015; Poppitt, Swann, Black, & Prentice, 1998). In order to avoid this potential fear of being judged by me, I decided to only mention the PhD programme I was doing. Opting for not sharing my whole professional identity with the households' participants helped, in my perception, with reducing the power imbalances between me and the participants, improving the relationship (Berger, 2015). With stakeholders, I decided to take another approach, where I disclosed my professional background as nutritionist and having worked with the right to food, so people felt they could deepen the way they shared their knowledge and experiences with me. By taking this approach, I felt the gap between them and me was not too wide and they could relate to me at a more professional level and use appropriate terms which reflect the phenomenon they were describing.

Finally, my professional background, as well as my previous experience working with indigenous communities and the right to food, had a great influence on the way the research was designed, and data collected and analysed. From being very clinical-oriented, I started to become more critical about the economic, food and health system; I became interested in multi-dimensional poverty and human rights, same as inequality and social justice. This orientation and interest in social and food justice for all is what brought me to do this PhD. Appendix 8 (page 395) briefly shows some of the dynamism I took around my social role and identity depending on the study I was conducting in my PhD.

4.4 Why a qualitative approach for my PhD?

From the beginning of the conceptualization of my research, I considered qualitative methodology as the most suitable approach to answer my research questions. This approach is characterized by embarking on a naturalistic inquiry

meaning that the scenario, situations, and the way people behave are not controlled or modified by the researchers (Patton, 2002, p. 39). Allowing situations unfold naturally, and interactions with people follow the same fashion, facilitates having a more certain approximation to how people make meaning of their experiences around a specific phenomenon (Ravitch & Carl, 2019, p. 2). The COVID-19 pandemic itself was a public health crisis that by no means researchers could neither modify, nor the measures taken by governments all around the world. This same non-controlled scenario took place around food access in households that began to experience financial uncertainty and instability during the COVID-19 pandemic.

Access to adequate food is the result of a complex mix of elements. This complexity, and its interactions, can certainly be researched from a quantitative stance, but when exploring the richness and depth of the human lived experience, a qualitative approach seemed the most appropriate. As Ravitch and Carl (2019, p. 5) state about qualitative research as centralizing *“the complexity and subjectivity of lived experience”* and valuing *“these aspects of human being and meaning making”* is important for the topic of access to food during a pandemic. Qualitative research can contribute to the understanding of the nuances in perceptions of the pandemic, and the actions around food taken by people when experiencing a financial shock. Those who experienced a loss of income are in a fragile threshold of stability and uncertainty where the duration of the changes, and the coping strategies adopted can determine their health and wellness in the near and long-term future (Leddy, Weiser, Palar, & Seligman, 2020b). Researching which changes people experienced and the decisions taken to cope with them can shed light on the assets (not only financial but also cultural, skills and knowledge-related) that a household might use to overcome a crisis. Also, it can expose the societal structural weaknesses that have a repercussion on the financial stability of households, health disparities and prevalence of food and nutrition insecurity (Leddy et al., 2020b).

Food and nutrition security as a result of the right to food requires an understanding of the interactions and relationships individuals have between other members of their own household, their communities, and their physical environment.

Research has shown that social networks (Lemke, Vorster, van Rensburg, & Ziche, 2003; Mertens et al., 2015; Olawuyi, 2019), social capital (Paul, Paul, & Anderson, 2019), and exchange of food with private and public networks influence and can directly improve food security (Park & Kim, 2018). Qualitative research is “*often concerned with social processes*” (Allan, 1991, p. 179), which justifies its utilisation when aiming to research *how and why* households in Mexico and Scotland faced challenges over accessing food when their source of income stopped totally or partially as a result of the pandemic.

There are different ways of collecting data on topics such as FNS. For example, food security can be measured with different indicators depending on which level is being assessed (i.e., individual, household, national). One of the most accepted ways of measuring the experience of being food insecure is using food insecurity experience-based measurement scales (see Chapter 2, page 37) (Perez-Escamilla & Segall-Correa, 2008). Equally, assessing the right to food can be done using different economic, health, nutrition indicators (OHCHR, 2010). However, when interested in knowing the perceptions regarding the pandemic and its impact on how people access food and navigate the food environment, I argue that it requires a qualitative approach (or a mixed method one).

Qualitative research can be used to explore beliefs, perceptions and attitudes towards a situation; it can help to identify and understand the influence and role of culture, education, and other social aspects on people’s life, and find meanings and make interpretations with the chosen data collection method (Saldaña & Omasta, 2018). Exploring these aspects can shed light on the adaptation processes people develop when facing a worldwide pandemic that threatens financial stability.

4.4.1 My research paradigm / interpretative framework

Research paradigms are a set of beliefs that provide direction to the design of the research and the research itself (the problem of study, the research questions, data collection, analysis and the interpretation of findings) (Creswell, 2017). These beliefs, or philosophical assumptions, “*take different forms given the interpretive framework used*”

(Creswell, 2017, p. 33). The qualitative approach taken expressed an interpretive framework. In my PhD, given the topic of my research- food and nutrition security during a global public health crisis- I chose to use a case study approach with a pragmatist / critical interpretive framework. In the following paragraphs I explain these decisions.

4.4.2 Why a pragmatist / critical interpretive framework?

The interpretive framework I chose for my doctoral thesis is pragmatism. The theoretical lens of my research is the human right to adequate food. This theoretical lens could make the reader think I am also having a critical theory orientation, but the guiding framework is pragmatism. In the next paragraphs I will explain the reason for this, as well as explaining the link between the human right to food and critical theory.

A pragmatic interpretive framework suits the research when the researcher has a goal of providing a solution to problems happening in the real world, and to contribute to social justice (Creswell, 2017; Kaushik & Walsh, 2019). To me, as a nutritionist with a deep interest in the social, economic and political influences over access to food, exploring the impact of the pandemic in how people accessed food during a lockdown meant a real-world problem. This situation highlighted the weaknesses of different systems within the society that could hinder FNS in those who were financially and socially vulnerable. This view required an approach that focused on understanding the challenges, their relationship with the context, and that intended to provide solutions or at least a direction for possible future solutions of the problem. Changes in the system could be identified with the purpose of being changed in the future to improve equality and health for all. Hence, this interpretive framework is aligned with my ontology and epistemology. With my ontology – critical realism – because I believe reality is experienced differently by people and pragmatism considers these differences and values them in order to provide solutions that are better suited for the different needs of people. The framework aligns with my epistemology – contextualism – because it also considers that knowledge is produced differently in each context, which adds to the aim of pragmatism when seeking for practical solutions to contextual problems.

Pragmatism focuses on how people experience reality, rather than reality itself, and considers that experiences are shaped by beliefs that were created in the past, by past actions. Then, in the present, people take actions which generate new beliefs, which in turn generate new experiences. Reality is then a dynamic phenomenon that depends on how people take actions (Kaushik & Walsh, 2019; Morgan, 2014).

With a subtle feeling of urgency to provide a solution and avoid the long lasting possible harmful effects of the pandemic, pragmatism is a framework that tries to address this urgency, and its structural causes. It considers valuable the experience lived by those affected by the situation, and the perceptions of those whose jobs are closer to the goal of ensuring FNS. The pragmatic framework has an “*appreciation for diverse approaches to collecting and analysing data, and the context in which research takes place*” (Creswell, 2017, p. 34). This approach considers that any philosophical or methodological approach can be taken to answer the research questions, as it focuses on the outcomes of research (Kaushik & Walsh, 2019). In this thesis the outcome is to identify the challenges that people faced to access food, their main coping mechanisms, as well as the actions taken at a higher level (community, regionally) to provide recommendations that could be applied to policy in the future.

Researchers following this approach are interested in where they can go with what is being researched, which means that they are not bounded to a particular ontological assumption (Creswell, 2017; Kaushik & Walsh, 2019). They also consider the context that surrounds the research situation. This thesis seeks to provide some direction or guidance for further studies and actions towards improving the different systems that interact to promote the right to food. This is tightly related to the particular context of each country, its policies, and other factors. In this thesis, some of those characteristics of the socioeconomic and political context of Mexico and Scotland are considered in the analysis and interpretation of data, and further utilisation of the findings to provide recommendations.

As the main purpose of researchers taking a pragmatic approach is to provide a solution to a problem, the choice of methods is based on what works best for the situation.

Normally, following this adaptability and flexibility, pragmatism underlies mixed methods studies, and justifies the utilization of both deductive and inductive approaches (Creswell, 2017; Creswell & Clark, 2017; Hyde, 2000; Kaushik & Walsh, 2019). Using different methodologies to provide different insights takes the research from the “false dualism” of a qualitative/quantitative dichotomy (Bearman & Dawson, 2013). Even though I did not choose a mixed methods approach (understood as a combination of qualitative and quantitative approaches), I chose different methods to collect the information that would help to answer my research questions, from a qualitative evidence synthesis, to interviews, and online photo-elicitation interviews. Pragmatists think that social science inquiry of reality needs more than one scientific method to be accessed (Kaushik & Walsh, 2019).

My three studies (the QES, households’ interviews and stakeholders’ interviews) follow a combination of deductive and inductive approaches. For example, the qualitative evidence synthesis follows a deductive approach. Deductive approach is understood as “top down”, indicating that it goes from a theory to hypothesis to data to test a theory, and see how the data fits in the theory (Hyde, 2000). The review is ruled by the already “known” systematization of the different stages to follow when conducting a review, where findings are systematically interpreted by researchers to depict the meaning of all pooled studies (Bearman & Dawson, 2013). Then, I took an inductive approach when using online (participant-generated) photo-elicitation interviews, and the interviews with stakeholders of the food system. This continuum of approaches, deductive-inductive, is taken under the pragmatic paradigm (Creswell & Clark, 2017; Kaushik & Walsh, 2019; Morgan, 2014).

4.4.3 Theoretical lens: *human rights*

I am using the right to food as a theoretical lens (discussed extensively in chapter 2, page 49). This theoretical lens is also used to analyse my data and interpret findings. This framework (right to food) allows the integration of elements related to the actions and policies promoted by the government, the food environment and its regulations, as well as the decisions and behaviours of individuals and communities around food

access. The acknowledgement of this complex network of elements determining FNS is also aligned with the pragmatic framework. I used this framework to inform the topic guide for the interviews with households' participants, as well to guide the analysis of the households' and stakeholders' interviews.

4.5 Comparison of two case studies to answer the research questions

Methodology is the practical and analytical processes involved in research to answer a research question. In qualitative research these procedures have usually an inductive nature, being built from the bottom to the top (Creswell, 2017). Designing research has the goal of ensuring that whatever is done in research and the evidence it yields, appropriately addresses the research question (Yin, 1994). In the next paragraphs I will explain the design of my research, its different elements and the justification of the many decisions taken throughout the process.

4.5.1 Study design: comparison of case studies

For my PhD I decided to choose a multiple-case design (Yin, 1994). Case studies aim to reflect on a particular entity (which can be an individual, an event, a community, a situation) by describing and understanding the context around it (e.g., historical background, physical setting, and political and institutional context) (Hyett, Kenny, & Dickson-Swift, 2014). As Saldaña and Omasta (2018, p. 142) state "*cases can stimulate analysis of how this particular case of a particular context compares to and functions within the larger social setting in which it interacts*". Case studies are suitable strategies when wanting to know the *how* and *why* of phenomenon that are happening, where the researcher does not have any control (Yin, 1994). Also, case studies can represent an example of similar cases, that could be compared, and that address a research question, and take into consideration the extended social setting in which the case is developing (Saldaña & Omasta, 2018).

Focusing on how the different social distancing measures, especially the lockdown, affected people's ways of planning and accessing food provides the

possibility to “*deal with operational links that can be traced back over time*” (Yin, 1994, p. 2). These links can be to certain skills acquired in the past (for instance: planification, nutritional knowledge, cooking skills), financial status before the pandemic, assets, and other situations that happened in the past. Given that the pandemic had a systemic impact, it is also relevant to know the perspective of experts in food security, as well as key informants from the government and third sector organisations. The inclusion of these perspectives provides insight of how other systems interact and impact access to food, and they also represent another information source which aligns with the characteristics of case study design (Yin, 1994).

Case studies can be either exploratory, descriptive or explanatory, however in some instances, there can be a combination of these three purposes (Yin, 1994). My research covers the three purposes, given that it is exploring a new situation, it describes the experiences around access to food in each of the cases, and aims to explain the findings using the elements and logic of the right to food.

Case studies are not developed with the intention of generalizing the findings to the population. Instead, these findings can help to generalize to a theory level, which is also known as analytic generalization. Therefore, is relevant to have an underlying theory to build and analyse the case, and to compare the empirical results (Yin, 1994). The underlying theory is the right to food, which includes food and nutrition security at its core.

Finally, case study design tends to be seen as more postpositivist rather than following a social constructivist orientation (Hyett et al., 2014), which is the case of the case study methodology proposed by Stake (1995) and Merriam and Tisdell (2016). As I previously mentioned, my research has a pragmatist interpretative framework, which allows for flexibility in the methodology and methods used, as long as they answer the research questions. Case studies are more interested in the case rather than the methods used (Hyett et al., 2014). In my PhD, the case study approach I used, even when having a postpositivist orientation, fits well with my ontological (critical realism)

and epistemological (contextualism) assumptions, as well as with my pragmatic interpretative framework.

4.5.2 Why the comparison of two case studies?

In response to the global public health threat that COVID-19 represented, governments had to react quickly to minimise the spread of the disease. The development and impact the pandemic and mitigation strategies had on people's lives, including access to food, depended on the social, economic, and political characteristics of countries. For example, at a government level, the capacity, responsiveness and priorities of the government are influenced by democracy, corruption, government effectiveness, amongst others. People willing to adopt measures coming from the government is impacted by the level of trust they have in government, community and science, as well as by the degree of income inequality (Bollyky et al., 2022).

From the perspective of human rights, governments have obligations to guarantee that rights are accomplished by all citizens. Protecting the rights and taking (or not taking) actions that could prevent people from realizing their rights are some of the obligations of the States that have signed international human rights treaties have (see Chapter 2, page 44). In theory this could be easy to understand and follow, but these actions have a different impact depending on the context of each country. A country's food, health and roads system, social welfare policies, informal economy, amongst other systems and policies could be determinants of the consequences in health (mental and physical), financial stability, food (in)security, education that the mitigation strategies could have in the short, medium and long term.

In addition to my interest of researching food access during the pandemic, I decided to compare two countries with two different social, economic and cultural contexts: Mexico and Scotland. These countries also have signed the International Covenant on Social, Economic and Cultural Rights (ICESCR), which indicates they both recognise the right to food as a goal to be attained and that they are, in different degrees, trying to provide instruments to make the right achievable, and provide mechanisms of accountability to those who have obligations towards it. These

similarities and differences between these two countries can shed light on the role that contextual factors can play in worsening or improving the way people access food when pandemic-mitigation strategies are in place (see Chapter 2, page 57).

Knowing how people in Mexico and Scotland accessed food during the first lockdown of the COVID-19 pandemic, and *how* and *why* they organised their resources to access food, and navigated the changes in the food environment, can provide a way of “seeing” how skills, knowledge, and external contextual factors interact and impact households’ vulnerability to food and nutrition insecurity when experiencing a non-expected financial shock. Besides, the presence (or absence) of social protection policies in each country provided a difference on how people coped with the challenges imposed by the mitigation strategies. To strengthen the view of the picture, and the solidity of the cases, exploring the perspectives of key informants in policy, academia, and third sector organisations was also included in the cases. Thus, the findings obtained here can add up to the current theory of food security during a pandemic within the paradigm of the right to food, by situating findings in a predetermined framework, but also allowing to generate explanations about participant’s views of the pandemic and its impact on how they accessed food (Baral, Mishra, Diouf, Phanuphak, & Dowdy, 2020).

4.5.3 The cases: Mexico and Scotland

The comparison of the cases of Mexico and Scotland could provide a better understanding of the role that social, political and economic contexts in a country play in a scenario where governments attempt to overcome a public health crisis with mitigation strategies that could directly aggravate household’s livelihoods. I decided to compare two cases, making it a multiple case study. In the jargon used by Stake (1995), cases can be intrinsic or instrumental. I describe my cases as instrumental given that this type of cases provide insight on an issue or can help to refine theory (Stake, 1995). The two case studies were compared to explore and understand how the lockdown affected families who were not vulnerable before the pandemic but during it they partly or totally lost their income and were at a higher risk to become “vulnerable to be food and

nutritionally insecure”, and what were the actions taken by the governments and other organizations to mitigate this. The focus is on how households are on the verge of being food insecure, and how this process could develop further into food insecurity if not addressed on time. So, these two cases are instrumental as they provide insight on the issue of food access and are informed by the theory of the right to food.

According to Yin (1994), case study methodology has five components: the research questions (how and why); propositions (points what to study within the scope of the research); the unit of analysis (what the case is, which can be individuals, or an event, or programmes, etc); the logic linking the data to the propositions (information linked to some theoretical proposition); and the criteria to interpret findings. Table 6 explains these five components for my research.

Table 6 Five case study components for my research

Component	Description
Study’s questions	How and why the first COVID-19 pandemic-related lockdown affected food access and navigating the food environment in households at risk of being vulnerable of experiencing food and nutrition insecurity? How did governments and civil organizations try to compensate the impact of the mitigation strategies on household’s ability to access food?
Propositions	<ul style="list-style-type: none"> - Changes in food-related behaviours during the pandemic. - Changes that impact the four pillars of FNS. - Coping strategies used to compensate income loss (in relation to accessing food) - Government actions/policies that have an impact on the right to food
Unit of analysis	The two cases: Mexico and Scotland Each country has different socio, economic and political contexts which influenced, directly or indirectly, the impact the pandemic and its mitigation strategies had on access to food in these households. Information sources: families who were not vulnerable before the pandemic, but one or more members lost their jobs at the time of the first lockdown; stakeholders who work with food, nutrition, food security, the right to food.
Logic linking data to propositions	Looking for patterns using template thematic analysis using the right to food framework.

Criteria for interpreting the findings	The right to food (with food and nutrition security as a central individual/household outcome (CONEVAL, 2018a)) within an ecological approach (HLPE, 2017) that considers vulnerability and resilience (Peng et al., 2018; Pieters et al., 2013).
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Case study considers the utilisation of different data sources to better understand the case under study (Hyett et al., 2014; Yin, 1994). In my PhD I used the following sources to build and study the cases: a) households that experienced job/income loss during the pandemic; b) stakeholders who work in the government, third sector organizations and academia, and their work is related to food, nutrition, and/or the right to food. Table 7 shows the different data sources of my PhD.

Table 7 General description of data sources and methods for each case (Mexico and Scotland)

Data sources	Method	Information provided
People who lost their job/income during the pandemic	Online photo-elicitation semi-structured interviews	Coping strategies to access food when income decreases, challenges, drivers of changes, main concerns related to accessing food.
Stakeholders working with food and nutrition security	Online semi-structured interviews	Efforts by government and third sector organizations to overcome the impact in food system and access to food, perceptions of efficacy, recommendations for the future
Other studies researching food access in vulnerable population*	Qualitative Evidence Synthesis*	Perceptions, challenges, coping strategies of vulnerable populations to access food. Experiences of navigating the food environment and impact on food access.

*The QES of studies researching access to food in vulnerable populations informed the utilisation of photo-elicitation in the field of food and nutrition security; findings were also used to inform the cross-case analysis.

To get more information about how vulnerable populations access food and navigate food environments, I also conducted the QES to identify and synthesise characteristics that enable or hinder access to healthy and culturally appropriate food (see Chapter 3, page 70). Even though this QES did not have a focus on pandemics or

public health crisis, its findings helped to triangulate information with the data obtained from the sets of interviews. Triangulation can strengthen a deeper understanding of the case being studied and adds to confirmation validity (which is one of the elements that characterise post positivism) (Hyett et al., 2014).

4.5.4 Online (participant-generated) photo-elicitation semi-structured interviews

Visual research methods have been widely used in the social sciences to better understand people's experiences in particular situations (Spencer, 2011), and to explore values and emotions of social relations (Bignante, 2010). Photo-elicitation is a method characterized by the utilization of photographs taken by either the researchers or the participants to guide interviews into the topic that interests the research (Lapenta, 2014; Liebenberg, 2018). In some instances, this can be adapted, and photos or other images (e.g., from the Internet) can be presented for discussion to the participants (Cretin et al., 2017). Photo-elicitation allows getting insight on what is often taken for granted by researchers, and it allows the understanding of the relationship that participants have with the environment. This method is also characterised by its' collaborative nature as it is a process built between participants and researchers. And, final but not less important, it provides a touch of enjoyment and fun to the research process (Dailey et al., 2015; Glaw, Inder, Kable, & Hazelton, 2017; Walker, 2014).

Photo-elicitation interviews have been widely utilised to research food behaviours (Green, Spivak, & Dollahite, 2021), food insecurity (McClain et al., 2019), programmes to improve health and nutrition (Macintyre et al., 2019), amongst others. This method has proved to be useful to research these topics, providing a tool that is accepted by different kinds of participants, including young people, people that can be considered vulnerable, hard-to-reach, or with low literacy levels (Copes et al., 2018). As the qualitative evidence synthesis showed, this method has been successfully used to research people's access to food, providing insights into the challenges people face when struggling with lack of resources, and also illuminating how they cope with food insecurity.

We navigate the physical environment in ways that can improve or hinder our wellbeing. The interaction with the physical world can be better and more clearly understood by researchers if there is a visual way of “seeing” what participants are seeing and living in times of a crisis. Given that the COVID-19 pandemic was a global and radical condition that affected people’s lives in such a short period of time, many subtle changes and nuanced behaviours could be missed if not researching people’s experiences in real time. Thus, it seemed relevant and feasible to utilise photo-elicitation interviews to explore the way people navigated their social and physical environments, and how this determined food-related behaviours within a household amid a pandemic. The qualitative evidence synthesis helped me to make decisions on how I wanted to use photo-elicitation when researching this topic.

Finally, instead of just eliciting information with the photographs, which is one of the ways of conducting photo-elicitation interviews when adopting a constructivist epistemology, I decided to conduct semi-structured interviews following a topic guide, and then have a section to discuss the photographs. As shown in the QES, other researchers have followed this same design, for example Henderson et al. (2017) and Folta et al. (2021). In the latter, researchers developed a topic guide with stakeholders, and had a section of questions related to the photographs, and other questions not related to them, but related to the focus of the study. This approach allowed me to stick to the theoretical framework of the right to food, so I did not miss any of its elements. Besides, I was interested in getting to know the changes people made in their lives around food and knowing how the financial shock affected the way they accessed food and navigated the food environment. I wanted to have this approach to adopt a critical observation of reality that could allow for practical recommendations. This was aligned with my ontological (critical realism) and epistemological (contextualism) assumptions.

4.5.5 Definition of the case studies

Defining the unit of analysis in the case study is one of the fundamental components when using this type of study design (Yin, 1994). For my study, I decided to compare two cases: Mexico and Scotland. The cases focus on how the pandemic

and its mitigation strategies impacted FNS, and how it was experienced and perceived by both, households that became vulnerable and stakeholders. Cases for a study should be appropriate and contain thickness of information (Berry et al., 2015). I chose these two cases because I judged them appropriate to show the difference between countries with different social protection policies, as well as different social, cultural and economic contexts. This allowed the appreciation of the impact that these determinants can have on the vulnerability of households that experience income loss. Recommendations for policy and practice could be drawn from the findings.

Each of the two cases is a single case study. Single case studies can follow three different rationales: to be either a critical, extreme, or a revelatory case (Yin, 1994). For my thesis, I see these cases as revelatory because, as Yin (1994, p. 40) stated “*an investigator has an opportunity to observe and analyse a phenomenon previously inaccessible to scientific investigation*”. In my thesis, the phenomenon is the worldwide COVID-19 pandemic, and its relationship with FNS.

Case studies can also be holistic or embedded. Holistic is when there are no subunits of analysis, whilst embedded means there can be one or more subunits analysed within the case (Yin, 1994). In my study, I initially wanted to have two embedded single studies where I could subdivide between rural and urban areas, however, once I started my recruitment, it became difficult to recruit people from rural areas in Scotland, whilst in Mexico resulted easier. The rationale to look at the differences between urban and rural areas was because usually food accessibility, affordability and related process are different in each of those settings (Cafer & Kaiser, 2016; Jilcott, Laraia, Evenson, & Ammerman, 2009; Wang et al., 2009; Wright Morton, Annette Bitto, Oakland, & Sand, 2007). Having this distinction could provide richer data about the cases. This study therefore compares the Scottish holistic single study, and the Mexican embedded (urban and rural) single study.

4.6 Participant selection and recruitment

Both case studies had two data sources: households and stakeholders' interviews. In the following section I describe how I selected the participants, and the rationale for this.

4.6.1 Households

Households where one or more members lost their jobs, or their income (partially or totally) were recruited. These families were in relative FNS stability (they were not accessing food banks or any other kind of food aid (food or cash)) before the pandemic but losing their jobs / income represented a financial shock. This shock could have had an impact on the way people accessed food and navigated the food environment. This reflects the transition from stability to vulnerability, in terms of food access, as well as the impact of structural determinants on how households face financial shocks in relation to food access. Considering this, I focused on recruiting family members that had an active role in accessing and providing food for their families. I opened the invitation to participate to one or more members of the households, as long as they were older than 18 years and contributed to the provision of food for the household. I chose not to include children or adolescents given that these populations depend on the food provided by their parents or tutors (Birch & Davison, 2001; Birch & Fisher, 1998; Gillespie & Johnson-Askew, 2009). Many researchers have focused on these population and have explored how they navigate the food environment, or how they choose foods within the school, or how they interpret healthy eating at home and at school settings (McKernan et al., 2019; Spencer, McIsaac, Stewart, Brushett, & Kirk, 2019; Wiseman, Harris, & Lee, 2016). In addition to the ethical issues involved when recruiting young people (Duncan, Drew, Hodgson, & Sawyer, 2009; Nairn & Clarke, 2012; Ramos, Truninger, Cardoso, & Augusto, 2022), and the closure of schools during the lockdown (Scottish Government, 2020a; SEGOB, 2020), and their limitations on their activities to access food, the focus on children and adolescents would not have yielded relevant information for the research question of my thesis, hence I chose adults.

I used a purposive sampling to select the households that could be eligible for the online (participant-generated) photo-elicitation interview. Purposive sampling looks for those participants that will provide useful and rich information to help to answer the research question, and they are willing to participate in the research (Etikan, Musa, & Alkassim, 2016; Gill, 2020). I purposively sampled families where one or more members lost their jobs, or lost part of their total income or went into a “furlough” scheme (just applicable in Scotland).

I also wanted to recruit participants from both rural and urban areas. This depended on how they self-identified the place where they lived. Interestingly, in Mexico, this notion of rurality was well perceived by those living in those areas. This means they said they lived in rural areas, and the area was indeed considered rural by the official definition stipulated by INEGI (National Institute of Statistics and Geography) (less than 2500 people in a settlement) (INEGI, 2020b). On the other hand, three people in Scotland referred living in rural areas, but when confirming their locations, they belonged to small urban areas (urban areas have 10 000 plus population – between 3 000 and 10 000 population is considered a small town) rather than rural (settlements of less than 3 000 population), as classified by Scottish Government (2021a). Therefore, I considered the ones from small urban areas as urban, rather than rural.

Recruiting people from officially defined rural areas in Scotland was very complicated because of the pandemic and my lack of connections with people living in this kind of setting. Another eligibility criteria were to have access to a cell phone with a camera, and a computer with access to internet data. I was aware that this could be a potential limitation to recruit participants. However, due to the circumstances at the time, the research had to be conducted mandatorily online. This forced me to stick to online procedures and adapt to the limitations this could bring (McInroy, 2016; Moore, McKee, & McCoughlin, 2015; Newman, Guta, & Black, 2021).

In order to recruit participants, I made an online poster which I disseminated through my social media (e.g., Facebook and Twitter), and through organisations (e.g., in Mexico: PROSOCIEDAD (third sector organization), ITESO (private university),

BANMX (food bank). In Scotland: Nourish Scotland (works with the right to food), food banks, Poverty Alliance, Cyrenians (homelessness charity)). A link to a Participant Information Sheet was added to the poster so people who were interested could read more about the research.

Online recruitment can facilitate recruitment more than using traditional recruitment methods such as fliers, but it requires double checking that those potential participants that show their interest in participating, fulfil the criteria (Anderson & Corneli, 2021). The rationale for using Facebook was because I am a member of some groups of different people living in Scotland and in the UK (e.g., Egg (a group for women in Edinburgh), Neighbours, Edinburgh Pug Mania, and Mexicans living in the UK, Mexicans living in Scotland). This was the only way I could advertise my research and try to get participants. I also got in touch with people I knew in Mexico that could help to disseminate my poster. Emails with a brief description of the project and a poster were sent to a range of organizations that devoted their work to alleviate food poverty or to promote sustainable food systems in both Mexico and Scotland. Once I started recruiting participants, I also used snowballing sampling when I directly asked some potential participants if they knew other people that could fulfil the requirements. Snowball sampling is when participants who have been already recruited can recruit other participants from others they know (Berndt, 2020). When this happened, I made sure participants fulfilled the eligibility criteria. The introductory emails, posters (Appendix 9, page 397), participant information sheet (Appendix 10, page 398), and consent form (Appendix 11, page 400) were written in English and Spanish by me as I fluently speak both languages.

Some of the main challenges I faced when trying to recruit households' participants in Scotland was my lack of contacts within the country. I emailed some of the people from third sector organisations that I managed to meet whilst I was in the first year of my PhD and professors in the area of Nutrition and Public Health from the University of Aberdeen. Also, my supervisors provided me with some contact details of organisations they knew they could help me to recruit participants. Even though I contacted these people, I did not receive a positive response. When people replied to

me, they apologised for not being able to help given the overload of work they had during those times. This totally made sense as many of these organisations were dealing with their own problems of rearranging the way they delivered their services during the pandemic.

4.6.2 Stakeholders

A year after the households' interviews, in 2021, I conducted the online interviews with Stakeholders in Mexico and Scotland. The reason why they were conducted after the households' interviews was because I was interested in knowing their perspective about the impact of the pandemic on the right to food. I had the assumption that time was going to help provide a better perspective about the impact, the changes in the food system and in the population, and the effectiveness of the efforts made by the government and other non-State actors to decrease the negative impact of the pandemic, the lockdown and other social distancing measures. Moreover, I shared some of the preliminary findings of the households' interviews with stakeholders to ask for their perspectives about them. Besides, given the challenges I faced recruiting households' participants through organisations, I envisaged that it was also going to be complicated to recruit stakeholders during the first months of the pandemic, and it was probably better to wait.

The aim of these interviews was to explore the experiences and perceptions of stakeholders from government, academia, and third sector organisations that work with food, food provision, nutrition, and/or the right to food, about the impact of the COVID-19 pandemic in people's ability to enjoy the right to food during this time. Also, their perspectives on how the government and civil organizations tried to compensate the impact of the mitigation strategies on households' FNS. I chose these three types of stakeholders because of the following reasons:

- **Government:** informants from the government could have a systemic view of what the pandemic caused in terms of access to food; they could provide information about the challenges caused by the pandemic, and

the potential solutions to address those challenges in a practical level for the community.

- **Academia:** informants from academia have historical data about issues related with food, nutrition and the right to food, and could provide their perspectives about the impact of the pandemic on food access from a more theoretical and normative point of view.
- **Third sector organizations:** this source of data could provide information from a more local perspective, and closer to the people and the community.

A mixed purposive and snowball sampling was used. Initial contacts were made using supervisors' and student's connections with the local nutrition, health and food departments, third sector organisations, and academia in both countries. My supervisors made some suggestions and introductions for contacts. Once I recruited some participants, in both Mexico and Scotland, I asked them if they knew other people I could talk to. This gave good results, as almost all the participants I asked had someone else to refer.

In order to recruit the stakeholders, I sent a formally written email with a brief description of my project and expressing my interest to talk to them. I added a link to the Participant Information Sheet (Appendix 15, page 406). When I did not receive any response, I sent the email a second time, but if the person did not respond again, then I took it as a refusal to participate.

4.7 Data Collection

Even though I had two sources of data to build the cases in Mexico and Scotland, I used two variations of interviews to collect data with the two groups of participants (households and stakeholders): online (participant-generated) photo-elicitation semi-structured interviews, and online semi-structured interviews (standard method). Interviews provide "*deep, rich, individualized, and contextualized data*" (Ravitch & Carl, 2019, p. 146), which makes them suitable to gather information about

people's and stakeholders' experiences and perspectives on how the pandemic affected access to food. In the following sections I describe the methods I used for each of them, but before that, I briefly describe qualitative e-research or online qualitative research.

Due to the challenges to meet people face-to-face during the pandemic I had to opt for a remote contact with participants. During the COVID-19 pandemic, Information and Communication Technologies (ICTs) took a more prominent and relevant role in research. ICTs is a term used to refer to all different communication technologies (e.g., Internet, cell phones, computers, videoconferencing, social networking) that allow researchers to access, retrieve, store, transmit, and manipulate information in a digital way (FAO, 2022a). The way ICTs can be utilized by researchers varies from analysing data that has been already posted in specific platforms (i.e., extant data); or eliciting data via interviews or focus groups (Hooley, Wellens, & Marriott, 2012; Pink, Ferguson, & Kelly, 2021; Salmons, 2016b).

Qualitative e-research or online qualitative research has been described as an umbrella term for the utilization of different information and communication technologies to explore and understand people's experiences and opinions (Salmons, 2017). One of the most relevant benefits of utilising ICTs to conduct research, is the ability to overcome geographic and temporal boundaries allowing not only the utilization of words but also pictures and media (Salmons, 2017). ICTs can make the research process more convenient for both researchers and participants, reducing the situations that could impact the practicalities of having a direct, face-to-face data collection. These technologies also enable researchers to recruit from a bigger, more diverse pool of potential participants, including populations that can be hard-to-reach (e.g., due to area of residence, decisions to remain private), socially isolated individuals, or people with disabilities (Salmons, 2016a). Besides all the positive aspects that ICTs can bring to qualitative research, they also pose some challenges. For example, the lack of electronic devices in a household (i.e., smartphones, computers) in populations living in poverty, dealing with Internet and mobile data issues, and people not being familiar when utilizing certain digital platforms (Carter, Shih, Williams, Degeling, & Mooney-Somers, 2021; Evans, Elford, & Wiggins, 2008).

In order to conduct my research, I was somehow forced to approach research with online methods. The beginning of the pandemic was full of uncertainty and fear of being exposed to the virus, and to put at risk those who were more vulnerable of getting a severe or fatal disease. Therefore, research in person had to be postponed until further notice. I then chose online methods, considering carefully the benefits, and the challenges previously stated. In the following section I describe the methods chosen for each set of interviews (households and stakeholders).

4.8 Households data

After sending the emails and disseminating the poster in social media, people who were interested, emailed or messaged me expressing their interest. In response to this, I replied asking the participant to indicate appropriate date and time to have a first meeting. The first meeting happened in a video conference using Collaborate (a platform from the University of Edinburgh) or Zoom, and in some cases via telephone. The aims of this first meeting were: i) to make sure future participants fulfilled the eligibility criteria; ii) to introduce the project as well as the guidance for the photographs; iii) to provide further information about the consent form, which was sent electronically; and iv) to help the participant to feel comfortable with both, me (the researcher) and the tool with which the interview would take place.

After finalising the first meeting, I sent a link to the participants with the details for the videoconference for the data collection interview at the time and date chosen. A document with a summary of the instructions and a reminder of the focus of the research was attached to the email, so participants could always refer to it in case they had questions (Appendix 12, page 401). This approach was also employed by some of the papers included in my qualitative evidence synthesis (Henderson et al., 2017; Kamdar et al., 2020; McClain et al., 2019). The guiding topics for the photographs were: food-related behaviours during the pandemic; food environment (“the outside” physical world) and how they saw it and interacted with it; positive or negative feelings related to

food (access, choice, and consumption) during the pandemic; and types and availability of food, preparation, intake, and family interaction.

I decided to give ideas and examples of what people could consider as they reflected on their food-related experiences during the pandemic as I had the assumption that people could be tempted to take only photographs of foods or dishes within their homes. I made an emphasis on my interest in exploring the dynamics of the household and the physical environment outside their homes during the pandemic, and how the implementation of social distancing measures could have had an impact on how people were accessing, preparing and eating food. Also, the dynamics within the family were important as many households' home environment changed (e.g., changes in routines and having more (or less) family members at home). This, as well, could have an impact in food-related experiences and behaviours. In addition, participants could take photographs of any other situation or object that brought up memories, feelings or thoughts regarding their food-related experiences during the pandemic.

Regarding the information related to taking photos per se, I told participants they could use their phones or digital cameras (if they had one); to avoid utilisation of digital filters in the photographs; to avoid including people's faces, and if they did, they had to be sure of having verbal consent of the person(s) in the photo. In addition, I also asked participants to find a quiet and private place in their homes where they could be interviewed. Ethics in visual methods can be different to traditional data collection methods because of issues related to people appearing in photographs, ownership and privacy of the produced photographs (Guillemin & Drew, 2010).

Participants could get in touch with me in case they had questions about the photography-taking activity. Participants had between 7 to 10 days to take the photos, and I asked them to choose five photos they considered were the more meaningful and representative of their food-related experiences. Finally, the participants had to send these photos to me before the interview, so both of us (participant and researcher) could see them at the same time whilst the interview took place. I also reassured the

participants that they could be interviewed even if they did not send any photos or if they sent less or more photos.

4.8.3 Consent from participants

In research, participants have to be informed about the study, its purpose, its procedures, the potential risks (physical and psychological) and benefits. Seeking for participants' consent means that their rights to self-determination, privacy, anonymity, fair treatment and protection from harm are covered during the research (Byrne, 2001).

In the first meeting I asked participants to sign an online consent form if they agreed to participate. The form had information about the project, reassured confidentiality and anonymity of participants, indicated how data was going to be handled, asked for permission for the interview to be recorded, as well as permission to use participants' photographs in my thesis and in future publications. This consent form was available in a link to Qualtrics. Evidence indicates that consent forms in an online format provide the same level of comprehension compared to a written format (Varnhagen et al., 2005). I verbally provided instructions on how to follow and fill the form, and the same information was also written in the Participant Information Sheet. I made sure to check participants had filled out the form correctly before starting the interview.

4.8.4 The photo-elicitation interviews

Interviewing participants allows having access to information that cannot be easily identified or even perceived by observational research. Interviews with participants allow the researcher to get to know their feelings, thoughts, intentions, and meaning-making processes (Patton, 2002). Interviews can be informal, more like a conversation without a guide, or they can be guided by a topic guide that is semi-structured (allowing for exploration of non-expected issues when arise), or structured (when questions and probes are considered with great detail before the interview and does not allow exploration of unexpected topics). The guide of the semi-structured interviews contains the "*same basic lines of inquiry*" that will be asked to every participant in the project, leaving room for probes to elicit more information about a

particular issue (Patton, 2002, p. 343). As Patton (2002) stated, the three types of interviews are not mutually exclusive, they can be somehow mixed. In my project, I took a more conversational style to my semi-structured interviews with households' members.

Hence, for my project, in order to conduct the interviews, I developed a topic guide that took elements of the theoretical framework of the right to adequate food, focusing on issues related with food and nutrition security (accessibility, availability, quality and stability of access) (Appendix 13, page 402). I piloted the interview with a colleague from the research centre where I was based, the Scottish Collaboration for Public Health Research and Policy (SCPHRP) to analyse the understanding of the questions, the logic of the way they were organized, and to measure the time it roughly took to conduct it. After receiving some comments from my colleagues and my supervisors, I made some amendments to the topic guide. This topic guide had a final section where I asked questions regarding the photographs, and I followed the SHOWeD method, commonly used in Photovoice interviews, and suggested by Wang and Burris (1997). This guide helps to discuss the problem or situation, looking for its causes, and helps to suggest solutions to it (Liebenberg, 2018). The original questions of the SHOWeD guide are the following:

- What do you see here?
- What is really happening here?
- How does this relate to our lives?
- Why does this concern, situation, or strength exist?
- How can we become empowered through our new understanding?
- And what can we do?

I modified the questions to make it more appropriate to my study. The SHOWeD method is used in photovoice, which is a type of participatory action research methodology (see page 70). The questions are oriented to identify problems in a particular context, identify their causes, and promote solutions. Using photo-elicitation meant not having this type of participatory methodology, hence the need to change the

guide questions by removing the questions that sought solutions to the context. The aim of my study was not to provide solutions to a problem, but to explore FNS during a worldwide pandemic. Other authors have modified the questions in order to make them more suitable to answer their research questions (Castleden & Garvin, 2008; Sosa Hernández, 2012). In the QES, some of the included papers did this as well (Galvez-Espinoza et al., 2018; McClain et al., 2019; Rodríguez-Ramírez et al., 2021; Vizcarra et al., 2019). The final set of questions were:

- What do you see here?
- What is really happening here?
- How does this relate to the current situation of the COVID-19 pandemic?
- Why does this concern or situation exist?

Data collection was conducted using synchronous methods (e.g., interview using a video conference software/app) (Salmons, 2016b) between May and June 2020. Overall, interviews were conducted without major issues. However, sometimes, with some participants I had problems with the Internet connection, but these problems were eventually sorted. Mexican participants were interviewed in Spanish, and those who spoke in English were interviewed in English. Interviews were audio and video recorded using the recording feature of the digital platform that was used for each participant. In a couple of interviews, participants didn't know how to use, or didn't have enough internet data to run the videoconference software and preferred having the interview via WhatsApp. When this happened, I had my phone in speakers whilst recording the interview in Zoom.

4.9 Stakeholders' data

4.9.1 Method

With stakeholders, I decided to also use semi-structured interviews. Following what was mentioned about the non-mutually-exclusivity feature of the three types of interviews stated by Patton (2002), I took a more structured orientation to these

interviews, given the limitations in time when talking with this type of participants. Doing interviews with stakeholders had some challenges, such as considering that these informants might have had restrictions on the time they could allocate to the interview due to their busy schedules. Having this in mind, I told interested informants that the interview could last between 20 to 40 minutes depending on their availability of time. I had a topic guide that was built based on concepts around the right to food (Appendix 17, page 410). Some of the questions had to be adapted according to the type of participant and their field of work or role. Considering that time could finish before being able to cover the whole topic guide, I wrote the questions in a hierarchical order, to keep those that were more relevant to answer the research questions.

In the invitation to the interview, participants were also offered the possibility of sharing photos that could represent their thoughts and/or experiences. This was only presented as an option knowing that people in this kind of jobs are usually busy and having to do an activity besides the interview could be a deterrent for their participation. In the end, just two people shared photographs with me (one person in Scotland working in a third sector organisation, and one person in Mexico working in a food bank).

4.9.2 Scheduling and location of the interviews

After sending the first email to the key informants, those who were interested got back to me via email, and they specified their availability of time for the interview. Once they replied to the email, I sent them a link with the consent form, which had to be completed before the interview (Appendix 16, page 409).

4.9.3 The interviews

Interviews were conducted either on Zoom or Teams. In some cases, especially with people from the government, Teams was used, and they were the ones sending the video call invitation to me, instead of me sending it to them. The reason provided was that they preferred to be the ones hosting the interviews within their own institutional ways of communicating during the pandemic.

4.10 Ethical approval

Ethical practice in social research should be at all times ensured. An ethical approach to research considers consent, issues of power, trust and confidentiality, potential risks to researchers, and potential risks to participants, embracing dignity and respect, as well as justice and aims to protect participants (Pittaway, Bartolomei, & Hugman, 2010). Online qualitative research requires a few extra considerations to ensure ethical procedures. For example, changing signed (by hand) consent forms for electronic filled ones; a false feeling of security and privacy when doing remote research; digital data protection issues; and challenges related with disparities in digital literacy, owning computers/mobiles and having access to the internet (Newman et al., 2021). Taking into consideration all these issues, I followed the appropriate guidance to ensure my research was conducted ethically at all times. In order to get ethics approval for my studies, I followed the University of Edinburgh's Ethics in Research Guidelines.

4.10.1 Households' interviews

For my online photo-elicitation semi-structured interviews I got approval from the University (Appendix 14, page 405). This project abided by the General Data Protection Regulation (GDPR) and the Data Protection Act 2018 (DPA). I asked for an amendment when some of the participants could not have the interviews via Zoom, and had to be done in WhatsApp.

Regarding the ethical concerns of online semi-structured photo-elicitation interviews, the risks associated with participation were low, but it was possible that participants could feel emotional or even distressed while talking about their experiences around food access during the COVID-19 pandemic. If any case of distress happened during the interview, I planned to respond with my listening skills to ease the discomfort and distress of the participant. I let the participants know that they could ask for a break at any time or even withdraw from the research. I also provided participants with relevant organizations if they wished to seek further help with accessing food (in Scotland, for food banks in Edinburgh: <https://www.edinburgh.gov.uk/cost-living/food-bank-information>; in Glasgow: <https://www.billhelp.uk/glasgow-emergency-food-banks/>;

in Galashiels: <https://galashielsfoodbank.co.uk/>; in Kelso: <https://www.standrewskelso.co.uk/latest-news/kelso-food-bank/>; in Mexico: <https://bamx.org.mx/>). None of the participants mentioned feeling distressed during the interviews, or asked for information of places of where to access food.

I developed a Participant Information Sheet in English and Spanish, stating that the University of Edinburgh was the data controller. It stated the following: potential risks to the participants and how to limit them, consent to participate and to record the interview, the legal basis for undertaking the study, my contact details and the organization's Data Protection Officer, details on how people could exercise their rights, and assurance that the data was going to be held securely.

In order to ensure quality and integrity of the project I did the following:

- Ensured language was inclusive.
- Ensured that the experiences of participants were heard and portrayed accurately.
- Thought about the potential unintended consequences such as raising feelings of frustration due to the nature of the situation.
- Considered that people might feel compelled to take pictures that would “ideally” match with the normative expectations. That is why I tried to be very clear about the aim of the study, and I encouraged them to feel there were no right or wrong photographs, and art/quality of photos was not being assessed.
- Took into consideration that during the interviews with more than one family member conflicts could arise between participants.

Regarding the photographs, I:

- Emphasized that when the participant took photographs where other people appeared, they needed to ask for verbal consent; however, I encouraged participants to try to limit the photos with other people (especially when faces were visible).
- Ensured that photographs were going to be anonymised.

- Told participants they could decide not to share pictures if they were not comfortable with them.

In order to avoid any harm of the participants and researcher, I:

- Reminded participants about the aim of the project, and told them to feel free of asking questions;
- Reminded them that they could leave the study whenever they wanted, if they changed their mind;
- Ensured that the place where the interviews took place allowed privacy.

Finally, regarding the research data, it was saved in a password-protected computer, in my One Drive university account. Raw data was only accessible to me for the period of PhD programme as stated in the University of Edinburgh data protection policy.

4.10.2 Stakeholders' interviews

Applying for ethics for the stakeholders' interviews was straightforward as they did not represent any risk of harm (e.g., like emotional distress) to the participants. Ethics application for these interviews was submitted and I received approval from the university the 8th of March 2021 (Appendix 18, page 413).

Regarding ethical issues with these participants, the main one was the anonymity of the participants given that the sample was quite small (8 in Mexico, 7 in Scotland), and those, for example, active in politics could be easily identified by colleagues or the public, therefore they were told that this could happen. To avoid this, I assured participants that findings were presented in themes, and quotes were anonymised to remove names/places or any identifiable information, so the risk of identification could be minimised.

4.11 Consolidating data

Doing this PhD has been my first approach to qualitative research. This lack of experience was not only reflected in my lack of knowledge regarding basic issues about qualitative research, but also in not foreseeing the great amount of data I was generating. In addition to the amount of data, there was the issue of estimating the time that would be required to organise and analyse it. On several occasions I underestimated how long every step was going to take.

At the same time of collecting data, I started to organize the files I was generating in folders, in my secure student OneDrive (cloud data storage system). In separate folders for Mexico and Scotland, I had folders for each participant where I saved their recordings, photographs (in the case of the photo-elicitation interviews), and the transcript. The transcriptions were done by myself, given that I did not have funds to pay for professional transcribers. However, doing this, even though it was lengthy, gave me the opportunity to be very close and familiar with the data. This also contributed to the first step of familiarisation with data analysis proposed by thematic analysis proponents (Braun & Clarke, 2014, 2022; Brooks & King, 2014). Also, I took notes about my impressions, or things I found interesting during the interview, after I finished talking with each participant. The file with the notes was also saved in the participant's folder.

Once I finished collecting data (June 2020 and April 2021) and transcribing the interviews, I uploaded the transcripts and photographs (from the households' interviews) to NVivo 12 Software to start the analysis process in a more organised way. Even though I found NVivo to be helpful, I started to feel that I needed to see the information in a different format, therefore, after finishing the first cycle of coding (more about this in further section about data analysis), I moved to Word to continue with the analysis. Having my files in Word, organized by codes, made it easier to use different colours to identify patterns, and get even more familiar with the content of the interviews. Figure 4 shows the way data was consolidated. In the next section I describe the analysis process in detail.



Figure 4 Consolidating the data

4.12 Data analysis

4.12.1 Case studies analysis

Analysis in case study research design is not widely described. In addition to the most commonly known proponents of case study research design (Stake, 1995; Yin, 1994), few other authors have proposed detailed frameworks to conduct qualitative analysis of case studies. Yin (1994), for example, proposed three analytic strategies for case studies: 1) relying on theoretical propositions; 2) thinking about rival explanations and, 3) developing a case description. The author also stated that there are five techniques to achieve these strategies: pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis (Kohlbacher, 2006; Yin, 1994).

In qualitative analysis is important to consider what the data from one participant reflects in its individual nature, but also if it is applicable throughout the other data from other participants. What is relevant at the individual level, starts to become a sign for the researcher to be aware in following accounts. When this happens, themes can start to be developed, and can be thought as being applicable outside the researched sample (Ayres, Kavanaugh, & Knafel, 2003). This is applicable to case study analysis when considering looking for data patterns. Besides the analysis of single cases, there are also studies, like mine, where more than one case is compared. Comparison of case studies requires two types of analysis, one that focuses on the analysis of each case, also known as “within-case analysis”, and one that considers the comparison of similarities and differences between cases, which is known as “cross-case analysis” (Houghton, Murphy, Shaw, & Casey, 2015).

Looking at different references, I found some examples of how other researchers have analysed their data when conducting case study research. For example, Houghton et al. (2015), in their multiple case study to explore the role of clinical skills laboratory in nursing students' preparation for practice, the stages of analysis by Moore et al. (2015) were combined with the content analysis steps by Miles and Huberman (1994). Kohlbacher (2006) also discusses the utilization of qualitative content analysis in case study research. Ayres et al. (2003) presents three studies of different authors where different strategies are used to conduct within- and across- case analysis. Their examples include a phenomenological study of parents' experience of the death of an infant, a narrative analysis of the meanings family caregivers made of their situations, and a concept analysis of Family Management Style when families have a child with a chronic illness. These differences in approaches show the capacity that case study research design has to use different analytical strategies depending on the purpose of the study, and if it is a single case study or a multiple case study.

This adaptability matches with my pragmatic interpretive framework, being also appropriate considering my epistemology (contextualism), and ontology (critical realism). For my PhD, given that I compared two case studies, I conducted within-case and cross-case analysis. In my study, I analysed each of the interviews, of each country. Then within each interview, I identified significant statements. Within the set of interviews of each country I compared significant statements and developed themes and subthemes. I also performed a critical reflection comparing the themes and subthemes that were developed in each of the set of interviews of both countries, which consisted in an analysis across all cases. More detailed information about data analysis is provided in the following sections.

Given that I was analysing interview and image data, I opted for template thematic analysis to conduct within-case analysis in each of the different sets of interviews (households and stakeholders). Themes that are originated from decontextualizing and recontextualizing data help to explore relationships between meanings. Taking data out from its individual context is inevitable when exploring patterns of meaning throughout a dataset (Ayres et al., 2003). In my studies I aimed to

find patterns in each of the set of interviews, for both country cases. However, the political, social and economic characteristics of each of the countries allowed the understanding of themes within a national and systemic context. Doing this, allowed the construction of each of the cases within their national contexts – achieving within-case analysis - and also allowed the comparison between the two cases – achieving cross-case analysis. As one of the examples that is presented in Ayres et al. (2003, p. 879) paper, *“themes and subthemes identified became meaningful only when seen in the context of all of the themes as they were reflected across individuals and families”*. Finally, for the case in Mexico, where rural and urban cases were embedded, there was a differentiation in themes that were associated only to the rural setting.

Performing these two types of analysis, within cases and across cases, allowed a deeper insight to understand how access to healthy food was lived during the first lockdown in both Mexico and Scotland, in separate accounts. But also, the comparison of the two cases, allowed seeing how the contextual differences in each country had a different impact on how access to food was lived in both countries.

In order to make sense of the themes that were developed, it is important, in the opinion of some authors such as Ayres et al. (2003), to reintegrate the themes in a way that they work together in a case. This is called an idiographic generalization, which is developed with within-case and across-case analyses of data. My PhD achieved to provide information about the particular cases of Mexico and Scotland, and then to make sense of each of the themes within the context of each of the countries, highlighting the role that socio, cultural, economic and political system have on how people experienced a public health crisis in relation to their vulnerability to food and nutrition insecurity.

Finally, as it has been previously described, case study design is informed by data coming from different sources (Houghton et al., 2015; Kohlbacher, 2006; Stake, 1995; Yin, 1994). Another characteristic of this research design is the connection with findings from other studies, to triangulate data, strengthening the rigour of the design. In my PhD, conducting the QES, contributed to informing how to use photo-elicitation

interviews, but also provided a summary of findings related to access to food in vulnerable populations. These findings are discussed in light of the findings of each of the two case studies in my PhD. The across-case analysis, between Mexico and Scotland, is achieved through a comparison of the different themes that were developed for each case in the different realms of household and stakeholder's perspectives. The results of this analysis are shown in the discussion chapter. In the next section I give a rationale for the utilisation of thematic analysis.

4.12.2 Deciding on a method for analysing the data

I used thematic analysis for each of the three studies I conducted (household online photo-elicitation semi-structured interviews, stakeholder semi-structured interviews, and qualitative evidence synthesis), but each required a slightly different approach. Thematic analysis (TA) is a theoretically flexible method that allows searching for patterns of meaning across data sets (Braun & Clarke, 2006). Thematic analysis is not bounded to any theory, or epistemological assumption, which makes it flexible and easy to adapt to what the researcher is aiming to explore. This theoretical flexibility is a positive aspect of the method, but requires that every decision around the method, and the theoretical positions adopted are made clear by the researcher (Braun & Clarke, 2006, 2022). Therefore, I explain why I have chosen TA, how I conducted analysis, and how it fits my ontology, epistemology, and research questions.

As I mentioned previously in this chapter my epistemology is “contextualism” and thematic analysis can be a “contextualist method, sitting between the two poles of essentialism and constructionism, and characterized by theories, such as critical realism” (Braun & Clarke, 2006, p. 81). This means that using this analysis method is compatible with the way that I believe knowledge is produced and allows the utilisation of the theory of the right to food as a guiding framework for design and analysis of my research (see page 49).

4.12.3 Which Thematic Analysis approach to use?

Thematic analysis (TA) can have different approaches, and these can be divided into three main types located in a continuum that goes from a post-positivist stance to a

more interpretivist one (Braun & Clarke, 2022). The three types are: coding reliability approaches, reflexive approaches, and codebook approaches. The difference between these approaches resides in the way themes are created, how the coding process is approached, and overall, the integration of techniques and research values (Braun & Clarke, 2022). Whilst coding reliability approaches can be identified as a “small q” qualitative as it is aligned with (post) positivist research values (there is an active intention of avoiding bias and subjectivity); reflexive TA is known as “Big Q” qualitative, as data collection methods, as well as analysis are ruled by qualitative research values, reflexivity is valued through the whole analysis process (Braun & Clarke, 2021).

The third type of TA approaches is the “codebook TA approach”. This approach is characterised by a combination of some of the features of the coding reliability approaches (when using a codebook), and some features of reflexive TA (for example, themes are “created” based on an interpretation of the codes assigned by the researcher). These approaches allow for the combination of a more “*structured approach to coding, early theme development, and the conceptualisation of themes as topic summaries characteristic of coding reliability TA*” (Braun & Clarke, 2021, p. 242). In addition, the codes, which reflect both the values and beliefs of the researcher and the theory used in the codebook, are analysed and interpreted to conceptualize themes (Braun & Clarke, 2021).

4.12.4 Differences between reflexive thematic analysis, and codebook approaches to thematic analysis

I argue it is important to include a brief description of the differences between reflexive thematic analysis, coding reliability TA, and codebook TA approaches. This need arises from the current extensive utilization of reflexive thematic analysis in research, and how their authors, Virginia Clarke and Victoria Braun, have made the effort of differentiating their approach from the others with the purpose of improving the utilization of thematic analysis in research. In addition to the main differences that I have already explained, there are important elements that have to be understood and defined appropriately when choosing any TA approach. The concepts of codes and themes, as

well as the process to achieve them are different between the three types of thematic analysis.

Starting with coding, for reflexive TA, codes are analytic outputs, whilst for the other two types of approaches, codes are considered a process to theme identification (Braun & Clarke, 2022). Then, themes are also conceptualized as analytic outputs in reflexive TA. Themes are seen as *“patterns of meaning that are underpinned and unified by a central idea”* (Braun & Clarke, 2022, p. 229). They have different features such as being entirely developed by the researcher, explaining a high amount of data and been built from smaller units, and capturing the essence of meaning (Braun & Clarke, 2022). On the other hand, in codebook approaches, themes can be understood as what Clarke and Braun call *“topic summaries”*. This means that themes will contain information for a particular topic that has been researched, which means that themes can even be foreseen before the coding starts (Braun & Clarke, 2022).

A final difference is the conceptualization of the process to get themes in TA. In reflexive TA, data is coded in order to explore meanings, then themes are actively developed and refined by the researcher. On the other hand, for the other two types of approaches, themes are thought before coding starts, and then coding can be seen as a way to identify themes within the dataset (Braun & Clarke, 2022). However, themes are not only aggregating data, but they can also be actively developed by the researchers in the codebook approaches. The next section explains more about this type of TA. Table 8 shows what reflexive TA, coding reliability and codebook TA has to offer as well as what can go wrong.

Table 8 Differences between thematic analysis approach, by Braun and Clarke (2022, p. 248)

Approach	Reflexive (Braun & Clarke, 2006)	Coding reliability (Boyatzis, 1998)	Codebook (Template analysis, N. King 2012)
What they offer	Theoretical flexibility (but Big Q). Potential for analysis from inductive to deductive. Works well from	Theoretical flexibility (but small q). Potential for analysis from inductive to deductive (but fully inductive,	Theoretical flexibility. Can be used inductively or deductively, but typically occupies a middle-ground between

	<p>experiential to critical approaches. Open and iterative analytic process, but with clear guidelines. Development of analytic concepts from codes to themes. Easy to learn but requires a “qualitative mindset” and researcher reflexivity. Works especially well for single researcher; can be used with a research team. Works with wide range of datasets and participant group sizes.</p>	<p>rare). Focused on experiential approaches. A highly structure analytic approach, which might seem reassuring to new qualitative researchers. Potential to “speak within” the language of post positivist quantitative research. Potential for “hypothesis testing” (deductive TA). Requires research team for reliability.</p>	<p>these. Particularly suited for experiential approaches but can be used critically. Structured and systematised, but flexible, techniques for data analysis can be helpful for new qualitative researchers. Structured process offers some efficiency in analysis. Useful for exploring perspectives of different groups. Can be used by single researchers or teams. Fairly easy to learn. Works well with larger datasets.</p>
<p>What can go wrong?</p>	<p>Failure to discuss theory to locate the use of the method. Analysis not grounded in qualitative values, or in broader theoretical constructs. Failure to explicate the particular way(s) the method has been used. Use of topic summaries instead of themes. A too fragmented and particularised analysis, presenting many themes and a complex thematic structure without depth of interpretation. Absence of interpretations, simply descriptive summaries.</p>	<p>Failure to discuss (big) theory or conceptual frameworks for the analysis. Inconsistency of judgement in coding data. “Bias” from the researcher affecting the coding and identification of themes. No data interpretation; simply descriptive summaries.</p>	<p>Failure to discuss theoretical or methodological orientation. Codebook (the template) treated as purpose of analysis; lack of development of themes during data engagement. Overemphasis on (hierarchical) thematic structure at the expense of depth of meaning. No data interpretation; simply descriptive summaries.</p>

4.12.5 Codebook Thematic Analysis approaches

The overall descriptive nature of themes in coding reliability and codebook approaches can be seen as a limitation to analysis, given that it can lack depth and complexity. However, this kind of analysis is frequently conducted in applied research and in “*disciplines and fields without a strong tradition of qualitative research*” (Braun & Clarke, 2022, p. 230). I would say that nutrition, public health, and even human rights research are fields that utilise approaches that allow a more pragmatic point of view, as usually the main goal is to provide recommendations for practice and even changes in the public policy arena. Given that my research sits in these fields, I consider that opting for codebook approaches to TA is a suitable option to conduct data analysis.

All my research falls in the qualitative paradigm, but it has the ultimate pragmatic goal of providing findings that could strengthen the theory of the right to food, as well as the practices to achieve it at both, household and community level, and public policy. This pragmatic approach requires an analytic method that considers a fixed starting point – right to food theory – and allows for the contextualization of findings to be able to translate them into practice. This is why using a codebook approach to thematic analysis is more suitable than using reflexive TA or coding reliability approaches. I am not using reflexive TA because I am not interested in the subjectivity of the experience of the participants in a way that creates meaning around their lived experience, rather the impact the pandemic had in their livelihoods and the different elements of FNS. This aim discards the openness of interpretivism that reflexive thematic analysis offers. On the other hand, aligned to my philosophical assumptions, I believe reality is one, but it is experienced differently by all of us and depends on the context, as well as I am aware that researchers have an important role in the way data is interpreted. Based on these assumptions, I can't go for the coding reliability approaches, which rely more in the post-positivist stance to research, aiming to achieve objectivity and avoiding researcher bias. Hence, I have chosen the codebook approaches.

There are some codebook approaches, but the most known are template analysis and framework analysis. Template and framework analysis are very similar in

their core. Template analysis was firstly developed by Nigel King in 1988, who is an applied psychologist at the University of Huddersfield. Framework analysis was developed by Jane Ritchie and Liz Spencer with the aim of using it for applied policy research (Braun & Clarke, 2022). Table 9 describe the characteristics of codebook approaches.

Table 9 Characteristics of codebook approaches, taken from Braun and Clarke (2022, p. 236)

Features	Approach: codebook (Template analysis: N. King, 2012)
Big Theory	A technique (method) not a methodology. Theoretically flexible or independent – realist, critical realist (phenomenology), constructionist (broad patterns of discourse only).
What is a theme?	Recurrent features of data relevant to the research question. Themes reflect data topics (e.g., intergenerational issues), rather than storied, conceptual patterns. Themes created by the researcher, not discovered.
What is a code/coding?	Coding is a process to identify evidence for patterns (themes). Codes (analytic tools) are labels applied to data to identify it as an instance of a theme. Codes can be descriptive and interpretative. Codes and themes are organised hierarchically, and sometimes laterally, into a layered template that guides coding for theme identification.
Analytic orientation	A middle-ground: can be used inductively, but mainly deductive(ish), with a priori themes tentative, and can be redefined or discarded.
Analytic process	Some a priori themes developed first from interview guide/literature; coding to evidence these and other themes; themes and codes refined after some initial coding; development and refinement of template; coding guided by template for final theme development. Themes as analytic “inputs” – but they can also evolve and new ones can be developed, so can also be “outputs”.
Researcher subjectivity	Acknowledged and accepted. Reflexivity encouraged.
Quality	Participant feedback. Audit trails. Multiple researchers code and compare. Measures of inter-coder reliability not recommended.

In accordance with the aim of my research, and my research questions, a “codebook approach” was better suited to integrate the elements of the right to food (with FNS at its core) when analysing the households and stakeholders’ interviews. I decided to use template analysis for the analysis of both the households and stakeholder’s interviews. In the next section I describe template thematic analysis.

4.12.6 Template thematic analysis

Template analysis is a type of codebook approach to thematic analysis. Same as all the other types of thematic analysis, it has theoretical flexibility, which allows for the integration of different philosophical assumptions, making it more a technique than a methodology (King, 2012). Usually, this approach to thematic analysis has been used for realist and critical approaches, as well as for some constructionist approaches, especially when they concentrate in broader discursive patterns (Braun & Clarke, 2022, p. 242; Brooks & King, 2014). As it was described before, this approach combines some elements of post-positivism (the more structured analysis using a codebook/template), and big-Q research (like theme development, interpretation of data, and no interest in the concept of “bias”. On the contrary it values reflexivity and the position of the researcher towards the study) (Braun & Clarke, 2022).

Building the template (also known as codebook) is one of the main characteristics of the analytic process, but it should be considered a tool for analysis rather than the purpose of analysis. *“The template offers a way of hierarchically mapping patterned meaning, and moving from broader to more precise meaning”* (Braun & Clarke, 2022, p. 243). The thematic structure is refined when the template is applied to the whole dataset, and it can be refined once again if needed (Brooks & King, 2014; King, 2012).

This approach is usually conducted with a combination of deductive and inductive processes. A-priori codes can be thought and developed before going through the transcripts; these codes would be taken from concepts of the underlying chosen theory. After applying them to a few transcripts, then this codebook can be refined to have the final template. In template analysis, codes can be descriptive and interpretative, and they can be used to identify themes in the dataset (King, 2012).

Themes are defined, in qualitative research, as data or information that is repeated across accounts, and that is relevant to the research question (Braun & Clarke, 2014; King, 2012; Patton, 2002). The author of this approach has mentioned that themes are not to be found in the data, but rather are meant to be developed by the

researcher, and not objective facts linked to the researcher’s believes (hence, the importance of reflexivity) (King, 2012). Themes in this approach are located somewhere in *between “analytic inputs to analytic outputs”* (Braun & Clarke, 2022, p. 244). It has been reported that having themes considered before going through the dataset could limit the deep analysis of the data. To avoid this, it is important to be aware of the constant refinement of themes, as well as the active role of the researcher interpreting the data (King, 2012). In the next section I mention how I followed the approach to provide a rich and nuanced analysis of the interviews.

4.12.7 Steps to conduct template thematic analysis

To conduct template thematic analysis, it is necessary to follow six steps: 1) familiarization with the raw data (getting familiar with the data that is going to be analysed by reading all the transcripts); 2) data coding (preliminary coding of the data, locating data that brings your attention; a priori themes can be used before coding); 3) formulating the coding template (an organised template is created and it should represent relationships between themes or codes); 4) applying the template (apply the template, modify it if necessary when new codes arise or delete those that are not relevant anymore); 5) adapting the template to the data (adapting the template can happen many times until it achieves a comprehensive representation of data interpretation); and, 6) the final template (it will guide final data interpretation, and can help with the structure of the final reporting of findings) (Brooks & King, 2014).

I followed the same steps for the two sets of interviews (households and stakeholders) in both countries. In Table 10, I briefly describe how I followed each of the six steps for template thematic analysis.

Table 10 Description of the six steps for template TA in my research

Steps	Description of the process in my interviews’ analysis
Familiarizing with raw data	I listened to the recordings once before I started transcribing the interviews verbatim. Doing this allowed me to be more familiar with the data I gathered. I also read the notes that I took during the interviews, and whilst doing the transcriptions.
Data coding	I generated a codebook based on the dimensions of the right to food. Doing this is aligned with the type of analysis I decided to

	follow, which allowed reading literature before starting data collection. I then started coding extracts of the transcripts in NVivo 12.
Formulating the coding template	Whilst doing the first round of coding, whenever I saw data that did not exactly fit in my codebook, I created a new code. After doing this I reflected on those codes, and merged them with other existing codes, left them, or got rid of them.
Applying the template	I revised the template and revised the transcript with the final template. After I finished coding all the transcripts in NVivo 12, I started to analyse and collate the extracts of each code.
Adapting the template to the data	After collating all the codes, I started organising different codes into categories, which at the same time were organised into potential themes. I explored codes and categories to consider how they could combine to form themes and subthemes.
The final template	I then had a template containing the different themes and subthemes in each set of interviews. This was used to interpret the findings, and also to guide the reporting of the findings.

In the next section I describe with more detail how I conducted analysis in both set of interviews. The analysis (and findings) of the qualitative evidence synthesis is presented in Chapter 3 (page 70).

4.12.8 Conducting data analysis in households’ and stakeholders’ interviews

Template thematic analysis has been advocated for the utilization in applied research, where actionable recommendations are sought (Braun & Clarke, 2022). My research aims to contribute to the understanding of the right to food amid a public health crisis, and to generate recommendations to decrease vulnerability to food and nutrition insecurity. Also, recommendations that could strengthen the resilience (in terms of FNS) of the community and households when crisis arise. Having this objective, the data I looked for was a combination of the experience of people during the pandemic, and the perception of food and nutrition-related stakeholders regarding the characteristics of the food, social and economic system in Mexico and Scotland, as well as what worked and what did not work during the COVID-19 pandemic. Applied research is the underlying objective of my thesis. Hence, template TA analysis seemed a suitable approach to analyse my data. Besides, thematic analysis can provide rich information to facilitate the comparison of findings between the two case studies in Mexico and Scotland.

As I explained before, I used template thematic analysis to analyse my interviews. I designed a codebook based on core concepts of food and nutrition security, as well as the right to food (in which FNS sits at its core). The beginning of the analysis in both sets of interviews (households and stakeholders) was slightly different. With the households' interviews, I started coding the transcripts deductively. This means that the analysis was "theoretical thematic", and it was driven by a theory and my analytic interests (Braun & Clarke, 2006). This type of analysis is different from the inductive one, which is based on the data itself, and it is also known as bottom-up analysis (Braun & Clarke, 2006; King, 2012). Even though the main orientation I took towards analysis was deductive, I was also open to unexpected findings, and I kept my analysis open to new codes that were based on the data itself. Therefore, I had a combination of deductive and inductive analysis.

In the stakeholders' interviews, I started coding having in mind some of the codes in the template used for the households' interviews, but my approach was initially inductive. Inevitably, some of the initial codes coincided with the ones found in the households' template, but different codes arose in the stakeholders' interviews from the beginning due to the differences in the field work of each of the participants. I also started making a draft list of interesting topics in a preliminary "coding list". This preliminary list was informed by the information I was reading and some of the key concepts that were utilized when elaborating the interview guide. I then had a preliminary codebook (template), with codes that were rather descriptive. I did not use more high-level analytic codes to avoid distraction and losing important details. Then, I kept coding the rest of the transcripts in NVivo 12 following the refined codebook.

For both sets of interviews, as presented by King (2012), I used a priori codes (these are included in the initial codebook when following a theoretical framework in advance); hierarchical coding (when grouping similar codes to produce higher order codes, allowing to have different levels -subthemes-); parallel coding (when coding some data with two or more codes); and integrative themes (when some themes cut transversally across other themes).

After the initial coding in both sets of interviews, I developed themes at a semantic (or explicit) level, predominantly. This means that after organising the data and finding patterns within the data sets, I tried to interpret what was found and theorize the “*significance of the patterns and their broader meanings and implications*” (Patton, 1990). This level is different from the latent level, in which researchers try to go beyond and try to explore underlying ideas, assumptions, ideologies “*that are theorized as shaping or informing the semantic content of the data*” (Braun & Clarke, 2006, p. 84). I made an effort to have themes that could be seen as analytic outputs where patterns and relationships were reflected (Braun & Clarke, 2022).

When developing the template, I did not consider some themes more important than others, but I did follow the volume of repetition of patterns by participants to decide which themes were more important. Template analysis works with a template aiming to organize codes and themes in a hierarchical way. During the whole analysis process, I was fully aware of which patterns of data were more prevalent than others. However, whenever I found contradictory arguments or special circumstances that did not follow the pattern (and I considered them relevant for the aim of my research) I included them in the analysis.

Templates in template thematic analysis can be reported as mind maps or as lists with levels, using changes in size of fonts or typography (King, 2012). I chose to present the template in form of a list. Also, the way I presented subthemes was in order to provide different angles to each of the main dimensions of FNS (and the right to food). Themes were developed when patterns of information were repeated in different interviews, or when it was repeated several times in the interview of just one participant and it was relevant to the research question. The intention of the themes' template was to provide a more comprehensive understanding of the complexity of each dimension of the right to food during a pandemic. Braun and Clarke (2022) have mentioned that the presentation of many different levels of themes can be an obstacle for a richer understanding of data, and that is more aligned with a quantitative approach to research. However, for King (2012), this is the way to understand and show the richness of data. Apparently, the method is very well suited to allow for a deep and

interpretive analysis of data, but problems could arise when qualitative values of research are not entirely understood and applied (Braun & Clarke, 2022). Knowing this, I was always careful of not mechanising the way I was conducting the analysis to allow a deep and nuanced analysis of my data.

The themes in my findings have subthemes and categories, which are visually represented in a list template to have a clearer understanding of their relationships. The whole templates for each of the set of interviews is shown the appendices section (pages 414, 418, 419, 422).

4.12.9 Analysis of the photographs in the online photo-elicitation semi-structured households' interviews

The final section of this chapter is the description of how I analysed the visual data generated in the online photo-elicitation semi-structured interviews. As it was previously described, participants in the households' interviews were asked to take photographs that reflected their experience around accessing food during the pandemic. Participants sent to me the photographs they considered more representative of their experience. Once we had the interviews they made references to them throughout the interviews, but then at the end of each interview I asked some questions that only focused on each of their photographs. The narrated accounts were included in the interview transcripts and were analysed as part of the interview, following template thematic analysis. The main use of the photographs in my study was instrumental or descriptive, where participants showed their experiences in a visual and descriptive way. In a few cases, photographs were presented as an abstract way to present participant's feelings or emotions. I included some photographs in the finding's chapters when they (the photographs) illustrated the content of a theme or subtheme.

4.12.10 Comparing Mexico and Scotland

I am comparing two case studies, which requires an extra analysis step where I compare the findings from each of the cases. After analysing each case (built from the households and stakeholders' interviews, and data about the context of the country), I compared the themes developed for both households and stakeholders in each of the

countries. Themes were compared, and results understood and interpreted from an ecological perspective, aiming to understand how contextual factors had a repercussion on the impact of the pandemic and its measures on FNS. This ecological view takes also into consideration the role of the government in facilitating or hindering the achievement of the right to food. This cross-case analysis is presented in the discussion chapter (see page 286).

4.13 Conclusion

Hopefully this chapter has provided a good understanding of my rationale to my research design, and how it is related to my study's aims and topic. The chapter explained with detail the decisions I took in order to design my research. Hopefully it offered a clear view of the structural support of my thesis, trying to demonstrate methodological congruence between my philosophical assumptions, theoretical framework, design of my studies, data collection methods, and data analysis (Creswell, 2017). In the following chapters, I present the findings of my primary studies.

5. Chapter 5: Mexican households during the pandemic

5.1 Introduction

The interviews with the Mexican households yielded a lot of data. I interviewed members of eleven households, five of them were from urban areas, and six from rural areas. Mexican participants came from two main regions of the country: the west and the southeast. Three urban participants were from a city in the west of the country, and the rest of the participants (the rest of urban (n=2) and all from the rural areas (n=6)) were from the Southeast of Mexico. It is of relevance to mention that rural areas from the south and southeast of the country can have very different climatic and environmental characteristics, which directly impact the type of crops they can grow as part of their livelihoods, as well as challenges associated with droughts. Most of the participants' age was in the range of 20-40 years old; and 5 participants had children living with them during the pandemic. In all households, at least one person lost his or her job during the pandemic as a result of the mitigation strategies (see table below for participant's characteristics).

Table 11 Table summarising some of the characteristics of Mexican households that participated in the online photo-elicitation interviews

Participant	Age range	Setting*	Household's members	Job situation
HHMX1	20-40	Urban	3	Family's business closure
HHMX2	60+	Urban	1	Job loss
HHMX3	41-60	Rural	7	Job loss
HHMX4ab ^{&}	20-40	Urban	2	Partner's job loss
HHMX5	20-40	Urban	3	Job loss
HHMX6	20-40	Rural	3	Job loss
HHMX7	20-40	Rural	4	Job loss
HHMX8	20-40	Rural	5	Job loss
HHMX9	20-40	Rural	14	Job loss
HHMX10	41-60	Urban	3	Partner's job loss
HHMX11	20-40	Rural	12	Job loss

*In Mexico, a rural area has a population smaller than 2500 (INEGI, 2020b). [&]Two participants participated in the interview.

After analysing the transcripts four overarching themes were developed.

1. Physical access to food changed during the pandemic
2. Economic issues around food access during the pandemic
3. Household food availability and the surrounding environment was affected by the restrictions
4. Changes and issues of food and nutrition security's utilization dimension

Templates with the themes, subthemes, and the categories that comprise each of them are presented in Appendix 19 (page 414).

5.2 First theme: Physical access to food changed during the pandemic

As one of the pillars of food security, and a dimension of the right to food, food accessibility can be divided into physical and economic. This theme refers to issues related to physical access to food. Within this theme, three subthemes were developed: 1) changes in shopping experience; 2) accessing food from other sources different to food outlets; and 3) stockpiling.


5.2.1 Subtheme 1: The shopping experience and interaction with the food environment

This subtheme explores some of the main changes that people made in their shopping during the first COVID-19 lockdown. Every participant in the interviews mentioned reducing the frequency of going shopping, from daily or more than twice per week before, to just once or maximum twice per week during the first months of the pandemic. Participants also mentioned doing shopping quicker than before, and at earlier times in the day. Furthermore, there was an increase in the value given to planning shopping. This was done in order to identify what was needed, to visualize prices and align shopping with budget (when there was any). Being able to plan shopping allowed participants to better manage resources to be able to cover other needs. These changes in shopping reflected compliance with the COVID-19 mitigation measures, strengthened by the desire to keep one's health protected, as well as their families'.

Participants also shared their experiences navigating the food environment during the first lockdown, as well as how they experienced the adoption of rules and restrictions in the food outlets. During the lockdown, when people were more afraid of going out, participants mentioned feeling that the situation in the shops was chaotic. Smaller shops, where it was difficult to keep social distancing, could make participants feel uncomfortable. However, when shops followed rules more clearly and strictly, and customers adopted them properly, participants mentioned feeling safer. The following quote shows this.

“In the butcher, it gives security, and a lot. I mean, it is obviously not my favourite place to be, but I do feel, it does feel pretty safe to say, ok there are the minimal measures to meet security. I mean, I understand that is not, I mean, it is not impossible that I catch it [the virus], but at least measures are there, and they make me feel safe, they make me feel comfortable” (HHMX1, urban)

In photograph 1, a participant showed the way a small shop implemented social distancing by having marks on the floor. Following social distancing rules was relevant for the participant. A lack of coherence between visual and physical signs to indicate distance and what other people did was a source of discomfort. Accompanying the photograph, he shared how he and his family felt when people didn't respect social distancing measures.

<p>Photograph 1:</p> 	<p>Participant: HBMX4a, urban</p> <p>Quote: <i>“You feel upset because you arrive [to the shop, then you wait in your mark [on the floor] and there are more marks behind you, or to your side, and people come, and they just come in front of you without queuing, not everyone, but there are a lot of people, and I don’t know, they see that you are in the queue, and they just come in. I do not know if they do it on purpose to win, or because they are not aware, or they just don’t care”</i></p>
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Distance of shops to participants’ homes was also a significant feature of the food environment that contributed to participants’ sense of caution to avoid risk of infection. Living at a walkable distance from a food market, shops or supermarkets was mentioned as a facilitator of food access. A participant from an urban area mentioned that for her family, access to food hadn’t been negatively impacted by the social distancing measures because they lived nearby a food market, which was well stocked with a great variety of foods.

5.2.2 Subtheme 2: Accessing food from other sources different to food outlets

The following subtheme explores issues related to accessing food from other sources different to food outlets (i.e., food aid, household food production in rural areas). Issues related to local food production in the field are also presented.

Food aid from the government

The Mexican government provided some support for people during the pandemic (see page 62). Participants shared their perceptions and experiences with this. Some participants knew the government provided support, but they were not able to access it for different reasons. Some of the reasons included: the enrolling system collapsed or

not being in the place at the time when support was offered. The following quote shows how easy was to lose the opportunity to have support.

“In our case, well, we did not have it [the support] because my husband, who also worked in a tianguis [street market], carrying boxes and bags, and all these people [those working in the food market] were given support, but we did not know about this, and we did not go [...] and the others that were there, got the support. I heard about it. But we did not receive it” (HHMX3, rural).

Not being able to receive support might have negatively affected the food and nutrition security of those who tried to access it. In a few instances, participants mentioned receiving food baskets. The states in Mexico (sometimes in collaboration with third sector organizations, and private industry) planned different strategies to provide food baskets for those who were vulnerable. These baskets were a one-time occasion and were perceived as very helpful, containing a good variety of products and a small amount of ultra-processed foods. Photograph 2, from an urban area, reflects the participants’ satisfaction with the food basket her family received.

Photograph 2:



Participant:
HHMX5, urban

Quote:
“Well, I had enrolled myself to get some kind of support [from the government], supposedly it was going to be five thousand pesos [£169.95], but I wasn’t chosen. So, as I wasn’t chosen, they called me to ask if I wanted a food basket and I said yes, so the basket lasted like a month [...] it had milk, a food condiment [mentions some other products] so, yes it had some good stuff, that you say, they are really useful. So, for me, it was a good food basket”

For some participants, the government could have done better in terms of providing support. During the pandemic, some cash support was available for people who lost their jobs or businesses. However, its' delivery was perceived as not being enough. A participant referred to a support that consisted in providing 20 thousand pesos [£679.80] (in one occasion) to people who owned businesses. He mentioned this amount of money was not enough to cover a family's needs.

There were different perceptions regarding the availability of support in rural and urban areas. Participants in urban areas, whether received it or not, were aware of the availability of different types of support. Even though some of the participants from rural areas referred that one or more of their relatives had received support coming from the government before the pandemic started (e.g., agriculture support, women with children, elders), they mentioned not being supported at all by the government during the pandemic. They mentioned feeling abandoned by the government. This feeling arose because of not receiving any kind of help, or not even having any contact from authorities to deliver messages about the pandemic to them.

“Well, here in Mexico, I believe the government, at least to us, has not informed if there is any support, therefore in my family no one receives support, and no one from the community has received support either. Our Mayor is not helping us. No one has been supported in this pandemic so far” (HHMX7, rural).

Some rural areas in Mexico are so remote that support doesn't reach them. This was problematic and did not just happen during the pandemic, because remote areas in Mexico are usually the ones that are more deprived (Vilaboa-Arroniz, Platas-Rosado, & Zetina-Córdoba, 2021).

Whilst in rural areas support from the government was almost inexistent, in urban areas people were trying to get more than what was offered per person or per household. For example, some participants mentioned that they witnessed other people taking advantage of the system by trying to get more support by enrolling their households in different help centres. Another participant had the perception that people who did not need the support were getting it.

“The problem is that the government goes evenly, but it should really verify, verify that people really need help, so those people are the only ones who receive the support” (HHMX8, rural)

For the participant, knowing that people who in her eyes didn't need support made her feel frustrated because she knew other households who were really struggling, and they didn't get any support. She referred to her own extended family where a lot of relatives lost their jobs but at the same time, they were not eligible for support.

Community helping the community during the pandemic

A few participants mentioned offering help to neighbours in their communities during the pandemic. For example, a participant mentioned that his religious congregation offered help (food) to members who were struggling to access food. Another participant, who ran a small civil organisation, mentioned that he was also trying to help people in need. He also mentioned noticing people were in general more interested in other people's wellness and were more willing to help.

“Now, this pandemic, has taught us to take care of each other, to worry about each other and support each other. People have realised that we all need to be supported in this pandemic, we need help from everybody. So, we have noticed that people are more generous” (HHMX7, rural)

The comments about people being more engaged in helping other members of the community came from participants in rural areas. Just one participant from an urban area mentioned being involved in volunteering to help others. Community engagement seemed to be an asset for rural communities and could be developed more in urban settings.

Food from the field

Accessing food during the pandemic was not only through purchasing food, or receiving food aid, but also through household food production. Almost half of the participants lived in rural areas. Despite rural areas being commonly known as low-

income areas in Mexico (CONEVAL, 2020; Martínez-Carrasco, Colino Sueras, & Gómez Cruz, 2014), most of households living in these areas can ensure food access when growing food. The households in rural areas cultivated and grew a substantial amount of food for their intake. In some cases, pre-pandemic, they sold some of their food to neighbours within their communities, or nearby. Overall, participants who grew their own food had a lower dependency on food outlets, or on the outside (outside their village).


The pandemic caused a reduction of households' total income, however working in the field didn't stop (at least not at the time of the interviews). People felt it was safe to keep working in the field because of the open air, making it a safe space to be around. Besides, going to "work the field" was necessary because it was sowing time. In addition to growing food, some households had the opportunity to access other resources for food, such as river fishing. A couple of participants living in rural areas mentioned fish were more available during the pandemic than before. One of them mentioned that the river next to the community was full of fish, which meant getting it for a lower price. Hence, they bought fish more often.

The benefits of growing food, and fishing went beyond ensuring food access, as these actions also provided a feeling of confidence of survival, safety when losing a job and peace of mind. All participants living in rural areas mentioned the same benefits associated to growing their own food. Participants shared their perceptions of growing their food whilst dealing with job loss. Apparently, for the participants in this study, growing their own food strengthened their resilience, and gave them a sense of not being vulnerable.

"Well, if people stop buying these things [products they made] nothing will happen because we have corn and beans, and we are not going to die of hunger, so, well, in reality this is what is happening, we are in the field, and food is not lacking" (HHMX9, rural)

Some participants also expressed some concerns related with locally producing their food. Most of these concerns revolved around sustainability, which was linked with

having a fair market for their products. A participant shared his experience with the price offered for his coffee production, referring to it as being very low, reducing its profitability. Hence, he preferred to leave the product on the field instead of trying to sell it, which in turn affected their livelihoods. The pandemic finished with the market, according to him (photograph 3).

<p>Photograph 3:</p> 	<p>Participant: HMX7, rural</p> <p>Quote: <i>“Because now we have honey stored, we have not been able to take it out because packaging sites are closed, markets are closed, there are no buyers. Or they pay it too cheap, so it has been that I do not feel that my work as a honey producer is valued. I am producing honey with perfect humidity, and that is sustainable, and it is from different flowers that grow near coffee plants, and they are flowers that are free of agro-chemicals, and then they offer me this money [referring to a small amount]. So, it feels awful when you are a producer and people don’t value your products”</i></p>
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Low prices offered to local producers harms their livelihoods because the cost of production is not covered with the price that is offered from buyers (Guido, Knudson, & Rhiney, 2020). This situation disincentivizes small producers to keep growing products, which can threaten sustainability of the local food system. Many farmers decide to leave the field in order to find more profitable jobs in urban areas. Doing this means not working in the field and creating an imbalance on urban and rural areas, as well as changes in biodiversity (Munroe, van Berkel, Verburg, & Olson, 2013; Rey Benayas, Martins, Nicolau, & Schulz, 2007; Robson & Berkes, 2011; Subedi, Kristiansen, & Cacho, 2022).

5.2.3 Subtheme 3: Stockpiling: thoughts and challenges

This subtheme presents stockpiling, from people's thoughts to acquire more food and products than usual, to barriers to do it. Participants referred feeling distressed when they learned the pandemic was going to be tackled with social distancing measures, including staying at home. Staying at home, for some interviewees, meant not being able to go out to do shopping, shops were closed, and prices increased. A participant mentioned that her neighbours felt scared with the announcement of the lockdown, and they inferred shops were going to deliberately increase prices. The combination of a shared feeling of fear in the community, and an attempt to be cautious with accessing food when it was still affordable and available made her family buy more food than usual at the beginning of the lockdown in March 2020. A few participants mentioned that seeing family and friends stockpiling was one of the main triggers to do the same.

Even though buying more products at the beginning of the pandemic was an appealing thought for some participants, the reality was that some were not able to access a wide range and quantity of foods due to lacking resources. Buying more requires spending more. Stockpiling was a reflection of social and economic disparities, given that those without extra disposable money and savings were not able to do it.

“My mom was able to just get two [sacks of corn] because of our “economy” [money available]. It wasn't possible, because no one has money saved, so, in the moment of knowing that prices went up, well, we couldn't either buy 5 or 6 big sacks, instead we could just get three, two” (HHMX9, rural)

Those who were not in a good financial position to stockpile encountered empty shelves in shops. Products were already bought by those with more economic resources.

One participant from a rural area mentioned that he was aware that panic shopping was an unnecessary action. He disagreed with buying more products and food at the beginning of the pandemic, believing it was just beneficial for those who owned the shops and supermarkets, making them wealthier.

“I told them [to his neighbours] Why are we going to buy? We are going to make businesses wealthier, we are going to make wealthier the wealthy, let’s be calm instead, we have food, if it is finished, we can then find a way, but now, let’s not make the wealthy, wealthier” (HHMX7, rural)

Even though this was not a popular comment, it is interesting to note that some people had a more critical perspective of the repercussion of their individual actions in the wider system. For some, panic shopping was simply an action that didn’t make any sense and perceived that people would regret it when shops worked the same as before after a few weeks, and products were not scarce anymore.

5.3 Second theme: Economic issues around food access

Access to food is directly related to having enough economic resources to purchase food, and/or the ability to produce one’s own food (e.g., having access to land, seeds, knowledge, tools). During the pandemic, in Mexico, social distancing measures protected people’s health, but also led to an increase in unemployment. In Mexico, between March and April 2020, 12 million people became inactive (stopped working), and the occupation rate decreased from 59.8% to 47.5% (ILO, 2020). The economic and work landscape in Mexico is characterised by having a significant percentage of people working in the informal economy. In the first trimester of 2020, the informal labour rate was 56% of the occupied population (31.3 million people) (ILO, 2020). Also, those who work in formal jobs, do not always have fair wages, or the social support to achieve a good standard of living. The pandemic and the measures to stop its spread had a great impact on people’s jobs and ability to earn an income to support their families (ILO, 2020).

In my study, participants narrated their personal situations around their job and income status in relation to food. The following theme explores several subthemes that reflect the financial fragility of these Mexican families when facing a public health crisis. The subthemes are: 1) households’ economic landscape; 2) actions to overcome job and income loss; and 3) how a decrease in income impacts economic access to food.

5.3.1 Subtheme 1: household's economic landscape during the pandemic

This subtheme describes the experience of the participants when they lost their jobs/incomes (fully or partially) as a result of the lockdown. Along with their experiences, some of the characteristics of their economic activities, and their thoughts related to losing job/incomes are presented.

All the households interviewed in Mexico experienced a total or partial loss of their jobs, and therefore lost their household's income, fully or partially, including those who owned businesses. Losing one's job was, most of the time, associated with feelings of worry and stress. The main reason for job loss was the mandate coming from the government of staying at home, which caused the closure of many businesses, or pushed people to stop performing their jobs. Also, some places in rural areas closed their roads to prevent people entering the villages. For many people in rural areas, this meant not being able to sell their products elsewhere, decreasing their ability to earn an income.

In Mexico, in 2020, around 31 million people worked in the informal economy, which meant people not having social security and lacking financial stability or mechanisms to overcome crisis like the one created by the pandemic (ILO, 2020). Participants who were working outside the formal economy, lived different experiences compared to those who had a formal job that allowed them to work at home, or office. The great majority of people in the informal economy had to stop working, reducing their income. However, some people had better experiences despite having an informal job. For example, one participant mentioned that her mom, who worked as a cleaner, was told to go home during the lockdown and got paid her normal salary. On the contrary, the daughter (the participant), had to stop working (with the same kind of work) but did not receive any support from her employers. This situation seemed to be determined by chance rather than a benefit that all citizens should enjoy. On the other hand, some people working in the formal economy, with a legal contract and perceiving legal benefits, had the possibility of working from home (when the work allowed it) whilst still getting paid.

Seasonality of economic activities also contributed to a stronger adverse impact of lockdown in some of the interviewed households. Either because they depended on tourism (busier during the holiday months), special occasions (such as festivities, and events), or work based on availability of funding (the case of third sector organizations). The pandemic and the lockdowns started in the first months of 2020, including the Holy week and Easter. In Mexico, these dates are important because of their religious meaning, and it is a high demand holiday season in terms of economic activities such as tourism. Seasonality weakened the ability of households to be resilient when the public health crisis began, and the economic shock took place.

Living day to day (“vivir al día”), is a sign of vulnerability, as it means that the cash stream only covers daily needs and does not allow to plan for the future. In several occasions, some participants referred to their situation around their cash flow being just enough to get what was needed for each day. This emphasized the need of going to work every day, as having savings was not possible. For households living day to day, having jobs stopped, meant income stopping. For those who used to have products for sale, having money invested in their products and not being able to sell them, restricted availability of cash, exacerbating the negative impact of losing an income. This jeopardized ability to access food, products and services immediately.

“Things started to complicate, why did things start to complicate? Because there is no work, there is no income to maintain [the family], to get food” (HHMX10, urban)

Even though living day by day happens in both urban and rural areas; participants from rural areas perceived that living this situation in urban areas was worse because of not growing food and having to buy it every day. In a reflection of this perception, a participant from an urban area mentioned that the lockdown was paradoxical given that leaving the house increased the risk of catching the virus and being severely ill, but at the same time, staying at home without a job could mean starvation because of the lack of income.

“It was like, please stay at home so you do not die, but if you stay then you will starve, so it was a double communication channel, very complex to handle in Mexico. But this is the way it happened” (HHMX1, urban)

This situation highlighted the generalized precarious situation that many families had in Mexico. The pandemic and the measures to mitigate it had an acute impact on the way people lived in the short term, and in their ability to sustain their livelihoods.

5.3.2 Subtheme 2: Actions to overcome job and income loss


Losing one’s job and income was a source of stress for all the participants. In order to face this life-changing situation participants mentioned different strategies to cope. In this subtheme, some of the job/income loss coping strategies adopted by participants are presented, as well as some of the strategies employed to cope with the economic challenges to access food.

Most of the participants had more than one job prior to the pandemic. Participants living in rural areas worked in the field and had other jobs that provided them with income. Having multiple jobs is a way to ensure that one’s income covers the cost of life in Mexico (Glavin, 2020). During the pandemic, even when losing one job, there was the possibility of keeping another job. For example, some participants were self-employed (e.g., textile maker, pub owner), and at the same time had other jobs. When having to close or reduce the activities in the business due to the pandemic, having the other job offered financial support.

Savings and not having debts were also seen as enhancers of financial stability. Those who did not have debts prior to the pandemic, mentioned feeling relieved of not having a pending expense that would grow with time. One participant talked about the relaxation her family and her felt when knowing they almost finished paying a machine used in their business.

Feelings of security were also associated with having savings. Some participants calculated how they could use them if the pandemic continued. This in turn encouraged

some participants to plan their resources' utilization, which helped to regulate their fear and anxiety. Purchasing less products because of having to redistribute economic resources to meet all needs and services besides food, can refer to vulnerability, and trade-offs that can have an impact on people's access to food, and health. In some households, when income stopped or decreased, some families started to look at their expenses, and tried to redistribute their economic resources between paying services bills and food (photograph 4).

<p>Photograph 4:</p> 	<p>Participant: HMX5, urban</p> <p>Quote: <i>"I mean, I used to buy a little bit of everything, so it lasted, I don't know, one week and a half, and now, well not, I mean now is that we haven't bought a lot of things. So, because I have to pay the telephone bills, I have to pay because you know they cut it if you don't, then we pay the water, the electricity, and well, we did see ourselves, how can I tell you? We didn't buy more things like what I used to buy before"</i></p>
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The economic pressure experienced by some participants made them take all kinds of actions to generate resources to be able to access food during the pandemic. Some people tried to get other income sources, such as selling products or getting other jobs. However, this was not an easy thing to do. For example, when the recently unemployed husband of a participant tried to find a job as a plumber, he was sent back to his house by the local authorities. His efforts were cut short, and this brought even more stress within the household. Others opted for taking loans to be able to pay the bills. However, these short-term actions (loans) were recognised as having long term consequences, such as interests, which in turn were a source of stress.

"What is COVID giving to us? Debts because when you do not have a job to get the money, then you have to ask for loans, right? You have to, you have to pay interest. When the pandemic finishes, I already owe seven thousand pesos (£237.93), right? which this year, well normally we would not have debts, but

when this lockdown finishes, all of that, we will have a debt of almost 7 thousand pesos (£237.93). So, there is the stress of knowing that you have a debt that you haven't even planned, so yes, it is exhausting, exhausting" (HHMX10, urban)

In conclusion, participants tried to cope with the loss of income by doing different actions. A common pattern arose, which was the need to seek for alternatives, as there wasn't any kind of support or it was not enough. However, this kind of actions are probably the same incentives of the informal economy that is so prevalent in Mexico. As one econometrics teacher once told us a few years ago, *"in Mexico not having a job (formal or informal) is a luxury that no one can afford"*.

5.3.3 Subtheme 3: how a decrease in income impacted economic access to food

This subtheme presents the concerns and worries experienced regarding accessing food when losing a job. Also, participants' perceptions on food prices. Finally, how people dealt with the challenges associated with losing an income and increased food prices.

Thoughts and concerns about accessing food

Participants mentioned how the pandemic impacted their household's "economy", causing stress. In a couple of instances, at the beginning of the lockdown, having to stay at home was experienced positively (being more relaxed or having time to try new activities). However, these feelings of joy and freedom disappeared after a few weeks when things did not resume to normality. In other households, there was a clear concern about the reduction in income, as well as an impact in mental health when experiencing anxiety and fear about the future. This emotional strain was fuelled by unemployment, uncertainty of the duration of the situation and feeling overwhelmed by the future. The following quote shows the thoughts of one participant around the issue of having less income, and how this impacted her and her family's mental health.

"There is no way to get extra money, and then desperation starts, so you start to question. There is no peaceful rest at night because as the person who manages


the money you have to figure out how to eat with 30 pesos (£1.01) (each time) three times per day, so 30 (£1.01) for the morning, 30 (£1.01) for the afternoon, and 30 (£1.01) for the evening, so anguish starts to win, right? starts to stress you” (HHMX10, urban)

Participants who had their own businesses, like HHMX9, also experienced stress and anguish. She mentioned feeling concerned about the inability to sell her products, which were not considered essential. The concern about accessing food was triggered by the decrease of cash flow to buy food, or not being able to access products that were not produced at home. Losing a job and experiencing a decrease in the household's total income had an emotional impact on the family, when having to make decisions around accessing food. In some instances, stress and frustration were reflected in the dynamic within the household. Stress and despair were expressed by many participants during the interviews.

These concerns were also mentioned when participants felt that food could be scarce in the next months, and they could not afford to buy in bulk. Some participants from rural areas mentioned feeling concerned about accessing food in the future. This concern came from the understanding that if the financial shock continued, this would make things harder in the future. The following quote reflects this.

“Now, the access to food would be fine. If this continues until August, the truth is that it is going to be very difficult, if this continued, if this lasted longer, it is very difficult, very worrying [...] if all of this continues, how am I going to support my kids? How am I going to feed them? (HHMX7, rural)

Starting to worry about access to food is one of the questions included in the Food Insecurity Experience Scale (FIES) created in 2014 by FAO (2022b). In reference to the quote, forecasting the situation in the future caused anxiety related to the ability to access food. Photograph 5 shows how within a household money dedicated to buy food was perceived as decreasing during the pandemic.

<p>Photograph 5:</p> 	<p>Participant: HHMX1, urban</p> <p>Quote: <i>“This is the money we have to buy food, this is the piggy bank, here is where we put all the funds for accessing food so, what does that represent? The knowledge of what there is and until when we can use it (...) It has existed all my life, but the jar has always been overflowing and in this stage of COVID, it is finishing, for the first time I see that is finishing. I mean in 28 years that I have known these people [his parents] for the first time I see that is finishing.”</i></p>
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Food security is tightly linked with the availability of resources to be able to exchange them for food. This is a graphic description of a loss of resources for food during the pandemic.

Increased food prices and access to food

The increase in food prices seemed to be also an issue of concern for everyone, as this could impact food access. There was a generalized perception, in both urban and rural areas, of an increase in food prices in different products such as sugar, corn, eggs and milk. For some interviewees, an increase in prices meant an increased concern about accessing food, as well as a reduced capacity to do it. Cutting the variety of foods means a negative impact in the quality and appropriateness of diet, potentially affecting nutrition and health status in the future (FAO, 2012b). For some participants buying healthy foods was something that had to be left behind during the pandemic. A participant, for example, used to buy more vegetables because she has diabetes, and she was told (by health professionals) to eat more fruits and vegetables. However, during the pandemic she decided to stop buying them given the reduction in income in her household and the perception that vegetables were very expensive.

“Me, for myself, I used to buy 200 pesos [£6.79] worth of vegetables per week, and I can't do that now. One, because vegetables are very expensive here in [the city where she lives], I can't have the pleasure of going and saying I will buy 200

pesos [£6.79] [of vegetables] just for me, when I just have 400 pesos [£13.59] for the week [for all the food for the whole family]" (HHMX10, urban)

Fresh produce can be more expensive than ultra-processed foods in some places (Monteiro, Moubarac, Cannon, Ng, & Popkin, 2013; Vandevijvere, Pedroni, De Ridder, & Castetbon, 2020). This has an impact on which food people tend to buy when struggling with food access (Bocquier et al., 2015; Faber & Drimie, 2016; French, 2003). An increase in food prices did not necessarily mean stop buying them. For some participants, the quantity of food they bought was reduced, but most of the participants mentioned buying the foods they liked despite the increase in price. Participants did this because they considered those foods a basic part of their diets or part of the traditional foods eaten in the region where they lived. For example, a participant mentioned that when the pandemic began, her family was worried about being able to get corn, as this crop is a traditional food in the Mexican diet.

Food choices have a direct link with culture, and research has shown that food constitutes a form of social exchange, and it is symbolically associated with people's feeling of belonging to a particular culture (Parasecoli, 2014; Rozin, 1996). As Parasecoli (2014, p. 423) mentioned: "*ingredients, dishes, and practices have the potential to become cultural markers that identify and rally individuals and communities, who frequently display fierce attachment to their food traditions*". This adds to the pillar of utilization of FNS, which considers cultural appropriateness of food.

Participants in rural areas, even though they grew vegetables as part of their livelihood, still had to buy the food they didn't produce. During the pandemic, these participants also mentioned buying some products despite the price increase, as they didn't have any other option. Buying foods at an increased price can be affordable for a certain period, but if income keeps decreasing, and economic resources are finished, eventually affording foods with high prices would become impossible, threatening FNS.

Interestingly, a couple of participants (urban and rural) had the perception that food outlets, especially supermarkets, were the ones in charge of the increase in prices.

They thought they did it either deliberately to punish people or as a strategy to take advantage of the situation and increase their profit.

Looking for food outlets that offered lower prices was a common practice for most participants, even before the pandemic. In Mexico, some of the food outlets that offer lower prices are known as “tianguis”, which are street food markets, and corner shops (“tienda de la esquina”). During the pandemic, in some places, food stalls in the street markets could be open, facilitating food access to some people. The following quote reflects the value given to the street markets over the supermarkets.

“Some of the things that they sell here in the tianguis are cheaper than in the supermarket. And, generally, we always buy in the same area where we live, as I tell you, there are a lot of shops, like small shops, where you can find beans, fish, prawns, chicken, meat, we do not need to go to the supermarket because we have everything here. And also, it is cheaper and fresher” (HHMX5, urban)

Coping strategies to access food when income is compromised

When income is compromised, access to food can also be compromised. Generally, people experiencing financial stress develop different coping strategies to be able to access food with the available economic resources (Pieters et al., 2013). Participants in my study shared some of the actions they took in order to keep accessing food during the pandemic. Food access was an economic priority, and many of the participants mentioned “making an effort” (e.g., using savings, getting loans) to be able to access food when their income was reduced.

Besides looking for foods with lower prices, some participants mentioned choosing other types of foods than the ones they would regularly get in order to make the most of their economic resources. Eating foods that have a lot of volume can be a choice when not having other types of foods. This could compromise the variety of foods, which could lead to micronutrient deficiencies, or undernourishment. For example, participants would buy foods that rise when cooked (e.g., legumes, cereals), which made them feel full, and are usually cheaper (photograph 6).

Photograph 6:



Participant:

HHM3, rural

Quote:

“Here I am showing you, for example, if we eat beans we put also a bit of other foods, because beans, as I said, they make a lot of volume, they give more food, and then you can accompany it with other things like here you see green beans, eggs, so we don’t get tired of eating only beans”

Some households mentioned buying less food than before. Accessing a smaller quantity of food can be a result of a decrease in economic resources, a decrease in its availability, or a decrease in the ability to grow them. Some participants in Mexico mentioned just buying foods that were considered essential or basic for their diets during the pandemic. Decreasing the variety of foods in the diet can compromise its quality leading to deficiencies, and a diet that is not sufficient in quality and quantity. Photograph 7 shows how the variety of foods purchased decreased during the pandemic.

Photograph 7:



Participant:

HHM5, urban

Quote:

“I used to buy like courgettes, chayotes [a Mexican vegetable], I mean, I used to like buying a little bit of everything, but now that is not possible. Now it is almost, what we most use is onion, tomatoes, we have always bought that. When I used to do the shopping, I used to buy like broccoli, and like potatoes, like that”

Some people had to organize their reduced income to access food. In some cases, the quantity of food was reduced. In other households, making a recipe that could last for several days was a coping strategy. This meant that instead of cooking a new meal every day, there was just a meal that could be eaten for several days, and participants mentioned modifying just small things to make it slightly different. This helped them to save money.

“A strategy that we found that is very good to recommend for the problem we had [income loss], it is to make sure that each meal is similar to the other, so the ingredients work for both. That way we saved money” (HHMX10, urban)

Another change was that families stopped being spontaneous when shopping for food. Many participants mentioned that before the pandemic they used to buy food based on the preferences of the day, of each household member. During the pandemic, this spontaneity decreased or even disappeared in most participant households.

It has been reported that one sign of food insecurity is when adults, especially mothers, in the household prioritize giving food to children (Martin & Lippert, 2012; McIntyre et al., 2003). Giving priority of eating certain foods, or bigger quantities of food to those who are the youngest in the family was mentioned by a participant to ensure her daughter got the food she needed. Counterintuitively, the daughter was not a young child, but her parents prioritized her health and nutrition over theirs. This participant also mentioned moving hers and her husband’s lunch time for later, so they didn’t have to have dinner. This way they could save food for the future. This, again, is another sign of food insecurity, and which is asked in the food insecurity experience scale (FAO, 2022b).

In conclusion all participants lost their income, partially or totally. This situation had immediate impact on access to food. Inevitably people started to make changes to be able to manage their resources better. For some households having risk mitigation strategies was a way of coping with the situation, however this was only feasible if people had savings or were able to access loans. In other cases, changes were adopted, such as the change in meals prepared, or making changes in the diversity of

foods purchased. The impact of the pandemic on economic access to food was immediate, showing how fragile the financial status of some families was.

5.4 Third theme: Household's food availability and the surrounding environment was affected by the restrictions

Availability of food is one of the four main pillars of food security. It means that food is physically present in the surrounding physical environment, and it is easy to reach (FAO, 2008). During the pandemic, the food supply chain suffered disruptions, in both rural and urban areas. Participants experienced the direct consequences of some food items being scarce during the first months of the pandemic. The COVID-19 mitigation strategies also affected rural areas, where the consequences did not only affect the food coming into the villages, but also people's ability to sell their produce. This theme explores these experiences around food availability and has a strong emphasis on rural households. The subthemes are: 1) food availability affected on different fronts by the mitigation strategies; and 2) rural areas ensured availability of some foods, but acquiring some foods was challenged.

5.4.1 Subtheme 1: Food availability was affected on different fronts by the COVID-19 mitigation strategies

In the first weeks of the pandemic, people experienced food scarcity in some food outlets as a result of panic shopping (see page 172). Impacting food availability, some food outlets were closed. The closure of some shops varied geographically. In some places, shops remained open, whilst in other places, small shops closed but supermarkets remained open. This heterogeneity of food outlets being open caused some disruption to where people got food. For one participant, having small shops closed meant that she had to go to the supermarket, which was not her usual place to do shopping because she perceived it to be more expensive compared to smaller shops.

Closure of shops presented challenges for everyone, especially in urban areas, where people entirely depended on what they could find in their food environment. As a result of a compromised access to food due to the loss of income, households referred having less food at home. Many participants showed photographs of their fridges, cupboards or fruit bowls with less food than before the pandemic.

The rural food environment during the pandemic

The food environment (the physical, economic, political and socio-cultural context in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food (HLPE, 2017)) in rural areas during the pandemic was affected by the restrictions, especially when the channels of communication were closed (Aday & Aday, 2020). The governments in some States (both at a state and municipality levels) limited (if not prohibited) the entrance of merchants in some rural villages, same as restricting people from going to other villages/cities.

Some participants mentioned that the restrictions could make exceptions for some vendors. Participants from other villages mentioned that measures were stricter and external vendors were not allowed at all. This had implications in the availability of food in the community and people's households given that less variety of food could enter the villages. One participant mentioned that she perceived less food offer, in both, type and amount. The problem did not just affect access of fresh food vendors in some rural villages, but also drinkable water providers. A participant mentioned that this happened in the place where he lived. The following quotation describes this situation.

“So, the laws in the community were strict (...) But it got complicated [the pandemic], and they [those who sell purified water] stopped entering the village, and the road was closed. The people selling water were not allowed to enter, and the people selling vegetables were not allowed either” (HHMX6, rural)

In order to access water people had to go to the local well. Doing this was seen as inconvenient given that people had to walk around three hundred meters to the well. The restrictions limiting water supply had to stop at some point because the situation

was unbearable. Even though this was only mentioned by one participant, it reflects the scarcity of resources that many rural and remote areas in Mexico face on a regular basis. The shortage in basic infrastructure (like the one providing electricity, water, transportation, etc.) puts people at an important disadvantage in achieving at least basic levels of wellbeing and hinders their potential to break the intergenerational cycle of poverty (CONEVAL, 2019). During the pandemic, this kind of structural deficiencies meant an even worse impact on those who live under these circumstances.

On the other hand, when referring to the source of income that people in rural areas had as a result of selling some of their crops, it was also negatively impacted by the restrictions. Usually, people who grow their crops sell the surplus and with the income generated, they purchase products they don't produce. During the pandemic, the closure of roads had a direct impact on the ability of people to continue selling their produce in other villages or cities. Hence, they saw a decrease in their total household income, and also a decrease in the diversity of food in their diets.

Difficulty selling their products in other villages or cities made some people try to sell their vegetables in their own communities outside their own homes, in an attempt to get some income. Even though they were selling their products, the exposure to potential buyers was lower, which meant that less income could be obtained. People had to develop risk management strategies to be able to get some income. This was also easy to perform given the lack of business regulations that allow people to engage in informal activities. Photograph 8 shows the experience of one of the participants in her village, depicting a household selling products outside the house.

Photograph 8:



Participant:
HHMX3, rural

Quote:

"I took this photo to show how some people were selling [their products] in their homes. As I explained to you, these were people that used to go to the Tianguis [street market], but now they could not, so this is the way they were selling their products in their houses"

The complexity of the situation relies in the reduction of food diversity, given that different products were brought from outside the villages. Participants tried to sell their produce to their own community, but this didn't provide any food variation as almost all households produce the same crops in the region. Participants also mentioned bartering, which means exchanging a product/food for another one that is lacking. This situation, as well as the dependency on external vendors, emphasises the importance of producing as many crops as possible to ensure diet diversity (Anderzén, Guzmán Luna, Luna-González, Merrill, & Mier y Terán Giménez Cacho, 2020).

Besides the consequences of the food supply chain being interrupted (e.g., less household income and decrease in diet diversity), some participants also mentioned the issue of some of their products going to waste due to a surplus. This situation happened to some of the participants and their neighbours. Photograph 9 shows a field with mangoes trees, where there are a lot of mangoes on the floor.

Photograph 9:



Participant:
HMX8, rural

Quote:

“These mangos are from another household, but because everything was closed (...) this mango doesn’t sell because the roads were closed and there are no sales, there is a very small sale of mangos. That is why the photo, it [the mango] falls, it gets damaged, and then it gets off. Also, there are a lot of mangos, but because they are only locally consumed, and maybe because we used to have a lot of tourism and they eat all what the town would not eat, now that we don’t have tourists, the village can’t eat it all”

Food waste is a global problem, which has been estimated to be a third of the food produced globally, and it can be originated because of an excess of purchases, surplus supply where there is low demand, leaving leftovers at home, and market glut from surplus harvest (Makanjuola, Arowosola, & Chenyu, 2020). In developing countries, like Mexico, food waste is mainly originated in the production stage of food, rather than at household level as in developed countries. In Mexico, 36% of food goes to waste in the production and processing stages. The pandemic also had an impact on the increase of food waste because of less field workers available to harvest and distribute crops; failure to distribute food from the field to suppliers; not being able to keep products at the right conditions for their preservation (Makanjuola et al., 2020). This situation raises concerns as food waste represents a paradox given the great number of people who live in hunger. Furthermore, food waste has an environmental, social and economic negative impact (Papargyropoulou, Lozano, Steinberger, Wright, & bin Ujang, 2014).

At the household level, a few participants in urban areas commented on the topic of food waste, and they mentioned feeling they were wasting less food. They thought this reduction in food waste was related to an increase in shopping planning due to the pandemic.

“I think food waste has decreased. Because everything is more planned, as I mentioned before, and everything goes on a list, so we just buy what we need, and then there is less waste” (HHMX1, urban)


In this subtheme it was possible to understand how people experienced the changed food environment in relation to availability of food.


5.4.2 Subtheme 2: The Mexican field: “We won’t die of hunger”

In the physical accessibility theme, I briefly mentioned how households growing their own food experienced a feeling of stability and safety despite having lost their total household income. This subtheme explores experiences and perception related to household food production.

All participants from rural areas grew some of their food (e.g., green beans, corn, beans, courgettes, tomatoes, lettuce). For them, growing food in the milpa was part of their livelihood. The milpa, which means planted plot or maize field, is a kind of horticulture, rather than agriculture, that is traditionally found in the southeast of Mexico and north of Central America. It is characterized by having different crops (such as maize, beans, squashes) grown in the soil, which are rotated through the year, as well as with woodland vegetation. Its sustainability depends on the availability of people to grow it, as well as knowledge and skills to do it (Nigh & Diemont, 2013; Rodríguez-Robayo, Méndez-López, Molina-Villegas, & Juárez, 2020). Some of the benefits of the milpa are improvement of food security, support of households’ economy, increase in landscape diversity (Rodríguez-Robayo et al., 2020).


Growing food was referred to as an activity to provide the whole family with food. This availability of food, which was a result of people’s work and owning or renting a piece of land, and having the skills, knowledge and tools to sow and grow food, made access to some foods easier during the pandemic for some families. This contributed to their food and nutrition security (as long as they were able to have a diversified diet). The following two photographs (10 and 11) were taken by one participant. These photographs intended to deepen on the cyclical nature of crops, especially corn.

<p>Photograph 10:</p> 	<p>Participant: HHMX7, rural</p> <p>Quote: <i>“This is a milpa, a milpa that was sowed two months ago. In twenty days, it will give corn, right? So, people, well me, this is a milpa from my family. What I wanted to share is that we have access to constant food. We already have corn that is ready to harvest, there is also corn that is in development that in two or three months will be ready, and then we will be able to sow again. And there is also corn that we are sowing back again, so we have corn all the time, it is like a process that we always have corn. There is dry corn, corn in development, and corn that is just recently sowed. This is in order to guarantee our food”</i></p>
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<p>Photograph 11:</p> 	<p>Participant: HHMX7, rural</p> <p>Quote: <i>“Here in the left-hand side, there is dry corn that is about to be harvested. If it is dry, then it is the corn that is staying in the field, because if I bring it home then it will get off at home, so it is better if they stay [in the field] covered [with the leaves] and they have the stems and everything, so they can survive (...) We have our food guaranteed from now to later in the year. But there are people that don't have, there are people in the same community that didn't sow, that same people are buying, right? Or they are exchanging their products, they give us beans and we give them corn”</i></p>
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Growing food was a resource highly valued by participants. A participant shared the experience of some of his neighbours, who went back to grow food during the pandemic after a long time of not doing it. These families apparently stopped growing food a while ago because they were simply doing other economic activities, and they didn't need to grow their food. However, during the pandemic they realised growing food was actually useful because they could save money on food and be less stressed about having their incomes cut. This was a reflection on the importance of being self-reliant by

creating an internal food supply. Growing food can be part of a household’s livelihood, and represents a risks mitigation activity, especially during crisis. Incentivizing individuals and households to grow food can be a way to reduce vulnerability to food and nutrition insecurity. The same participant also shared that he and his family helped other families to start growing food (photograph 12).

<p>Photograph 12:</p> 	<p>Participant: HHMX7, rural</p> <p>Quote: <i>“This is a family that I took photos of them, we went to help them to sow. They are starting to sow vegetables. Because this family practically didn’t grow vegetables [before], but they used to buy them, they buy all their vegetables. And now they can’t, they [the shops] are closed. So, they decided to produce their own vegetables. So, I helped them to teach them how to do it, and now they are producing. Now they are sowing, and from now in a few days, maybe fifteen days, they will have the vegetables”</i></p>
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Knowledge and skills exchange was an act of service to help families to cope better with the stress caused by the pandemic. The story of this participant is deeply impressive as it shows the benefits of having knowledge about how to grow food, as well as the value of sharing that knowledge with others to create a change in their livelihood.

The last experience was only mentioned by one participant but takes relevance when accompanied by the reflection of the rest of the participants on the perceived benefits of growing food. In the future, a recommendation could be to incentivize people in rural areas to keep growing their own food. Incentivizing people can take place with

motivation, provision of information and materials or tools, and knowledge. This could yield positive results such improving food security and food sovereignty.

For other participants, being in the field was an incomparable experience and shared their appreciation. In addition to the acknowledgement of the beauty of the field, and the benefits of it, participants from rural areas also mentioned the need of working in the field almost daily. In order to grow food, time and effort must be invested too, despite the public health crisis. Growing food provides some stability to households living in rural areas. The Mexican field is an asset that has to be taken care of. The livelihoods of people living in rural areas directly depend on what they can produce in the field, and on how they distribute the surplus.

In conclusion, in both urban and rural areas, food availability was impacted during the first months of the pandemic due to the restrictions that were in place. Both rural and urban areas dealt with it in different ways. Availability of food appeared to be more assured in rural areas, especially for those who had access to land and grew their own food.


5.5 Fourth theme: Changes and issues about the utilization dimension of food security during the pandemic

This theme has four subthemes that explore the continuum of the influences of dietary behaviours, to the changes in diet caused by the pandemic. The subthemes are: 1) knowledge and socio-cultural influences of food behaviours during the pandemic; 2) impact of the pandemic on food-related activities and perceived benefits of lockdown; 3) diet changed during the pandemic, for good or bad; and 4) diet-related conditions represented a common source of worry, but also an incentive to follow social distancing measures.

5.5.1 Subtheme 1: Knowledge and socio-cultural influences of food behaviours during the pandemic

This subtheme explores the role of food and cultural identity, social influences, and nutritional/food knowledge on the way people behaved around food during the pandemic.

Culture is a determinant of dietary habits (HLPE, 2017). Food choices are tightly linked to the cultural influences of a region (Parasecoli, 2014). I identified some references to the role that culture played in participants' food choices before and during the pandemic. Participants mentioned eating certain foods (e.g., beans, corn, tomatoes) on a regular basis and emphasized the link of this habit with their cultural identity. Participants shared photos referring to those foods. For example, photograph 13 reflects the importance of corn in the Mexican diet. Corn is a staple food in the Mexican diet. Participant talked about its frequent utilization as well as its preparation. Despite the global pandemic, the food cultural identity prevails.

Photograph 13:	Participant: HHMX9, rural
	Quote: <i>"That [the corn cooking in the pot] is to make tortillas. It is different the way we cook the corn for each meal, so, to make tortillas you have to boil the corn with lime [the white substance left after heating limestone, used in making cement] so that is why you see that. That photo is because in each meal, breakfast, lunch or dinner, we always eat tortillas. So that is the idea, we always eat tortillas, that is why you can see the corn boiling there"</i>

Society and family influence how and what we eat (Enriquez & Archila-Godinez, 2022; HLPE, 2017). Family members and their practices around food have an influence on the way people choose, prepare and consume food. The role of family, especially mothers, in teaching healthy food habits was also briefly reported by a few participants. In one instance, a participant mentioned that her niece (who moved to the participant's home during the pandemic) was learning how to prepare food because she saw other relatives cooking. This could be seen as a benefit of staying at home (as a pandemic mitigation strategy), given that the younger ones could learn from seeing other family members prepare food.

“So, as they [her brother's family] live in the city, they [their children] don't know much about this [food preparation], well, their lifestyle is very different to the one we have here. So, she comes here, and she likes it a lot, and she wants to learn how to make tortillas too, and [she refers to her niece asking] why do they do this? So, she is very interested in everything, asking about everything, and why? how do you make this? And why if I do this, I get this? She is very engaged”
(HHMX9, rural)

Knowledge also has an influence in the way people choose, access and prepare food (Schreiber, Bucher, Collins, & Dohle, 2020). Nutritional knowledge can be related to knowing properties or healthiness of foods, and when knowing how to make a healthy meal (Mötteli, Barbey, Keller, Bucher, & Siegrist, 2016). When one or more members of the household have knowledge about nutrition and food, all the family benefits. For example, a participant explained that because her brother studied agronomy, besides having the skills and knowledge to grow food in a more efficient way, the rest of the family also grasped the importance of eating organic food. Photograph 14 was shared by this participant, and it shows plants of tomatoes.

Photograph 14:



Participant:

HMX9, rural

Quote:

"We sow this, well the men of the house are the ones who do that. After my brother studied agronomy, we understood the importance of eating organic food. So, then my brother made his greenhouse, he started sowing tomatoes, and now we have, because it is harvest time. This is what I told you, that sowing tomatoes has helped a lot, especially during the lockdown, because it is harder to get food, so here we save money because we don't have to be buying tomatoes, which for us is very important in the kitchen, because we use them for almost everything"

The knowledge capital of one family member could have a relevant positive impact on the livelihood of the household. In this case, the participant's brother put in practice his knowledge about agriculture providing a risk coping mechanism (growing food) during the pandemic.

The role of knowledge during the pandemic did not only apply to deciding what to eat or how to grow food. Knowledge was also used to consider if it was a good decision to buy in bulk at the beginning of the lockdown. Two participants were very critical about panic shopping, and the reason they provided was an understanding of this reaction as unreasonable guided by a lack of knowledge of economics. Both participants shared that they told their concerns to their families to prevent them from buying lots of food and products that they would probably not need in the future.

To conclude, eating habits are certainly determined by what someone can afford, but also, social and cultural influences play a very important role on how people decide to eat, even during a global health pandemic. Knowledge was also reflected on some of the actions taken by participants. However, as evidence suggests, knowledge and

literacy lose their power when individuals/households deal with deprivation (Coupe, Cotterill, & Peters, 2018). The lack of economic resources hinders the application of nutritional literacy, as food choices are strongly determined by food prices and food availability (HLPE, 2017). Education plays an important part in people's decision making around food habits, however, in order to make the right decisions there should be a feeling of stability and choice (Burchi & De Muro, 2016).

5.5.2 Subtheme 2: Impact of the pandemic on food-related activities, and perceived benefits of the lockdown

This subtheme contains information related to the main changes in food-related activities during the first lockdown from purchasing, preparing and cooking food. It also explores the perceived benefits of these changes.

One of the main changes was the increased time of being at home with family, which was perceived positively. A couple of participants mentioned that this practice would be worth maintaining after the pandemic was over. Participants also mentioned that their families were involved in many different food activities, from planning shopping to cooking and even growing food. Regardless the gender, family members performed different food-related tasks. This caught my attention given that the participation of men in household's activities, including the food-related ones, is limited in the Mexican society (Katz & Correia, 2001; Varley & Blasco, 2000).


Going grocery shopping also went through some changes in some households. Some changes were mentioned in the first theme in this chapter (see page 164). Participants shared that they chose a member of the family to go shopping (like a designated shopper). What used to be a (mostly enjoyable) family activity before the pandemic became a stressful solo activity during the lockdown. In other households, men were the ones who took the lead, trying to protect the women of the house, as they shared.

Some participants made an emphasis on how decisions around accessing and preparing food were made between family members. An active discussion could take

place within the family to choose what was considered best for the family and their available resources. Negotiating within the family what to buy was mentioned by participants. This democratization of the food accessing dynamic was interesting to hear, given that usually in the Mexican society women oversee the budget and getting supplies for the household. However, during the pandemic, the majority of members of the participants' households seemed to be involved in planning shopping. A participant mentioned his strategy to purchase products during the pandemic:

“I spoke with my parents, and my father said that the economy was not [did not allow] to buy two thousand kilos of toilet paper, as everyone is doing. So, in a family consensus, we understood that it was better to distribute the resources, and buy little by little whatever we needed” (HHMX1, urban)

Changes in food preparation were commonly mentioned by almost all the participants. Many participants shared who was responsible of cooking in the household. In most of the households, women were the ones doing the cooking before and during the pandemic. Just in a few instances, participants mentioned that male members of the family cooked during the pandemic. All the participants mentioned being able to cook more as a result of being at home (photograph 15).

<p>Photograph 15:</p> 	<p>Participant: HHMX11, rural</p> <p>Quote: <i>“No, before [the pandemic] we didn’t cook together because we all went out, went out to work and no one stayed at home [they are cooking together during the pandemic]”</i></p>
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Some participants also mentioned trying new recipes because of having time. In a rural setting, a participant mentioned making traditional recipes during the pandemic because they had time to make dishes that normally would take longer to prepare. The participant mentioned that the recipes they started to make were the ones her grandmother used to make, and now they were able to prepare them too. Making these dishes was seen as a way to preserve what the older generations have taught them.

“We are making again the recipes of my grandmother (...) there are a lot of meals made with corn, so [before the pandemic] we felt like lazy of making them, we didn’t make them anymore, even “tortillas” [flat bread made of corn] it was easier to buy a kilo of tortillas, and now that we have more time, we started making again what we stopped making [before]” (HHMX9, rural)

Many participants also mentioned some perceived emotional and social benefits of cooking more often. For example, food was perceived as a catalyst to strengthen family bonds. A participant mentioned that to substitute his family Sunday’s reunions during the pandemic, relatives shared food with the rest of the family by bringing it to their homes. Besides the social value of cooking, cooking was also perceived as a way of entertainment, as it was seen as providing time that could be spent with the family.

A few participants mentioned that cooking was a way to cope with the boredom of being at home the whole time. In an interview, participants mentioned that they had a BBQ every weekend just to feel it was the weekend, and so it didn’t feel so *“boring and monotonous”*. Another participant mentioned that in her family, they began cooking different recipes because they felt bored of eating the same all the time.

“Now because we have time to spare, and we do not have so much work, sometimes we feel bored of eating the same, maybe just tortillas with beans, so we feel a bit bored of eating that. So, we make other dishes, even if they have the same ingredients and corn as base, but it tastes a bit different when we change, so now we are making our “atolitos” [a beverage made with corn flour, sugar, cacao or fruits], our tortillas, and anything that comes to our mind that we can make with corn” (HHMX9, rural)

The pandemic presented many challenges to most people. Despite the challenges and changes created as a response of the pandemic and the lockdown, many people could identify some social benefits of spending more time with family, and it appears that often food was involved. This experience might have been different for people living in deprivation and food insecurity.

5.5.3 Subtheme 3: Diet changed during the pandemic, for good or for bad.

This subtheme explores the dietary changes that participants perceived during the first months of the pandemic. The pandemic, and the lockdown, were external and non-controllable situations that impacted people's diets. The perception of this impact could be positive or negative, reasons were explained by participants and are presented in this subtheme.


The pandemic itself caused changes in some of participants' diets. Just a couple of participants did not perceive any changes in their diet. This might have changed in later months, but at the moment of the interviews there were no perceived changes. One of the main changes mentioned by most of the participants was related to the reduction in food diversity. This was mentioned to be associated with food scarcity in the food outlets, especially in rural areas. Another reason was the increase in food prices and decrease in income, or a combination of high prices and lack of food availability.

"We used to eat [meat], for example once per week, or once every two weeks, we would buy beef or pork, so we used to eat it, but with this pandemic there is no way to get it [...] We have eliminated [from their diet] some foods, for example, no more meat, no more eggs, no more things that are expensive or that are impossible to get" (HHMX7, rural)

Some participants mentioned eating certain foods (e.g., fruits, fish) more often during the pandemic. For example, two participants mentioned eating more fish as it was more available and affordable. This situation reflected skills and knowledge to fish and having the necessary resources at reach to be able to get/produce food when

needed. This situation is harder to be achieved in urban areas given the lack of green and blue spaces, and gentrification. Providing cities with an infrastructure that allows the production of food at a small scale can be a way of working towards sustainability and resilience when crisis hit (Wezel et al., 2020). Some strategies can be agroecology (Wezel et al., 2020), circular economy (Geisendorf & Pietrula, 2018), and strategies such as urban orchards, allotments, green rooftops, or even growing small plants at home.

Although there is not a universally acceptable definition for what a healthy diet is, the WHO defines a healthy diet as the way of eating that helps to prevent malnutrition and noncommunicable diseases (NCDs), such as diabetes, high cholesterol, amongst others (WHO, 2020). For a few participants eating healthy during the pandemic was perceived as being harder. For one participant, this was because of not being able to comply to dietary recommendations to treat her illness (photograph 16). A change in diet was a result of income reduction. To cope with this, the participant chose foods that were not good for her health. Despite knowing the negative impact in health, she decided to choose them to avoid hunger. In the dichotomy of non-nutritious food/no hunger and nutritious food/hunger, the first one wins when struggling with income.

<p>Photograph 16:</p> 	<p>Participant: HMX10, urban</p> <p>Quote: <i>"[showing sopes, a fried meal made with corn dough stuffed with beans] this is what I was telling you, here in [the place where she lives] fried foods are eaten regularly. Me, because I have diabetes, I don't do it because I know is bad [health-wise], but in this moment, this option is really good because you can save money. With one kilo of corn dough, you can make a lot of things"</i></p>
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Some participants mentioned that they thought that for some people would have been harder to eat healthy during the pandemic because of not having food outlets nearby, or not having the time or knowledge of how to cook.

The food environment, and the types of foods that are easy to find depending on the area where someone lives is an important determinant of someone's diet (HLPE, 2017). Participants mentioned that food marketing, and availability of food outlets (e.g., food stalls in the streets, restaurants, "fondas" (small restaurants) had a strong influence on what people choose to eat. For one participant, eating healthy was perceived as difficult for the Mexican population because the market has damaged people's access to healthy foods by overflowing it with ultra-processed foods. Intake of highly processed foods during the pandemic has been reported as a response to stress caused by the situation (Smith et al., 2021). In addition, high-processed food with high content of sugar and fats has been reported as a dopamine-inducer, which increases the feeling of reward (Thanarajah & Tittgemeyer, 2020).

On the other hand, for some participants the pandemic was perceived as having a positive impact on their diet. Those who had this perception explained that they thought it was because of having more time to cook, which meant eating less highly processed foods, and choosing fresh ingredients.

"Now you have more time to cook, to prepare food than when you are working and you are always in a rush, so you always have something quick and you eat things that have more preservatives [...] so now you have time, you can eat fish from the lagoon, you can eat "frijoles de la olla" (or beans from the pot), I mean with more time than when we had a job" (HHMX8, rural)

In conclusion, eating healthily during the pandemic depended on different factors. Having time to cook, the interest, and knowledge were conditions that allowed some participants to have, what they would consider, a healthy diet. However, for many others, especially in rural areas, the closure of food outlets and increase in food prices negatively impacted the quality of their diets. The perception about challenges or facilitators of a healthy diet during the pandemic might be different for people struggling with poverty, chronic-health conditions, or other difficult situations.

5.5.4 Subtheme 4: Diet-related conditions represented a common source of worry, but also an incentive to follow social distancing measures

Mexico is a country where poverty is accompanied by a high prevalence of overweight and obesity (Barquera & Rivera-Domarco, 2020; Fernald et al., 2004; Shamah-Levy et al., 2019), and non-communicable diseases (e.g., diabetes, hypertension) which situated people at a higher risk of getting a severe disease caused by the virus (Gutierrez & Bertozzi, 2020). During the pandemic, health was threatened by a virus, but those who already had a compromised health were more vulnerable to have a severe (COVID-19) illness, or a fatal outcome (Gutierrez & Bertozzi, 2020). This subtheme explores issues related with food and health, as well as the perception of one's or relatives' risk of getting COVID-19, and the hygiene measures adopted to minimise the risk.

The worsening of a chronic health condition such as diabetes is a worrying situation that probably a lot of people faced during the pandemic. Diabetes is a disease that is directly impacted by diet, and when it is not balanced, the situation gets worse, creating complications and increasing mortality (Rahati, Shahraki, Arjomand, & Shahraki, 2014; Zheng, Ley, & Hu, 2018). For example, a participant, who had diabetes mentioned that her glucose level during the pandemic had been higher than before, and she associated this to a change in her diet.

“Currently I have noticed that my sugar [glucose levels] has raised, [and it is] logical because I haven't had the type of foods that I should eat, so this has given me the problem of my diabetes being growing” (HHMX10, urban)

The change in people's diets as a result of the reduction in income, as well as the limitations in accessing health services due to the pandemic-related measures caused an important deterioration of people's health (Ghosal, Sinha, Majumder, & Misra, 2020; Verma, Rajput, Verma, Balania, & Jangra, 2020; Wildman, Morris, Pollard, Gibson, & Moffatt, 2022). In the future, a worsened condition might have led to complications that require more resources from the health sector.

Non communicable diseases are highly prevalent in Mexico (Arredondo, Azar, & Recaman, 2018; Gutierrez & Bertozzi, 2020). Five participants shared having relatives with a chronic health condition such as hypertension, diabetes, high cholesterol, or a heart disease. Participants expressed concerns about their relative's health because they were aware that they could have a higher risk of getting severe COVID-19, or even die because of it. To address their concerns, participants referred adopting the social distancing measures with ease given that they wanted to take care of their relatives.

Besides staying at home, people mentioned taking extra hygiene measures when going out, and doing their food shopping. Almost every participant mentioned either cleaning and disinfecting everything they bought before putting it into the cupboards, changing clothes when coming home, or even taking showers and washing the clothes they wore when being outside. Participants said they were doing this in order to limit their exposure to the virus, but also to protect those who they considered more vulnerable within the household. For example, a participant mentioned that she and her siblings were worried about their parents, nieces and nephews' health.

“If we go somewhere where there is a lot of people, we arrive [home], we take a shower, we change clothes, because we are worried about our parents, and the children, the sons of my sister, they are very young. One is going to be two, the other is five, and the other one is nine years old, so they are very little, and my parents have hypertension. My sister, the one who came back from the city, has also hypertension. So, that is why we are taking care of each other so much”
(HHMX9, urban)

The pandemic and its measures created financial instability, and this had a negative impact on people's eating patterns, and in their health status. Moreover, knowing that diet-related conditions increased the risk of having a severe case of COVID-19, increased people's likelihood of adopting social distancing measures. This was important, but the high prevalence of diabetes, hypertension and other diseases is a problem itself, that needs solution.

5.6 Conclusion

The COVID-19 pandemic brought many changes on participant's lives, their livelihoods and their ability to access adequate food. Originated by the loss of jobs and income, access to food became a challenge for the majority of the households. Not having access to support, made people feel concerned of how they were going to use their available resources to ensure access to food in the future.

The online photo-elicitation interviews revealed that losing part of their incomes without any compensatory mechanism (such as a furlough scheme or unemployment benefits) put families at a higher risk of vulnerability to food and nutrition insecurity, which was linked to financial vulnerability. Not having the same amount of income impacted households to different extent depending on other socio-economic factors. The informal economy and the lack of social protection policies reflect the delicate balance for so many Mexican families to be able to have a stable access to adequate food. When income is threatened, and there are no mechanisms to reduce vulnerability and strengthen resilience, it is more likely that people are going to be food and nutritionally insecure, acutely or chronically.

Changes and coping strategies to be able to access food were shared by participants. The participants from rural areas showed the value of the Mexican field, and how growing food can mitigate the impact of losing income. Despite the advantages provided by the "milpa", rural areas were greatly affected by the measures when having roads closed, and when not receiving support from the government.

Finally, food-related behaviours as well as people's diets suffered changes. The pandemic and its measures impacted people's jobs and the food system, originating changes in people's diets.

Summary of key findings

Physical Accessibility

- The pandemic-related lockdown changed people's shopping experiences with a decrease in frequency, and increase in planning. The physicality of the food environment (proximity of outlets, layout of shops) had a role in people's perception of safety.
- Stockpiling was considered but depended on availability of resources. This created more financial stress for families with limited resources.
- Food aid was available during the pandemic, being more predominant in urban areas.
- Household food production played an important role in food security of people in rural areas.

Economic Accessibility

- Families lost part of their income through losing their jobs and not receiving any support.
- Informal economy, seasonality of work, and living day to day worsened the impact of the pandemic on families' livelihoods.
- Families tried to cope with income loss by trying to find other income sources, or by making changes in their use of economic resources (getting less food, changing food diversity).

Food availability

- Food availability was mainly affected in rural areas where closure of roads limited food distribution in villages.
- Food surplus left in the field to go waste because of difficulties to sell products in rural areas.
- Local food producers encountered very low prices being offered for their produce, which they preferred not to sell.

Utilization:

- The influence of culture in food choices remains despite the financial stress.
- Negotiation of food shopping between family members, as well as participation in different food-related activities.
- Perceptions of diet changes during the pandemic were different. For some people, eating healthy during the pandemic was easier than before, for others, harder.

6. Chapter 6: Mexican Stakeholders' Interviews

6.1 Introduction

Eight stakeholders from Mexico were interviewed. The participants had different backgrounds and worked in different fields, but their work was related to food security, and/or nutrition (see Table 12). Two of them were part of a decentralized organization from Mexico that focuses on social development and assistance provision programmes (DIF; National System for Integral Family Development, in Spanish); two were part of organizations that work with nutrition and are involved in process of public policy; two were academics working with food security, agriculture, and economy; one was a senator who had worked with topics related to food sovereignty; and one was the director of a food bank.

Table 12 Table showing the area of work of each of the participants

No.	Area of work
SHMX1	Third sector organization
SHMX2	Third sector organization
SHMX3	Third sector organization
SHMX4	Researcher economy and food
SHMX5	Researcher agriculture
SHMX6	Government
SHMX7	DIF National
SHMX8	DIF stata

After analysing the transcripts of the interviews with the stakeholders, I developed four themes (Appendix 20, page 418) shows themes, subthemes, and the categories of codes that comprise each of them):

1. The right to adequate food in Mexico
2. The COVID-19 pandemic impacted food security in an unequal way across the country
3. Perceptions around the government's response to the pandemic
4. Perceptions around food aid provision during the pandemic

6.2 First theme: The right to adequate food in Mexico

This theme presents the participants' knowledge and familiarity with the concept of the right to food. It shows how the right to food was understood by stakeholders, as well as the role of the government to guarantee it. Most stakeholders emphasized how it should be achieved by everyone. As a stakeholder explained, the right should go above any capitalist interest, and should be seen as a public good.

“Food must be considered a universal right for all, independently of social condition, ethnicity, it must be considered on top of any interest to make profit, capitalist or mercantile, because it is the essence of life. Food is the essence of life for people, so I think it should be seen as a good, a public good, in which all people should enjoy the freedoms, both individually and collectively, to enjoy access to quality food” (SHMX5)

Describing the right as *“the essence of life”* reflects the unequivocal mandatory nature of the right, and how it should be always achieved by all people to guarantee not only health and good nutrition, but the subsequent exercise of other human rights. This statement represents the interdependency of human rights (see Chapter 2, page 43).

Another relevant component of the right to food, which was commonly mentioned, was the importance of food quality. As has been mentioned in Chapter 2 (see page 29), not being hungry is not enough to consider someone is enjoying food and nutrition security, but food should also be culturally appropriate and of good quality, nutritious and safe.

“This right is not only about having food, just eating something, but it has to be of quality, it must be adequate. This takes us to the dignity of food” (SHMX3)

In this quote, the stakeholder mentioned dignity, which is a core concept of human rights. All human rights aim, overall, to ensure people always live with dignity (FAO, 2014a; OHCHR, 2010). Interestingly, this stakeholder was the only one who used this word when talking about food as a human right. However, even though he mentioned it as part of the right, he also put it into context of the provision of food aid.

Another pivotal part of the right to food is the responsibility that the government and other actors, such as third sector organizations and the private industry, have in order to ensure an enabling environment for people to access adequate food. Without having these actors who are accountable for providing this, then we would not be talking about human rights. Even though most participants recognized the presence of the right to food in the Constitution, which reflects the guarantees provided by the Mexican State to its citizens, only two participants referred to the duties of the government to ensure the right. In order to advance the guarantee of the right to adequate food, it should be a priority on the political agenda, where in addition to being recognized in the Constitution, there is also political interest and mechanisms to make it justiciable (Drèze, 2004; Riches, 1999).

“The Constitution recognizes some rights, and within those rights that are recognized, first in the Constitution and then in the General Law of Social development is the right to food. So, in first place the entity that should at least create the conditions for people to have access to food, is the government, at a federal level, and then at a local level, through the States and municipalities” (SHMX4)

Another important element of the right is the role of third sector organizations. The State is the main actor accountable for ensuring the right. However, third sector organizations could help the government to guarantee it, given that the government does not have all the resources to do it by itself. The collaboration between third sector organizations and private industry could help the government to guarantee the right to food (FAO, 2005). For stakeholders, these two entities should actively collaborate to work towards achieving the right to food for everyone.

“Who can help to guarantee the right to food? All the other social actors, that is why the private initiative exists, or the civil society organizations, when talking about social capital, you can lean on them, or the government should lean on them talking a bit in terms of governance. The government can't do everything, it doesn't have the capacity to do it all, but if it takes advantage of the links, it has

to make those [collaborations], it can ensure access [to food], and guarantee the right to food” (SHMX4)

Hence, achieving the right to food requires actions from the government and other actors. Stakeholders agreed on this collaboration to be of utmost importance. The first step to take towards this goal is having the right to food in a domestic law, and appropriate food and nutrition policies. Stakeholders mentioned that Mexico does not count with this type of policies for the moment, and this raised concerns.

Theoretically, the right to food can be understood as a result of an enabling social, economic and food environment, promoted by the actions taken by the government and other actors to put in place legislation, public policies, regulations and good practices (see Chapter 2, page 59). However, putting it into practice can be challenging. A couple of stakeholders reflected on the challenges of this. By the time of the interview, there was an initiative of law.

“The problem is that the right to food is supported in guidelines, in international agreements, but on the practical side, in the immediate, in everyday life of people, you don’t know how to explain to say, well if I have, if I am Mexican and I have the right to food that is written in an article of the Constitution, how do I realize it? To whom do I ask for it? Should I ask the municipality president, I want to eat, or should I tell the government I want to eat, or should I go to a community pantry? How? There is no clarity. It can be very well written in the Constitution, in the articles, local or federal, but the problem is, how do I realize that right? There is no clear guideline of how people can realize the right to have a healthy life, there is nothing” (SHMX5)

“We are orphans of food authorities. If there is a violation of the right, no one knows with which authority you can raise a complaint” (SHMX2)

The stakeholders sharply pointed out the need to translate the right to food into practice, with the mandatory participation of the State, and the appropriate measures to make it justiciable.

6.3 Second theme: The COVID-19 pandemic impacted food and nutrition security in an unequal way across the country

This theme explores participants' perceptions regarding the impact of the pandemic on people's drivers to access food, as well as referencing structural issues that worsened the impact of the pandemic creating greater inequalities.

6.3.1 Impact of the pandemic on different spheres

The pandemic impacted everyone at different levels. Participants mentioned what they perceived to be the main impacts of the pandemic. Two main levels were identified: individual (access to food) and community (availability of food). The following theme describes the impact on these two different levels.

Individual level

At the individual level, stakeholders agreed that there was a feeling of generalized crisis for everyone in Mexico, and the main impact of the pandemic and the mitigation strategies was the loss of jobs of thousands of people (Hualde, 2020; INEGI, 2020a). With job loss came a decrease in a household's total income. Stakeholders drew attention to the challenges of accessing food when losing an income.

“The most drastic effects of the pandemic in terms of food are related to the loss of employment of hundreds or thousands of people, of Mexicans” (SHMX5)

In the households' interviews, all participants lost some of their income because of the pandemic. They mentioned feeling stress because of this, and even though they were not experiencing hunger, their concerns about accessing food rose. Not only did the amount of food purchased, and the frequency of shopping decreased as a result of the lack of income, but also the decision of which foods to buy was impacted. Buying cheaper, and lower quality food (i.e., more calorie-dense), or even buying less food were strategies taken by families who struggled financially during the pandemic. This was similar to the stakeholders' perceptions.

“It is not just about eating less, but people started to choose what was more affordable and available, and what was more available [during the pandemic] wasn’t fresh foods” (SHMX2)

The impact of the pandemic in people’s wellbeing was brought up at a physical and mental level. Not having access to healthy food in a constant way impacts people’s current and future health. Mental health was impacted by the stress and anguish felt during the pandemic. Stakeholders referred to these issues in the light of the financial strain that the pandemic posed to so many households.

Community level: food availability

Some remarks were made around the issue of food availability. There was a perception of a lack of fresh produce (fruits and vegetables), which had a direct impact on the food that households could access. This reduced availability was thought to be due to the inefficiency of the food system to distribute products throughout the country. The problem wasn’t that there wasn’t production of fresh produce, but there were problems with their transportation and distribution.

“We lack a food system for emergencies, and it [the pandemic] shed light on the inability to respond to emergencies by a food system that is absolutely deficient” (SHMX2)

For people in rural areas, the closure of roads to their villages had an important impact on the types of foods that they could access. Stakeholders mentioned that the interruption of communication channels had important consequences and estimated a long recovery after the pandemic. This situation could put strain on people for a longer period than expected, affecting their FNS.

“The fact that these commercial circuits were cut in some parts, in a medium, or long term is going to have a direct effect, right? In terms of food intake in these villages, because, well, it is going to take a long time to recover these commercial channels” (SHMX5)

Another issue related with the food supply chain, as a consequence of the closure of roads, was the surplus food that producers had because of the inability to sell their produce outside their villages. For them it was better to leave the surplus to go to waste rather than paying for transportation, which would have increased their prices importantly.

“It was better to leave [the food surplus] for the cattle, or for someone that passes walking (...) but the thing is that it was more expensive [for producers] to pay the transportation costs, than to let it go to waste (...) so, in that sense, of course producers care about selling their products but they are not going to pay a transport if it is more expensive than letting it go off” (SHMX4)

Offer and demand was mentioned by stakeholders when referring to the increase in prices during the pandemic. There was a clear understanding of which situations were causing prices to be higher. For example, at a local level, people wanting to buy more things to have stock at home (I.e., increased demand) caused an increase in prices.

These comments highlight the relevance transportation has in the food supply chain to determine FNS of people. The pandemic shed light on the fragility of the transport and roads system to distribute food throughout all the country. The changes in the food supply chain, as well as the imbalance between demand and offer, impacted food affordability and availability, having a direct repercussion on individuals' ability to access food.

Structural issues that worsened the impact of the pandemic

Mexico is a country with many different social problems going on, which originated many years ago. During the interviews, all stakeholders talked about their perceptions of structural issues in Mexico that worsened the impact of the pandemic. Some of these issues were: changes in eating patterns, obesity, poverty, displacement because of drug violence, and insufficiency of the health system. These issues were related to different aspects of the Mexican society that have created social and economic instability, as well as health problems. To have a more complete

understanding of how people in Mexico lived the COVID-19 pandemic in relation to accessing food, it is important to consider these prevailing structural issues. To begin with, stakeholders mentioned the situation related to the transformation of eating patterns that has been happening since decades ago, especially in rural areas.

“Before COVID, diverse social groups have had a very serious problem of changes in eating patterns, because they are eating big amounts of industrialized products” (SHMX5)

This situation is linked to the malnutrition that children and adults have in Mexico (Popkin & Reardon, 2018). Nutrition deficiencies and malnutrition put people in a vulnerable situation, at a higher risk of getting or developing diseases (Knowles, Rabinowich, Ettinger de Cuba, Cutts, & Chilton, 2016; Lee & Frongillo, 2001; Mardones et al., 2020). There was a general understanding that food availability is what determines what people include in their diets. A special emphasis was made on the great availability of ultra-processed food.

The influence of the food industry on the dietary changes of people in Mexico has been previously identified (Barquera & Rivera-Domarco, 2020; Popkin & Reardon, 2018) and was also mentioned by some participants in the interviews. Not only the marketing of food products but the aggressive presence of food corporations was noted as a cause of why many people have shifted their eating patterns towards a more processed diet.

“All the traditional foods, natural, from the villages have been displaced, they have been displaced by the industrialized produce, or semi-industrialized, and this is a serious problem that carries other problems like having bad nutrition, or chronic health problems” (SHMX5)

Participants also referred to the worrying figures of obesity in Mexico, leading the list of countries with higher prevalence of children and adults with obesity (Barquera & Rivera-Domarco, 2020; Pérez-Herrera & Cruz-López, 2019; Shamah-Levy et al., 2019). Alongside with obesity, stakeholders also mentioned the diseases that are derived from it, and that are linked to unhealthy eating patterns. The concern was that these

conditions were associated with a worse COVID-19 infection, and higher mortality rates (Gutierrez & Bertozzi, 2020).

“COVID hit us really hard because there are too many comorbidities, we have thousands, millions of people with diabetes” (SHMX6)

Stakeholders expressed their concern of how Mexico being a country with so many fresh produces, also has a high prevalence of overweight and diet-related diseases. As one stakeholder explained, Mexico is a country with a great diversity of fruits and vegetables, which can grow easily in most parts of the Mexican territory. It would be almost expected that all people could have access to fresh products in any part of the country at a fair price.

In addition to the prevalence of obesity and chronic diseases, lower socioeconomic status was also associated with a worse impact of the pandemic on people’s food and nutrition security. Stakeholders considered that those with fewer resources had a decreased ability to have a nutritious diet during the pandemic. Participants also showed concern in relation to the continuation and worsening of poverty for those households that were already living in deprivation, and those who were entering in it.

Another structural problem that was mentioned was people’s displacement in some villages due to violence caused by drug cartels. I did not interview any participants who had that kind of experience, however, a stakeholder mentioned that he identified this as a situation that has left entire villages almost abandoned. These confrontations have pushed people to leave their homes to seek peace elsewhere. These people have lost their livelihoods, suffered a decline in their wellbeing, and were at a greater disadvantage during the pandemic.

Stakeholders mentioned their concerns around the capacity of the Mexican health system to address the health issues related to the pandemic. There was a comment related to the change of the Seguro Popular (Popular Insurance) to a different one (INSABI: Health Institute for Wellness). This change was unfortunate because

some people were left with undefined health protection, which situated them in a position of vulnerability.

“The issue is that we had the bad luck of changing the system of the Seguro Popular to the INSABI, just before the pandemic, which meant that the health sector was not organized, and a lot of people were left hanging, they didn’t know where to go” (SHMX4)

The Seguro Popular started functioning in 2004 with the intention to provide public health insurance for the population. Joining the programme was voluntary and was created for those who didn’t have formal access to social security through a working relationship. People in the programme could access some health services, and have less expenses related to health care (Galárraga, Sosa-Rubí, Salinas-Rodríguez, & Sesma-Vázquez, 2010; Grogger, Arnold, León, & Ome, 2014). Unfortunately, many problems developed, such as heterogeneity in the services provided depending on the States, and the programme stopped (CONEVAL, 2018b).

The precarious situation of the health system in Mexico, and the impact of the pandemic on it, meant that a lot of people were left unattended, increasing morbidity and mortality (Doubova, Leslie, Kruk, Perez-Cuevas, & Arsenault, 2021; Doubova, Robledo-Aburto, et al., 2021). This situation is relevant given that food and nutrition security depends on being able to access health care services (see Chapter 2, page 31). During the pandemic, stakeholders mentioned their concerns about the ability of the Mexican health system to provide service for all the people, especially for those living in rural areas.

“In a lot of these [rural] villages the health system has collapsed. It is deficient, deficient in all the meaning of the word (...) I don’t know how the State is going to do it in the medium and long term to support an important number of families that are going to have consequences of COVID. There is not an efficient health system to attend” (SHMX5)

The pandemic, by challenging households’ economic stability, accelerated the increase of poverty, and food and nutrition insecurity. Exploring the impact of the

pandemic without looking at the social context of Mexico, would mean losing an opportunity to improve the social and economic conditions of the Mexican people to have better and more stable livelihoods that ensure the right to food.

Identifying vulnerable populations

Stakeholders shared their perceptions around which population groups experienced a more negative impact of the pandemic. They referred to the increased risk of facing challenges to accessing food for any reason such as lack of income or lack of food being available.

As it was described in detail in the households' interviews, all the participants from the rural areas experienced a decrease in the variety of foods because of roads closures. According to one stakeholder, rural areas with more deprivation suffered more from the closure of roads to their villages causing an interruption in the food supply, as well as the opportunity for people to sell their produce in other villages.

“In the villages of states in the centre of the country, communication channels were not completely closed, but in the towns, in villages, in the communities of those States considered poor or with high levels of deprivation like Guerrero, Chiapas, Oaxaca, Hidalgo, Veracruz, there was an issue with the pandemic. The pandemic impacted because communication channels were cut” (SHMX5)

People in urban areas also experienced challenges accessing food during the pandemic. A stakeholder clearly described the differences between rural and urban areas in relation to food access:

“In the urban region, the issue of access [to food] had the biggest impact, especially in people with lower income, or those who have a salary that is not constant through time. In the rural sector, access to food wasn't a problem, but rather a decrease in the variety of food in their diets. In the urban sector, the problem is access, sometimes the variety but mainly the quality of food” (SHMX4)

As expected, stakeholders agreed that those people who were economically vulnerable before the pandemic were at a greater risk of struggling with access to adequate food. This group of people were the ones who were living in poverty before the pandemic and those who lost their jobs during the pandemic. These people “*ended up in a more complicated situation than the one they were already living*” (SHMX3).

Having low wages means not being able to cover the basic food basket (which is used to measure poverty in Mexico) (CONEVAL, 2022). With the pandemic, people who earned the minimal wage, experienced a decrease in their income, making access to food even harder. Besides unemployment and low wages, stakeholders also mentioned that those who were involved in informal economic activities became more vulnerable.

“In the urban areas is where food access suffered a deeper impact, people with lower incomes, those who don’t get a constant income through time, which means they work in the informal sector, those are the ones who were more impacted [by the pandemic] because they had to close, and they couldn’t continue remotely (...), so all these people are the ones who experienced a more important decrease in their income” (SHMX4)

Some participants in the households’ interviews had informal jobs. Many people in Mexico perform different activities outside the formal economy to have an extra income to support their households (Brambila Macías & Cazzavillan, 2010). As a consequence of the pandemic, people had to stop working (around 8.7 million informal jobs were lost versus 3.4 million formal jobs (Huesca, Llamas, Jara, Vargas Téllez, & Rodríguez, 2021)), and this caused an important reduction in their income.

In reference to the lack of income, a few stakeholders mentioned the situation with remittances sent by people in the US to Mexico. People who regularly received them in Mexico struggled to get them because of mobility restrictions. Also, people who started to use their savings in order to cope with the lack of income were perceived as entering an area of potential vulnerability. Equally, people who suffered a “medical catastrophe”, which means using a good amount of money to address a medical issue,

left the household in financial instability (McIntyre, Thiede, Dahlgren, & Whitehead, 2006).

“Some people who are not considered vulnerable, but then they suffer a medical catastrophe, and they have to use a considerable amount of their income [or savings] and eventually poverty will get them” (SHMX4)

The impact of the pandemic in households' income was mentioned as happening also in the following months after the lockdown, as households didn't manage to fully recover of the financial shock (Hoehn-Velasco, Silverio-Murillo, Balmori de la Miyar, & Penglase, 2022). A stakeholder explained that even though some family members got jobs after the first months of the pandemic, not necessarily all people in the household got their jobs back, and in many cases the net income was lower than before. Therefore, the total household income was still lower than before the pandemic, situating the families in a position of vulnerability. Huesca et al. (2021) reported that per capita disposable income decreased around 22% (being greater in the middle and top deciles of the population), income inequality increased 4 points (0.528 Gini index), and income poverty increased 16%. Also, the lack of income during the pandemic made households to acquire debts, which had to be paid as soon as they recovered their income, leaving them with a limited ability to access food despite having an income again.

“Debts accumulated for people (...) Maybe now they can start paying the rent, having a bit of economic ability, but they have food poverty. They can pay for services, but they don't have [money] to buy food” (SHMX3)

This situation was mentioned by many of the participants in the households' interviews, where participants acquired debts that they didn't plan for. This situation represented an increase in stress for how the future was going to look for them when the pandemic was over.

Finally, children and the elderly were considered to be vulnerable. In relation to the elderly, a few months before the pandemic, a law that forbids the utilization of plastic bags in supermarkets was put in place in different states of the country (Congreso de la

Ciudad de Mexico, 2020; PAOT, 2019). In many supermarkets in Mexico, older adults used to help customers to pack their shopping for a small tip. From the introduction of the law, these people were left without the income the tips meant for them. This was mentioned by a couple of stakeholders as a situation that put the elderly who worked in these places in a more vulnerable position during the pandemic. Besides this, stakeholders also mentioned that some older adults who lived by themselves were in a more vulnerable position.

In conclusion, this theme described a wide range of difficult situations that have been happening in Mexico for many years before the pandemic and played an important role in the unequal impact the pandemic and the mitigation strategies had on the population. Several groups of people were identified as being more vulnerable during the pandemic, and they are the ones who historically have been living in more unstable conditions and fail to enjoy social security. This theme provided an insight into those situations and populations in order to increase their visibility and aim for interventions that can provide solutions to the structural causes of deprivation and inequality.

6.4 Third theme: Perceptions about the government's response to the pandemic

Stakeholders shared their perceptions around some of the measures and restrictions that were put in place in Mexico during the first months of the pandemic.

Participants commented on the way the government prioritized the use of resources to address the pandemic. According to stakeholders, the government could have done more to support people in informal jobs, to mitigate their vulnerability. Equally with the formal economy, stakeholders mentioned that there should have been more support for the private industry so they could keep supporting their employees during the pandemic. The private industry is a source of employment that should be taken care of, especially in times of crisis, according to one stakeholder.

“The topic of financing micro and small enterprises, not wanting to acquire debt for this type of supports as it was done globally, it speaks of a lack of consciousness, to not say incompetence at a federal level of how you can support to keep your economy going, because one thing is to create debt just because, and the other is to create debt to invest. So, if we are going to talk about maintaining micro and small enterprises, when we talk about these enterprises being around 70%, they are the ones that generate employment in Mexico, then this is the sector that should have had more support so they become more productive” (SHMX4)

This quote reflects the intricate connection between government, private sector and households. The pandemic challenged the fragile balance that exists between the public sector and the private sector. Furthermore, a stakeholder mentioned the reduction of resources destined to the food supply chain, contributing to the failure in distributing food across the country.

“As a national priority, talking a bit in economic terms, the main issue was the pandemic and how to address it. All people were at home, avoiding transmitting the virus. And I refer to the national priority of addressing the pandemic and getting resources for health protection. So, the government had to reduce funding for other sectors, and one of the consequences was the logistical issue, internal, even at the level of moving products from one rural region to an urban one” (SHMX4)

The stakeholder highlighted the topic of assignation of resources based on political priorities and how the assignation of resources impacted other areas of people’s lives. The mitigation strategies decreased the growth of the pandemic, but at the same time worsened its’ impact on the country’s economy and people’s livelihoods in the short- and long-term.

Regarding the household level, for stakeholders, restrictions were not “inoffensive”, referring to the consequences that staying at home had on people, and referred, for example, to women who had to stay at home, take care of children, try to

work, and see an increase in their home responsibilities. This situation was raised because in Mexico there is still a cultural expectation that women have to be the ones that take care of the household's chores, raising kids, cooking, cleaning, and many other activities.

“It [putting in place restrictions] is not inoffensive, because we talk about cooking at home, and gender violence, and gender perspective, and who is it going to cook? And how is it going to dedicate that time without getting paid? Again? Again, we start saying that food has to be cooked at home, and women will find the way to do it, so, they are not inoffensive recommendations” (SHMX2)

In the topic of food, there was a reflection on the complete lack of recommendations on how to improve nutrition during the pandemic. In the opinion of stakeholders, if this had been done, it would have strengthened people's ability to have a better response to the disease. Being able to access fresh produce and foods that are not highly processed is part of FNS. More emphasis could have been made to provide food guidelines during the pandemic.

The pandemic and the measures to stop its spread increased the vulnerability of people to be financially unstable and be forced to making changes in their diets. For one stakeholder, the measures implemented by the government were not effective as they failed to protect the right to food.

“In general, I can say that there was an infringement of the right to food, I don't want to say that it was intentional, but the State probably didn't do anything to avoid that. Because of the economic shock access to healthy food was lost” (SHMX2)

Failing to protect the right means that the State didn't comply with one of the three obligations States have when they are committed to guaranteeing the right to food for all (to protect, to respect, to fulfil). For stakeholders, the right to food has not been fully protected in Mexico even before the pandemic, as it is not situated as a public good that can be protected.

In a final remark, a stakeholder mentioned feeling that the emphasis given to the COVID-19 pandemic was impressive and wondered why if obesity and diabetes are considered also epidemics in Mexico, why nothing had been done in the same line to try to decrease the numbers of people living with these conditions.

“Since 2016 we live an epidemiological crisis of obesity, overweight, diabetes in Mexico; in 2020, there is a public alert because of COVID-SAR-COV-2. The utilization of government resources is not proportional for one thing and the other. I would be worried that it [the pandemic] is over, that COVID-19 is mitigated, and this [obesity and diabetes pandemics] stays in the air, as if nothing was happening” (SHMX1)

Stakeholders noted, and justified, the amount of effort and resources that were put into place to contain the pandemic, given the alarming increase in mortality. However, pandemics caused by long term diseases, such as diabetes, should have been addressed, as expressed by stakeholders, with the same urgency as COVID-19 since long time ago.

6.5 Fourth theme: Perceptions about food aid provision during the pandemic

This theme focuses on the topic of food aid provision during the pandemic. I interviewed people from a food bank, and two people from a decentralized organization that works towards social development in Mexico. It is a public institution of social assistance that focuses on strengthening and developing the welfare of the Mexican families, which was created in 1977 (<https://www.gob.mx/difnacional>) (Toledo Ocampo, 2014). The organization’s main activities consist in providing food for people who need it the most, providing school meals, support for older adults as in provision of activities, and many other programmes.

These stakeholders shared their experiences around the provision of food aid during the pandemic. They mentioned some of the main challenges they faced, as well

as the changes they had to make in both the food aid provided and the way to do it following social distancing.

One of the main challenges food aid providers experienced was the reduced availability of fresh products, as well as their higher prices. Moreover, delivering fresh products became complicated because of their short shelf life. Reduction of food aid provision frequency to comply with restrictions meant that these products were at risk of getting off. These situations challenged the adequacy of the food provided to the beneficiaries of those programmes. Even though users got food, they were lacking fruits and vegetables, which provide a different array of nutrients.

For stakeholders in this sector, the first months of the pandemic presented challenges such as staff and volunteers' reduction, as well as lack of guidance on how to continue their services. This indicated that there was no preparation, or a contingency plan considered for a situation like this. Stakeholders mentioned that food aid provision services had to adapt very quickly to all the changes caused by the restrictions. This required innovation and considering different ways of delivering support to people.

“The pandemic, same as in the whole world, activated [in us] innovation, the change of ideas, to do things differently (...) we were just dragged by a very fast changing world” (SHMX3)

The utilization of remote delivery services was mentioned once. However, despite considering the potential benefits, there was an acknowledgement of the limitations for people who didn't have access to computers or other electronic devices, and the Internet. Access to Internet, in 2018, was estimated to be for only 40% of the Mexican population because of different reasons such as slow Internet speed, high prices, not enough geographical coverage (Alcalá & Miryam, 2019). At individual level, people can struggle to access Internet because of lack of skills, low education levels, and older age (Martinez Dominguez, 2020).

From the perspective of a stakeholder that was not involved in food aid provision, food aid did not arrive to remote areas (small communities in rural areas). This was

widely mentioned by most of the participants from rural areas in the households' interviews.

“In the most remote settlements (called rancherías), food aid or any other kind of support practically didn't arrive, there is nothing, nothing arrived. The smallest towns, the smallest “rancherías”, there isn't any kind of government support, never, not even during the pandemic” (SHMX5)

Marginalization of rural areas, and indigenous communities, which can impact access to health services (Roldan et al., 2017) and social programmes (Canedo, 2018), is a problem that has been identified in Mexico. Not receiving food aid, even when knowing that this doesn't solve the structural causes of food insecurity, situated families from remote areas in an even more unequal situation. Not being able to cope with the pandemic, or with food insecurity, could have impacted their livelihoods in the long run.

On the contrary, there was a perception that food aid was more available in urban areas. Some of the participants mentioned being aware that food baskets were being provided for those who asked for them. Food provision stakeholders mentioned that they implemented successful strategies to provide food for new users during the pandemic. Food aid provision was perceived to have been very effective as they (as organizations) met the objective of delivering food parcels. Food support was seen as something highly valuable.

“Food baskets sent by the government arrived every month, when they [people getting food aid] saw the food baskets, they saw that they were accompanied by the army, marine forces, national guard, almost as if they were treasures” (SHMX5)

Finally, stakeholders were aware that food parcels should be of good quality and culturally appropriate. Cultural appropriateness was also associated with providing local products. Stakeholders mentioned that it was important that people could have access to food that is familiar, so they accept and consume it in order to improve their health.

Even though food banks reflect poverty and a deficient system which fails to provide people with the opportunities to be able to access adequate food, they

supported many households during the COVID-19 pandemic. Some stakeholders highlighted the ability of food banks to cover a lot of people in many regions of the country in a very organized way.

“They [the food banks] are the ones with that level, at least local, of logistic, to distribute at both urban and rural levels. No one arrives so far as them, neither so organized” (SHMX4)

Participants who were part of food provision organizations shared that they understood they were fulfilling the right to food when providing food aid. Other stakeholders commented that the government can perceive food aid similarly.

“Local, statal and federal governments can think that they are providing the right to food, or that they are being coherent with the Constitution, with the right to food when they provide food aid to people. So, when the president from the municipality, the governor, or the federal government provides food aid, they think they are realizing the right of that population, of having nutritious food” (SHMX5)

This could be argued to be one of the risks of food aid provision. Those who deliver it can feel they are guaranteeing the right, and neglect the real causes of food insecurity, limiting the actions that could be taken to improve people’s livelihoods. This situation illustrates the need for training all stakeholders, at all levels, in what the right to food means and implies. In addition to training, it is necessary to implement mechanisms for the right to be accomplished by all people.

6.6 Conclusions

Stakeholders expressed their views regarding the impact of the pandemic on people’s ability to access food, as well as their thoughts about the government’s response to the pandemic. They contributed a different perspective about the impact of the pandemic that households’ members could not provide, as they had a more systemic view of the situation.

Stakeholders were aware of the complex social scenario that Mexico faces since before the pandemic. From their perspectives, prevailing inequalities were exacerbated by the pandemic and the mitigation strategies. Solving these problems requires work, but certainly making them visible and finding their interconnectedness is essential to start thinking about possible solutions. In the realm of food and nutrition security, it was surprising to listen how many of the social conflicts had a direct repercussion on the ability of people to access adequate food.

Summary of key findings

- Ongoing social, economic and health issues (e.g., nutritional transition, NCD's, obesity, poverty, people's displacement, deficiencies of the food and healthcare systems) were relevant when considering the impact of the pandemic. These issues were seen as factors that increased people's vulnerability.
- Nutritional transition and abundance of affordable high-processed foods in the market have had a direct impact on the utilization pillar of food security, directly affecting nutritional security. These issues have already worsened people's nutritional status, which increased morbidity and mortality related to COVID-19 infections.
- Poverty, unemployment and informal labour were situations that increased vulnerability.
- People struggled to receive health care, which has an impact on FNS.
- The food supply chain failed to distribute fresh produce to different parts of the country, impacting the availability dimension of FNS.
- The mitigation measures did not protect the human right to adequate food. There was a perceived lack of support from the Government to both the informal and formal economy.
- Measures were particularly tough for women because of the increase in households' work when having to be at home, taking care of children, and working.
- Food provision organisations adapted quickly in order to deal with the pandemic. For stakeholders, being able to help people with the provision of food was a reflection of their success as organizations, which they associated with contributing to the exercise of the right to food.
- Common acknowledgement of the right to food in the Mexican Political Constitution. However, not all of them had a complete understanding of what the right entails, and it was understood as being guaranteed when food aid was provided.
- Overall, their understanding of the right was heterogeneous, showing that there is still a long journey to create a common narrative that can be put in practice.

7. Chapter 7: Scottish Households during the pandemic

7.1 Introduction

I interviewed seven household's members in Scotland, five of them were from large urban areas, and two were from small towns. Households' participants were from either Glasgow (n=2), Edinburgh (n=3) or the Scottish Borders (n=2). All participants, except one, were married. Some of them had children (n=3), and one participant lived with a flat mate. Most (n=5) of the participants' ages were within 20 - 40 years old. In three of the households one or more members lost their job or income completely. Regarding the remaining four households, one or more members of the household was furloughed by their employers (see table below).

Table 13 Table summarising some of the characteristics of Scottish households that participated in the online photo-elicitation interviews

Participant	Age range	Setting*	Household's members	Job situation
HHSC1	41-60	Large urban	2	Job loss
HHSC2ab	20-40	Large urban	2	Job loss
HHSC3	20-40	Small town	5	Furloughed
HHSC4	20-40	Large urban	3	Shielding/ No job
HHSC5	41-60	Small town	3	Furloughed
HHSC6	20-40	Large urban	1	Furloughed
HHSC7	20-40	Large urban	2	Furloughed

*In Scotland, settlements can be divided in four categories according to their population: large urban areas (125 000 or more people); other urban areas (10 000 to 124 999); small towns (3 000 to 9 999); and rural areas (less than 3 000) (Scottish Government, 2022d).

After analysing the transcripts of the Scottish households, I developed three overarching themes:

1. Lockdown, social distancing measures and their impact on physical access to food during the pandemic
2. Economic issues related to food access
3. Food-related behaviours, diet and health during the pandemic

Tables with themes and subthemes, as well as the categories that comprise each of them are presented in Appendix 21 (page 419).

7.2 First theme: Lockdown, social distancing measures and their impact on physical access to food

This theme refers to issues related to physical access to food. This theme is subdivided in three subthemes: 1) changes in shopping; 2) perception of the food environment and social distancing measures; and 3) perceptions and reasons for stockpiling.

7.2.1 Subtheme 1: Changes in shopping behaviours to reduce exposure to the virus

At the beginning of the pandemic, several restrictions to stop the increase of cases of COVID-19 were put in place in Scotland. This subtheme explores the changes in shopping participants made in order to adjust to the social distancing measures. As in Mexico, all participants mentioned reducing the frequency of going shopping to approximately once per week to reduce the risk of getting the virus (when before could be twice or more times per week).

Adjusting some food preparation strategies to make food last longer in the households contributed to the new shopping strategy. For example, a participant narrated how she and her husband decided to buy bigger quantities, portioning and freezing food to reduce the frequency of going out. In photograph 17, a household shared how their fridge looked like after doing the weekly shopping. They mentioned going shopping every four days because the size of the fridge limited the amount of food they could store. This household lost some of their total income, but by the time of the interview they were not having issues accessing food. The fridge being full might represent the economic ability to purchase food for the whole week.

Photograph 17:



Participant:

HHSC2a and HHSC2b, large urban

Quote:

HHSC2a: "This is an expression of how our fridge has been lately that's why we were telling you we are going to buy food once a week for the entire week so, yeah.

HHSC2b: Maybe every four days because we don't have a big fridge.

HHSC2a: Depend on what, yeah that is a representation of our fridge, is full for the week"

Doing shopping efficiently was one of the goals of most of the participants in order to avoid being exposed to the risk of getting COVID-19. Some actions that favoured efficiency were going shopping at earlier times of the day when there was a perception of the shops being less busy, and shopping was faster (navigating the food outlet quicker). Also, planning the weekly shopping was mentioned to be a practice that became very common during the first lockdown. Some participants used to plan their shopping before the pandemic, and they kept doing it as they valued the benefits of it (e.g., adjusting to a budget, saving money and food lasting longer).


"My husband and I are very good in the sense of making a list of what we need and where we are going to get it, how much we are going to spend, and that way we save money and it lasts longer" (HHSC3, small town)

Other participants started to plan their shopping in advance to have smarter shopping experiences since the onset of the pandemic. Planning was perceived as contributing to less food waste, and to avoid spending unnecessary money. Food waste can be produced in any of the stages of the food supply chain, but also at household level (Papargyropoulou et al., 2014). An interesting benefit of being more organized

when doing shopping during the pandemic was the perception that households were wasting less food as they were buying only what they needed for the days ahead.

“I think we are trying to not let things expire, we do it more consciously now than before. Because we wouldn’t buy that much stuff for the week, so we wouldn’t think about it like it’s going to expire, we are going to eat it. So, we are not buying £80 worth of food, so we don’t have to be that careful to see when something is expiring or not. If we buy a lot of food, we check when it expires so we won’t let it. Yeah, we like schedule what we are going to eat based on when things expire”
(HHSC2b, large urban)

For one participant, her husband’s ability to cook also helped them to have less food waste in their home. The reduction of food waste in the street also had an impact on the availability of food for animals and birds that are used to getting their food from the streets. This situation reflected the impact of the restrictions on people’s fast-food intake, as less food waste and packages were left in the street. This situation impacted the fauna in urban areas (photograph 18). This shows the intricate interrelation between public policy, human behaviours, and nature. What happens in a level has an impact on the others.

<p>Photograph 18:</p> 	<p>Participant: HHSC2a, large urban</p> <p>Quote: <i>“A seagull started to come like hitting the window [of the flat], because they [seagulls] were hungry and it’s very, I mean not very much in Edinburgh, but the situation [the pandemic] led to the wildlife to get more freedom in the urban areas, and I feel that seagulls are very hungry now because there is not that much food in the street, especially here in the city centre, because people used to always throw away a piece of pizza or you know, piece of fast food, chips and stuff, and this was what the seagulls were eating, and now that there is no more, there is no more actually junk food in the street that they can eat, I think they are very hungry, and yeah, it</i></p>
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	<i>happened already a few times last week that they came to our window”</i>
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Food delivery during the pandemic

Food delivery options from supermarkets, restaurants, and other food businesses seemed to be a common practice amongst the interviewees' households, and probably part of the Scottish food culture. Even though not all the participants were using food delivery options, most of the participants have heard about them. One of the participants had to shield because of an underlying health condition, and her family decided to use food delivery services (either foods delivered direct to their home, or “click and collect”). Even though this was a common practice because of its convenience, it also presented some challenges, such as shops not having enough slots to meet the demand, or employees not following hygiene measures. For example, the participant mentioned that her husband decided to stop buying in a supermarket because the person who gave him his order when he went to pick his parcel up was not following hygiene measures, and he did not feel safe.

“We did not want to order more food there [in a shop] because the employee that delivered the food to my husband came too close and he was not wearing protection, so he [husband] did not feel very safe” (HHSC4, large urban)

This shows how important it was for people to shop in places where rules were followed. Shops that followed the rules protected people's health and this benefitted the shop as they were deemed to be more health conscious.

Some participants mentioned using other types of food delivery options, such as vegetable boxes or food deliveries from local producers. Participants using these services mentioned the benefits they perceived: being more in touch with food, securing access to food during the pandemic whilst staying at home, and an increase of nutritious food intake.

“For years, milk has been delivered to my house, but then when all this [pandemic] started, I saw that they [the farm] also sold eggs, and cream, and I

thought, well it is better if they deliver these too, this way if something is missing, at least I have eggs and milk at home, and cream” (HHSC5, small town)

However, as mentioned by one participant, these services experienced higher demand during the pandemic, forcing the services to ask clients to limit their purchases to allow as many clients as possible to also use their services, and to meet the high demand. The participant shared that he got an email from the veg box shop asking customers to shop just what they needed, and not more.

Having take-aways is also a common practice in Scotland, as well as in the United Kingdom, with a marked increase especially after the pandemic (Statista Research Department, 2022). Some participants referred not doing it anymore because of the closure of shops, but as soon as they reopened, some participants mentioned getting them again. A participant shared a photograph (not presented here) showing the numerous take aways her family had since the reopening of some restaurants, and they were surprised at how many they got. The participant also emphasized the great number of options from where they could get deliveries. Delivery options as well as the great availability of food shops made accessing food easier for some people during the pandemic. It is important to consider the nutritional quality of meals, which are not always the healthiest options. However, take aways covered the need of getting food for some people whilst following social distancing behaviours.

Food delivery options may not be easily accessed by people who are struggling financially given that they can be expensive, they have delivery fees, and they require people having devices to proceed with the order (e.g., mobile phones, computers). So, probably having takeaways was done by households that were not necessarily struggling financially.

Due to the strict social distancing measures, people had to make changes to their shopping habits to abide to the rules, to reduce the exposure to the virus, but also to have enough food supply. Planning shopping was a relevant change that allowed participants to navigate the food environment in a smoother way. Food being delivered

provided an option to avoid social contact but had several restrictions for those with less resources.

In conclusion, many food outlets struggled to keep a constant supply of their products during the first weeks of the pandemic. This intermittent food supply meant that people and households had either to buy more when they could, or decrease the variety of products bought, depending on their economic power. Even though this was a situation that was not lived in high stress by the participants in my study, it has been reported that it was a source of deep distress for families that were already vulnerable, and living with food insecurity before the pandemic (Power, Doherty, Pybus, & Pickett, 2020).

7.2.2 Subtheme 2: Perceptions of the food environment and social distancing measures

The following subtheme presents data regarding issues of the food environment, in particular, characteristics of the food outlets during the pandemic. The participants shared their thoughts and perceptions about the lockdown, and the social distancing measures that were adopted within the shops. Also, information regarding physical aspects of the shops (i.e., distance from their households, and size and layout of shops) and their influence on shopping is presented.

The lockdown affected people in different ways but being worried about how they were going to access food in the future was a common feeling. The following quote reflects the feeling of a participant at the beginning of the pandemic, when she just heard about the social distancing and “staying at home” measures.

“There was this irrational panic of how you were not going to be able to leave your house, you were going to be without food!” (HHSC3, small town)

The idea of not being able to access food because of the measures in place created a lot of stress in people. However, with the progression of the pandemic, participants started to feel more comfortable with the restrictions, knowing that they

were able to access food. Once participants knew they could leave their homes, they noticed changes in the food environment, from their favourite restaurants being closed to empty shelves in the supermarkets. According to the interviewees, the empty shelves occurred days after the announcement of the lockdown, as many people rushed to buy products as a cautionary measure. When empty shelves were seen, participants who had the opportunity to stockpile, felt relieved.

“During around two or three weeks, we used to go to the supermarket and there was nothing left of meat, the freezers and the fridges were empty. I mean we arrived, and it was like “wow” there is nothing, so we said ok, at least we got some [at home]” (HHSC1, large urban).

However, some participants mentioned that empty shelves were a shocking and scary sight that looked like the end of the world.

“It was, yes you feel scared, don’t you? Because you say is it the end of the world? Or what is it going on?” (HHSC3, small town)


All the participants mentioned noticing a decrease in the availability of some foods (e.g., eggs, wheat flour, tomatoes, some fruits and vegetables, tinned tuna, pasta, bread, amongst others). These products were missing in the first weeks of the lockdown, but they were available a few weeks later. Seeing empty shelves caused commotion among most of the participants. Some participants, had the perception that the problem of empty shelves, and shops struggling to stock them, was more prevalent in bigger shops (i.e., supermarkets) than in smaller ones (i.e., corner shops).

As part of the rules and restrictions to ensure social distancing, some supermarkets and shops only allowed one family member into the shops. This rule was not completely appreciated by some of the participants. Many participants mentioned actively trying to find shops where at least two family members could go in. In some instances, some participants revealed that they cheated the rule by pretending they were from different households whilst they were queuing to enter the shops. This preference of shopping with someone else from the household indicated that

behaviours around food, such as going shopping, is also a social experience (Borges, Chebat, & Babin, 2010; Cicatiello, Pancino, Pascucci, & Franco, 2015).

“We have been looking for supermarkets where we can both get in because both of us, we like to eat, we like to choose, and that’s the way we go, and well, we have done it like that” (HHSC1, large urban)

The proximity of food outlets to people’s homes was mentioned as an important factor in deciding where to shop and to facilitate food access. For a participant even the idea of going to a bigger shop, which was further away from his house, meant feeling irresponsible. He felt like that as it required travelling in public transport, he was exposing himself and others to the virus. The size and layout of shops were also mentioned in the interviews. Even though small shops could not ensure proper social distancing, they were preferred by some participants as they could walk them quicker than the big supermarkets. Shops with good layouts were also preferred as participants perceived them as good for social distancing. Photograph 19 shows the impact of the size and layout of shops on how comfortable people could feel when going shopping.

<p>Photograph 19:</p> 	<p>Participant: HHSC6, large urban</p> <p>Quote: <i>“But it’s also because, it is literally a corner shop. So, I kind of have to look in and its one of those moments where if you just don’t think about it, you could just easily run into someone (...) it’s something I changed, basically, I sort of stop and just check and try and look round, and I can’t just kind of walk in to shop as I used to. It’s the same, if you are queuing, I think in general people can’t just walk into shops anymore, they have to be more careful”</i></p>
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People have a direct interaction with the food environment when accessing food. During a public health crisis, the size and layout of shops, as well as the distance to access them, had a strong influence on how safe people felt when going shopping.

7.2.3 Subtheme 3: Perceptions and reasons for stockpiling

This subtheme synthesizes issues related to stockpiling. One of the most seen attitudes towards food was panic buying leading to stockpiling certain products. In the interviews, most participants referred to buying more food and products when they heard about the lockdown. The reason why participants did this was triggered by the fear of not knowing when they would be allowed to leave the house again for food shopping. This uncertainty was also enhanced by the effect of seeing other people buying more food (stockpiling). This information was very similar to the Mexican households. The reaction to this kind of uncertainty varied in degree, from not doing it at all, to buying big amounts of foods that were not even normally eaten.

One participant started to get more food and other products during the pandemic because he was cooking more as a result of being at home. He also mentioned that he was being careful in case he got the virus, and he could avoid bothering other people by asking them to do his shopping. The following quote explains this.

*“My shelves are definitely more regularly stocked than they used to be, but I don’t think at any point I got a little bit overboard, like, I would often (before the pandemic) just not have anything in the house, so when I was working because I knew I could just go down to the shop and get it, so I think a bit more careful, I kind of had in mind that if I do catch it I need to be in the house for seven or fourteen days I know I would have stuff even if it is just like beans, corn, rice, other than that people would need to go out to get too much stuff for me”
(HHSC6, large urban)*

To be cautious and thinking in the possibility of not being able to leave their homes, some participants mentioned thinking that the best choice of products to get, were those with higher starch content, such as oats, cereals, rice, and tinned food. Basically, foods that provide a greater volume in the stomach to feel full. This decision could have an impact on a balanced and varied diet.

“We ended up just stock piling like all these canned goods and just things that won’t expire but got on the top [of the cupboard] and we still have them going, lots of like oatmeal, rice, grain, pastas, all that kind of stuff” (HHSC7, large urban)

Despite getting some extra foods and products, there was almost a consensus that panic shopping and stockpiling was something “crazy” that in many cases did not make sense. In some instances, being reasonable about the situation could win the urge to buy more than needed. The quote below reflects the thought process of one participant when wanting to buy more of a product than what he needed.

“There have been times where I have been in the shop, and I thought I quite like to get flour because I just got half a bag, but I have to stop myself because I thought, well, what’s the point? you could use half bag in, you know, three or four days before I come back to the shop, so there have been times I stopped myself from buying” (HHSC6, large urban)

Moreover, stockpiling could have been related to greater food waste at the beginning of the pandemic. A participant expressed her opinion about the potential relationship of panic buying and an increase in household’s food waste. She thought that getting more food than needed, and not knowing how to store food, could lead to an increase in food waste.

In order to mitigate the harm that stockpiling could cause in the availability of food for people with less resources, portion limits to purchase food were implemented by supermarkets and convenience shops regarding certain products (e.g., flour, cheese, ham) (see photograph 20). This strategy was appropriate to mitigate the damage that stockpiling could cause on those people with less economic resources who could not stockpile.

Photograph 20:



Participant:

HHSC5, small town

Quote:

"This is cheese and ham, and I showed this because this is what is more portioned, the ham and cheese, that is why I sent you this. This is what has been harder to buy, or what we finish the most"

In conclusion, physical access to food suffered some changes during the pandemic. As part of the mitigation strategies, people were asked to leave their homes less frequently, which meant planning their shopping better. The layout and size of shops had an influence on how safe people felt when food shopping. Finally, people felt compelled to buy more products than needed in an anticipatory reaction to the emergency and uncertainty of how long the lockdown was going to last.

7.3 Second theme: Economic issues related to food access

Economic accessibility is one of the pillars of food security. In order to economically access food people must have the economic resources to exchange them for food; and food should be affordable (see Chapter 2, page 29). The population in my study was characterized for being families where one or more members lost their income (partially or totally) due to the restrictions imposed by the government to address the pandemic. In Scotland, in order to decrease the risk of people losing their jobs, a government-initiated furlough scheme was put in place. This scheme allowed people to keep getting part of their income despite being at home without working (see Chapter 2, page 66). Most of the participants interviewed were furloughed by their employers during the first lockdown; others lost part of their jobs or saw a decrease in their work and income (owning a business/working free-lance). When thematically

analysing the transcripts, patterns of information related to economic access to food were identified.

In the following section I describe the subthemes that emerged around the economic issues related to food access. The subthemes are: 1) recognising the household as not vulnerable; 2) balance between community's public health and individual's economy; 3) pursuing stability; and 4) food expenses during the pandemic.

7.3.1 Subtheme 1: Recognising the household as not vulnerable

The participants that took part in my study were not considered vulnerable before the pandemic. All of them had a stable job and were not receiving any kind of food support (other than the statutory child support for families with children). None of the participants were accessing food banks at the time of the interview or have ever accessed food banks, and neither used food pantries nor any other kind of food support. In order to be recruited they had to have a reduction in their income (due to be furloughed or losing jobs or being shielding due to a chronic health condition). Participants did not identify themselves as being socially or financially vulnerable. Although some experienced a loss of income, they did not mention seeing themselves as vulnerable.

Most participants shared a common perception of not being vulnerable during the pandemic, despite having lost a percentage of their salary when they were furloughed. For example, a participant mentioned that during the pandemic her family was even better off financially than before. She noticed that even though they were not receiving their whole income (because her and her partner were furloughed), every single expense had been covered without struggle. This made her conclude that before the pandemic, her family must have been spending money on things that were not necessary at all.

“Now we have realized that we spend a lot on things that are not essential because even though they [her and her husband's employers] are paying us

much less, absolutely nothing has been missing in our home” (HHSC5, small town)

Another sign of participants perceiving themselves as not vulnerable was refusing to accept food aid coming from the government. This was the situation of a participant who was shielding due to her chronic health condition, and who was offered food aid by the NHS, but she refused it because she considered not needing it. On the other hand, when the (health) vulnerability of a person was recognized institutionally, as was the case of this participant, it provided a feeling of security and empowerment. In Scotland, as well as in the rest of the UK, people who had a chronic health condition that situated them at a higher risk of developing a severe disease due to COVID-19 were asked to shield for at least 12 weeks (Public Health Scotland, 2021). Besides this recognition, they were provided with services to make their lives easier. These services were food aid and priority to get their medicines. The participant mentioned receiving a letter with the instructions and feeling empowered.

“Somehow that letter comes to you, and it gives you some kind of security because you know that having that letter you are entitled to many things. To start with if I am a person that [...] if I call the ambulance, I promise you they once came in three minutes, and I know people that have got it in one hour, one hour and a half, so, when you have a letter like this, to me, they called me and they told me “you are in the group of high risk people, so any problem you have you can just call us” [nurse from the NHS referring to Maria]” (HHSC4, large urban)

7.3.2 Subtheme 2: households’ economic scenarios

The following subtheme presents how different working and economic scenarios happened during the pandemic, as well as how participants experienced them, perceived them and acted upon them. All the participants in Scotland, or their partners, reported having less work at the time of the interview as a result of the mitigation measures. In all these instances, there was a decrease in family’s total income. Due to the potential increase in unemployment rate, a decrease in net households’ income was foreseen by the government and strategies to reduce the impact of the restriction

measures were put into place. For example, the furlough scheme (or Job Retention Scheme) was introduced to achieve a balance between protecting public health, and people's economy (NFU Scotland, n/d). Besides this furlough scheme, which helped people to get paid despite being at home (without working), there was the option of working from home for those whose jobs allowed them to do so. However, despite the availability of these options, some people were not able to work from home (i.e., frontline workers), and others lost their jobs.

Thoughts related to job loss / furlough

There was a generalized feeling of stress regarding the perception of uncertainty at the start of the pandemic. Almost all participants mentioned feeling anxious because they did not have clear information of what was going to happen with their jobs. With the closure of business, some participants felt anxious because they didn't know if they were going to lose their jobs. With the uncertainty of having or not having a job, came the worry of accessing food.

Those with their own business (two participants) also reported feeling stressed because of the uncertainty. Besides the anxiety related to their job's future, people also mentioned fearing catching the virus if they had to keep going to work.

The furlough scheme had a positive impact on the way people felt about the uncertainty of their job's status. Those who reported being anxious when the pandemic began, mentioned feeling more relaxed when they were told they were going to keep having some of their income despite being at home. This shows how this kind of strategies can provide (for some people) social safety, protecting people's livelihoods.

Economic pressure and coping strategies

Losing part of the household's income caused economic pressure amongst participants. For example, in one household, economic pressure was referred when the household's expenses shifted from being covered by three members of the family to being covered by just one of them. This caused stress in the person who didn't lose her income. Trying to minimize the harm and stress produced by the decrease in income,

some participants started to consider using their savings and forecasted how long they could last in the future to sustain their lives and basic needs.

“I mean, you are thinking, well, we have savings and then you start thinking, I am very well at managing finance, I mean, I started calculating how much we will have to spend, and with our savings how long we would be able to live” (HHSC5, small town)

As was mentioned before, many of the participants were furloughed, and had a decrease in their total income. For some of them, there was no need to make any changes in the way they were living. However, others had to make some changes in order to be able to optimize their reduced resources. This redistribution of economic resources is a way to leave available resources to access the most immediate needs, such as food.

“We were not going to be able to afford everything [with the reduction in husband’s income] It was like do we eat or what else? It was like putting into balance what was really important” (HHSC3, small town)

In the theory of stability of food security, the likelihood of losing stable access to food is known as vulnerability. Resilience, in the other hand, is how capable of recovering is a person or a household after a crisis (Capaldo et al., 2010; Pieters et al., 2013). Having minimising risk strategies within a household is a determinant of how well a family can cope with financial strain. Some of the features that can improve resilience are the availability of resources, its management, as well as the risk coping strategies (e.g., using savings and assets, redistributing resources to paying needs).

7.3.3 Subtheme 3: Pursuing stability

Coping with job loss – external mechanisms that provide stability

When dealing with a decrease in income, there is a need to rearrange monetary resources, and this meant having to evaluate the priorities in household’s expenses

(Pieters et al., 2013). Being able to afford housing and food were the priorities of participants when feeling concerned about losing their income.

“It was very much like trying to organize and think, and seeing what we were going to do; the basic things are having a roof and food” (HHSC5, small town)

In order to deal with the decrease in household's income, some participants had to ask for delayed payments of their bills (e.g., rent, electricity, gas) in order to have money available to fulfil basic needs, such as accessing food. For example, one participant had to cancel paying instalments for a recently changed kitchen, as well as to stop direct debits for house bills. This was done to control resources and provide some feeling of safety.

“So it was, we had to apply to all what the government gave to us, like it is to pay the mortgage of the house in three months, and last year we changed our kitchen and I had to apply for a holiday payment [...] So, we started to do all these things [cancelling direct debit, cancelling instalments] that helped us, so we did not end up like dry [with no money], right?” (HHSC3, small town)

In other instances, financial support was offered to customers by some companies. For example, participants in a household mentioned receiving an email from the agency where they rent their flat offering delayed rent payments for those who needed it. The participants took this offer given that they were gauging the financial pressure they were experiencing due to the loss of income.

The availability of mechanisms (e.g., job retention scheme, shielding, tax relief for additional household costs when working from home, and others) offered by the government and service providers (i.e., electricity, gas, mortgages, landlords, etc.) had a positive impact on how families dealt with their incomes being decreased. The benefits of these mechanisms were experienced in the short term, but some of them might have a negative impact (increased interests) on the financial stability of households in the future. This long-term impact was perceived by one participant, but her family was more concerned about solving the challenges and needs of the moment despite the future consequences of those decisions.

“But the only problem with this [delayed payments] is that interest grows more and more, so when you go back to paying, you have more interest to pay, like with all banks, right? The more money you withdraw [as in loans] the better for them, so, the truth is that this was the least concern to me, we just applied to that and it was like cancelling all the things that we could cancel that were not essential” (HHSC3, small town)

The actions taken by participants who were financially struggling to mitigate the financial pressure of the pandemic could have had an impact on how they were accessing food. By not having to worry about rent and services, the available financial resources could be directed to cover food expenses. The availability of solutions such as delayed payments could have had an impact of how well a family coped with the negative financial impact of a pandemic. However, these short-term solutions might have future implications.

Stability: working from home and the furlough scheme

Working from home means that a job can function remotely given that it possesses a highly functional technological infrastructure. Usually, these jobs rely on electronic devices with access to Internet data. This means that they tend to be somewhat specialized, requiring employees with a certain educational degree and experience. In Scotland, in 2020, it was estimated that 242 600 employees were on furlough, keeping the unemployment rate at 4.2% in August to October, which was similar to previous months in 2020 (Scottish Government, 2021c). In November 2020, there was an estimation of 7.5% of people potentially affected by unemployment, which was estimated with claimant of benefits count (Scottish Government, 2021c).

Working from home was a well-accepted measure to decrease the exposure to the virus. Some of the participants were able to continue working from home. This experience was described positively. For example, a participant emphasized the effort made by the company where she worked to provide a well-suited technical infrastructure to support working from home.

“I think they put quite a bit of money into it, like they build an app and everything to let us, you know, do everything that we needed to do from home, it was pretty efficient. Everything seemed to go smoothly” (HHSC7, large urban)

Positive feelings were associated with being furloughed. Some participants mentioned feeling relaxed, and even enjoying the situation. The furlough scheme provided a sense of security.

“I was already at home, alone with the girl [her daughter], I think that everything was horrible until the moment that we were told that they were going to keep paying us” (HHSC5, small town)

However, it also represented a loss in income. In some cases, employers would pay the difference between the percentage covered by the government, and the salary of the employees (NFU Scotland, n/d). This was the case of one participant, who was furloughed but still received his salary in full. However, this wasn't the case for everyone.

“So, they [his employers] did agree to pay, they agreed in the end to pay the extra 30% so, I am doing better than some of people furloughed” (HHSC6, large urban)

Different economic scenarios were seen during the pandemic. From those who benefitted from getting their full pay whilst working from home to those who lost part of their income and had to be at home, and those who totally lost their incomes. These differences determined which strategies households took to cope with the financial strain (if any).

7.3.4 Subtheme 4: Food expenses during the pandemic

This sub-theme covers how participants dealt with economic issues in relation to food expenses. Perceiving a change in households' food expenses was mentioned in the interviews. This change could be a higher expense or a lower one, compared to normal. When an increase in expense was mentioned, it was not associated with an

increase in prices but rather with an emphasis on the priority that food took within the total expenses of the household. In one instance, a change in who was doing the shopping was the reason for the higher expense on food. The wife (participant) used to be the one normally doing the shopping before the pandemic, but because she had to shield, her husband took the role of being the one purchasing food.

“So, we used to go the three of us and we spent between £60 and £70, well not, between £50 and £70 per week, but suddenly, now that my husband started to go by himself, he started to spend £100, £120 every week because he brought lots of things” (HHSC4, large urban)

On the other hand, a decrease in expenses was perceived and believed to be associated with the change in routine by staying at home and spending less money on ready meals. This meant a change in the place where some participants used to acquire food, from restaurants and take aways, to supermarkets. This was mentioned by most participants whose job used to be outside their homes before the pandemic, but with the lockdown they had to stay at home, shifting the take-aways for home-cooked meals.

“We definitely spend less money [on food, during the lockdown] than before just because I used to spend at least £5 to £10 pounds every day on buying food from outside [restaurants, shops]” (HHSC2b, large urban)

However, this change differed depending on the size of the household. For bigger families the stress of accessing food would be greater. In the case of a participant’s household with three children, there was a perception of limitation in accessing food because of higher prices and less income (being furloughed).

“We have three small children, and that was what worried me the most, you know? Like, how are we going to do with the food?” (HHSC3, small town)

On the other hand, in the interview with a participant who was single at the time of the interview, the situation of being furloughed, with less income, did not mean a struggle to get food, but an opportunity to choose convenience over price when shopping for food.

“I can go and get it quickly, it does mean things are a bit more expensive because it is not an outlet, but you know that’s ok because I feel lucky enough and I am furloughed, and I still have money” (HHSC6, large urban)

In a household of two people, a participant perceived reduction in food expenses as associated with buying less meals in restaurants. They used to buy a lot from restaurants before the pandemic, and with the lockdown they started to cook more, and they believed they were rather able to spend more money to buy better quality ingredients in supermarkets to prepare their own meals. They would consciously choose more expensive ingredients, despite a reduction in their income.

Affordability of food

Another pattern I identified in the interviews was related to affordability of food. Participants, who were usually in charge of food provision, mentioned being aware of food prices in different shops. This practice started before the pandemic, and it helped when choosing where to do the shopping during the lockdown. Shops with lower prices, which were identified before the pandemic, would be preferred by most of the participants. In one family, food deals were actively sought. For one participant, finding shops with lower prices and food deals meant saving money and having food for longer. These benefits were highlighted in the scenario of the pandemic, when resources were constrained, and there was a concern about providing food for the whole family.

Finally, for those who experienced a loss in their income, access to healthy food could have been restricted. More than half of the participants had the perception that what they considered healthy foods (some examples they gave were salads, fruits, nuts) were usually more expensive and less available than highly processed foods (referred as unhealthy by participants; some examples provided were bread roll with bacon, cakes, chips). Research says that ultra-processed foods, which are high in fats and sugars, are usually cheaper in developed countries, making them more affordable (Aceves-Martins et al., 2022; Baker et al., 2020). The combination of food prices and availability of highly processed foods could represent an easy way to access food when experiencing financial constraint.

7.4 Third theme: Food-related behaviours, diet and health during the pandemic

People's diet is influenced by a myriad of factors. During the pandemic, there were aspects that improved or hindered people's ability to have a healthy diet. This theme covers how diet was affected by changes during the pandemic. The theme has four subthemes: 1) cultural influences of diet; 2) cooking from home and its benefits; 3) facilitators and challenges to eat healthy during the pandemic; and 4) actions taken to promote health.

7.4.1 Subtheme 1: Cultural and social influences of diet

This subtheme explores the role culture had on the way that food and food-related activities were understood by participants. Participants mentioned some references to the main influences of the way they ate before and during the pandemic. There was a recurrent reference to the role of family and the way they grew up. From learned and refined skills to get and prepare food, to preferences about types of shops to access foods. Influence of culture on food habits was also explicitly mentioned by various participants. This was probably related to the fact that some of the participants were from other countries but had been living in the UK for more than two years.

"I think [the way her family eats] is related to culture. To us, cooking is like showing love to the family, like food is cooked in my house, in my house we cook a big platter for a lot of people" (HHSC4, large urban)

As the previous quote shows, cooking is assigned an emotional meaning, which strengthens social bonds. Food is a sign of union and a way to show feelings to other members of the family. The practice of cooking, sharing recipes, and spending time with family could have an impact on whether someone enjoys cooking or not. One participant referred to the way food used to bring his family together before the pandemic, and how this interest in food was translated in enjoying cooking during the pandemic.

“We [the participant and his partner] both come from cultures where food is a priority, I mean, food is something that connects families. In my family, every Sunday we ate with the extended family together or with friends, it was a social activity. It was, it was something important, I mean, food is not just something to survive, food is something that has emotions, that brings us together, that we exchange recipes (...) It is in our daily life, very strong, so, this is why it is not like a tiring activity for us now” (HHSC2b, large urban).

Culture and its influence on food-related (access, preparation) activities, and how people assign meaning to them, seemed to prevail even during a public health crisis. Culture guides action taking, and these actions can, in turn, strengthen culture.

7.4.2 Subtheme 2: Cooking from home and its benefits

As a result of the lockdown, participants reported cooking most of the time. The subtheme explores the feeling associated to it, as well as the potential benefits of doing it frequently and involving other family members. Participants mentioned cooking more frequently, and in some cases also baking more than before. The following quote reflects this transition to cooking more.

“My husband didn’t cook [before the pandemic] and he was more like getting takeaways, or a pizza, you know? And now, obviously because he is feeling anxious, and because he is at home, he cooks. So, there hasn’t been the need of ordering [takeaways], but before we used to order more, a lot more” (HHSC3, small town)

Photograph 21 shows a meal prepared by the participant with the intention of being experimental.

Photograph 21:



Participant:

HHSC7, large urban

Quote:

“That is one of our likes, we were being fat kids that day, so that is a pizza crust that we had leftover, it’s not baked yet, but [name of husband] decided that he wanted to put a can of spaghetti and pasta hoops on the pizza, so it was really gross. It didn’t turn out very well, but it was kind more to show you that we are kind of being gross, and very like experimental”

Some participants mentioned some of the strategies they used to cook during the pandemic. Some people mentioned getting ideas from friends, relatives, TV programmes, or by researching what to do with particular ingredients. Some participants mentioned cooking and freezing meals to save time during the week. Cooking also was associated with positive feelings besides the social bond that it creates. Photograph 22 shows how cooking a particular meal brought him happiness.

Photograph 22:



Participant:

HHSC6, large urban

Quote:

“[This photo] was one of the few ones that I actually like, I immediately had a reaction to when I looked back on, and it was just a feeling of like, I don’t know, happiness or satisfaction, cause it is one of the things which I always wanted to try, never done and it worked and it made me happy, and I get that a little bit with other stuff like hobbies or things I haven’t tried cause I didn’t have the time to do it. So, I think that’s why I put it in because I always wanted to try and it worked and made me quite satisfied with, that’s a positive thing for sure”

Cooking can enhance confidence in oneself. Achieving to cook something desired, can spark a feeling of happiness, which was probably a positive aspect during the pandemic. For other participants, even though they had strong cooking skills, cooking was perceived as an activity that demanded a lot of work because it is done every day.

“I also feel that because we are all together, and we all have to eat, the dynamic is completely different [than before the pandemic], so we have to make breakfast, lunch and dinner, all together, which means more work” (HHSC5, small town)

The inclusion of different family members in food preparation and cooking during the pandemic was commonly mentioned during the interviews. In one interview, one participant mentioned that before the pandemic she used to be the one cooking, but during the first lockdown, her husband started cooking too.


“Now that he [husband] is in the house the whole time, he is in charge of cooking one hundred percent. But before the pandemic, he also used to cook but less frequently, because of his job obviously, he didn’t spend a lot of time at home” (HHSC3, small town)

A participant mentioned giving some cooking or food preparation tasks to her daughter, who is a teenager. This was to help entertain her at home, and also to teach her some cooking skills. Probably this could be considered one of the collateral benefits of the pandemic and the mitigation strategies. Being at home could have been a good opportunity for other members of the family, especially the younger ones, to learn cooking skills that would be useful for their adult lives.

7.4.3 Subtheme 3: Facilitators and challenges to eat healthy during the pandemic

This subtheme summarises the perceptions participants had towards the impact of the pandemic on their diets. Being at home made some households change the place where they used to have their meals. For example, three households mentioned eating in the living room whilst watching the TV when they didn’t use to do it before. This

change was referred to be a result of looking for variation in their daily routines (photograph 23).

<p>Photograph 23:</p> 	<p>Participant: HHSC1, large urban</p> <p>Quote: <i>“Something that has changed is that before [the pandemic] we didn’t use to eat in the living room as much as we are eating now, because we ate in the dining room, or we went out for dinner. We always used to eat lunch in the dining room, so now what has changed is that normally we eat lunch and dinner in the living room, we choose a TV programme we like, and we eat. But also, it is because we spend a lot of time cooking so there is a moment when we are tired of cooking, and we go to the living room”</i></p>
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The place where meals are eaten provided a variation in the routine that the lockdown created for people. Eating watching TV can have some negative consequences, such as not having a mindful eating, which can incur in eating more than needed, especially in children (Ghobadi et al., 2018; Vik et al., 2013).

There were several references to emotional triggers for eating. For example, for a participant eating some snacks, which were calorie-dense, satisfied her need for something new and exciting during the day, something to distract her from her normal routine with her daughter and husband at home.

“It is very difficult, because you are so overwhelmed doing the same every day, you wake up, you have breakfast, you give breakfast to your daughter, you wash your clothes, you clean this, go out to the patio, you get wet, you go inside, then what you need is something new, you want something that excites you. My husband says that what excites me the most in the world is eating, so you obviously want to eat a chocolate, you want to eat some crisps, I like spicy snacks, so you always want something new, something that maybe doesn’t satisfy the need of going out and seeing other people, but it satisfies eating, something, something that is not healthy” (HHSC4, large urban)

Anxiety could also lead to eating more. For another participant, feeling anxious and bored was a trigger to eat more than what she knew she needed.

“I think is anxiety, it is the fact that there is nothing to do, and food fills a hole, I think is related to the anxiety of being at home the whole time, and how do you relate with food, right? What meaning you give to food, and eating constantly” (HHSC3, small town)

The pandemic (including the news in the TV and social media) was generally considered challenging and taxing, and eating highly palatable foods could be associated with a form of providing joy or reward for coping with the pandemic. Some participants agreed on this.

“So, yes, the truth is that we have been trying to eat healthy, but I don’t know if it is because we are locked in, and the lockdown makes you want to compensate, and eat, eat as a reward. We eat as a reward, it is because I deserve it” (HHSC5, small town)

The participant referred to eating foods that were highly palatable, and normally not very nutritious. The inclination to eat highly palatable food speaks about eating more than wanted, and has been also described as hedonic hunger (Lowe & Butryn, 2007). It is beyond the scope of this thesis to discuss this topic, but I thought it was worth mentioning it briefly here as it can have an impact on FNS.

During the interviews, participants also talked about changes in their diets. One generalized change was that almost all households started buying frozen food (including fruits and vegetables). This was not a regular practice before the pandemic, and it was referred as something that they would normally try to avoid because of being considered less healthy than buying the fresh option. The main reason for the acquisition of frozen goods was because participants were trying to follow the rules by not going out often (photograph 24).

Photograph 24:



Participant:
HHSC4, large urban

Quote:

“That is one of the things we added to our diet, adding frozen vegetables, you can see the frozen fruits. My husband brought pies one day, I don’t eat them, but he will have them when he wants a quick lunch, because that is what he eats, fast foods. Buying frozen foods helps you when you are in a rush, but we try not to eat them every day”

Other participants mentioned other reasons. A participant mentioned having frozen pizza for any kind of emergency, or if he didn’t feel like cooking. Another participant, HHSC4, mentioned having some frozen ready meals for those days when she didn’t feel like cooking because of her health condition. This would made things easier for her and her husband and the day would not go without food.

Participants also shared their perceptions regarding their diets becoming more or less healthy than before. Some participants thought they were eating healthier and associated it to cooking more. Taking the time to cook from scratch was thought to be a synonym of healthy food as the next quotes reflect.

“Definitely for me yes [having a healthier diet during the pandemic], because for me having a healthy diet means also having the time and space to prepare for that, and now we have the time and space, so, for me this is very helpful, because it is all about slow food and before it was fast food, and I was eating a lot of crap food outside, and now we are cooking every day” (HHSC2b, large urban)

“It feels like I’ve eaten healthier from the fact that every meal, more or less, is made from scratch” (HHSC6, large urban)

Also, most of the participants referred a positive change when having their meals at fixed times. A participant mentioned that he liked having set times for his three meals, compared to a more disorganized schedule when he was working before the pandemic. Another participant felt the same way, and both referred feeling better health-wise.

On the other hand, for some people eating healthy during the pandemic was more challenging. The main reasons for this were: coping with a lot of emotions and anxiety and eating more food because of feeling bored and being at home for a long time.

“At the beginning [of the pandemic] we started eating very rationally, thinking we had to take care of our economic resources, because [they thought] the world is coming to an end. But now we are getting crazy. Because as we can go out, and we have seen that shops have everything, so now we feel we can eat. I think that it is because we are bored and we have nothing to do” (HHSC5, small town)

In conclusion, cooking at home, having the time to cook, and healthy foods being available at home were identified as factors that facilitated healthy eating during the pandemic. However, feeling anxious, stressed, bored or afraid limited the potential benefits of those situations. The participants did not mention experiencing significant changes in the quality of their diets, on the contrary, most of them said their diets improved during the first lockdown. This situation could have been different for people who struggled more financially during the pandemic.

7.4.4 Subtheme 4: Actions to promote health

This subtheme concerns information regarding the acknowledgement of taking actions to protect health. The most pressing health concern was to be protected of getting COVID-19, and hygienic actions were adopted to decrease the risk of infection.

The fear of getting infected with COVID-19 pushed people to take more hygienic measures than usual. Some of the actions that participants referred were cleaning and disinfecting bags of shopping and parcels, as well as deep cleaning the rooms where they would receive food shopping. For example, participant HHSC4 mentioned asking her husband to clean himself after bringing the food shopping into the house. For another participant, more than taking hygienic measures to avoid the virus, he mentioned feeling that being hygienic was a social duty.

“From the very start I tried to clean everything (...) I think it is just kind of a thing like a social duty, this is what we should do, [his flatmates] have all been doing it,

they have been spraying and rubbing all the stuff they bring in, and all the parcels we get” (HHSC6, large urban)

In just one interview, supplements and foods rich in certain vitamins were mentioned as a way to increase protection against the virus. The participant mentioned taking vitamins in order to enhance her and her husband's immune system. She was conscious that going to the doctor was hard during the pandemic, so this made her take extra measures to improve their health.

“I was saying that we can’t go to the doctor, to the GP, we can’t get sick, so, what can we do from home to stay strong? So, I think we put more emphasis than usual in what we were eating. Well, vitamins, vitamin C for example, because I was reading about COVID, well how we can get stronger, so vitamin C (...) if I didn’t buy the supplement, then I will buy kiwis that apparently have a lot of vitamin C, kiwi, oranges (...) so we don’t get ill, and if we do, then is not so bad. You can’t know, but it is all about being stronger” (HHSC1, large urban)

This action reflected an understanding of a relationship between food and nutrients on health. All participants were aware of the relationship between food and physical health, and the prevention of diseases. A couple of participants also considered that diet has an impact on mental health and how someone feels during the day.

To conclude, participants focused on avoiding getting the disease, and many actions were taken to reduce the likelihood of bringing the virus within their homes. In a few instances, food was also seen as a way to protect the immune system to fight against COVID-19.

7.5 Conclusions

Participants in Scotland talked about their experiences around food access during the pandemic. The following box presents the key finding in relation to the pillars of FNS (which are aligned with the themes).

Summary of Key Findings

Physical Accessibility

- Participants preferred smaller shops with good layouts where shopping could be done quicker. Restrictions on how many household's members could get into shops were not taken with the same level of acceptance as other measures, revealing the social nature of food and its related activities.
- Planning was an important feature that made shopping more efficient and decreased exposure time.
- Food delivery services were used frequently, but they also presented some challenges (lack of slots).
- Following rules related to social distancing was done given that people were conscious about the risks of not following them.
- There was an initial uncertainty of the pandemic and its measures, prompting panic shopping for those who could afford it.
- Food outlets struggled with the scarcity of some products, as a result of panic shopping and readjustments in the food system.

Economic Accessibility

- The beginning of the pandemic was negatively experienced by all the participants, because of the uncertainty of the measures and the future of their jobs.
- Being eligible to furlough scheme eased feelings of stress, and anxiety. Concerns related with loss of income were less, with exception with those families that had more economic dependants.
- Being able to work from home, opportunity to have delayed payments of services, being recognised as vulnerable by the NHS also provided people a sense of economic security.
- Shopping in shops with lower food prices, looking for food deals were strategies adopted by participants to save money.
- In a few cases, participants perceived a decrease in their general household's expenses despite the income loss.

Utilization

- Changes in diet-related behaviours were reported especially because of routine changes. Cooking felt like a step closer to have a healthier diet.
- Participants abided to the rules because of a personal sense of caution.
- Cooking was viewed as an enjoyable activity, especially when other family members were involved. However, cooking every day was seen as an exhausting job.
- Other food-related behaviours changes: eating in the living room, buying more frozen foods, and having food cravings were associated with emotions.

8. Chapter 8: Scottish Stakeholder Interviews

8.1 Introduction

Seven Scottish stakeholders took part in the interviews. Stakeholders came from different backgrounds but worked with topics related to access to food. Two participants were academic researchers; three worked in third sector organizations that work with either the provision of food aid or other food-related services; one was an MSP (Member of the Scottish Parliament) working around the topic of the right to food; and one worked in Public Health Scotland (the national public health body for Scotland) (see table below).

Table 14 Table showing the area of work of each of the participants

No.	Area of work
SHSC1	Researcher food insecurity
SHSC2	Researcher food insecurity
SHSC3	Food community initiative
SHSC4	Food community initiative
SHSC5	Third sector organization
SHSC6	Government
SHSC7	PHS

Stakeholders talked about their perceptions about the pandemic and the mitigation strategies, and their impact on people's ability to access food. After analysing all the transcripts four themes were developed (Appendix 22, page 422) shows themes, subthemes, and the categories of codes that comprise each of them):

1. The right to food and the role of government is widely acknowledged by different stakeholders in Scotland
2. The pandemic impacted food availability and affordability, from the perspective of offer (food system), and access (individuals and households).
3. Food aid during the pandemic was abundant: a situation to be proud about?
4. Third sector organizations' role during the pandemic

8.2 First theme: The right to food and the role of government is widely acknowledged by different stakeholders in Scotland

Understanding the right to food, and its components, can facilitate its' implementation (Pollard & Booth, 2019). A partial or inaccurate understanding of what the right encompasses can result in failure of exercising it, and even worse, not implementing the collective actions to make it justiciable. This theme presents the way Scottish stakeholders understood the right, as well as its' main components, and the role of the government to implement it. I explicitly asked participants if they were familiar with the right to food and asked them to describe it. Also, woven in their interviews were constant references to the right, demonstrating their familiarity with the concept.

Stakeholders had a thorough understanding of what the right to food is, and what it encompasses. It was interesting to hear that most of them understood the right to food within the parameters of the formal definition (see Chapter 2, page 46). This was interesting given that I did not choose the stakeholders based on any kind of criteria that indicated they had a thorough understanding of the right to food, just that they worked with food-related issues. The fact that all participants were familiar with it was an indicator that its narrative is becoming dominant in the Scottish scenario. However, it is also possible that as part of their preparation for this interview, they might have looked it up and ensured they knew what this was about. The main description participants provided was centred on the responsibility governments have in order to create an enabling environment for people to access food.

Stakeholders emphasized the obligation of the government to respect the right to food without creating situations that challenge or obstruct people from accessing adequate food. An emphasis on the need of having laws and policies that protect and promote the right was made, as well as their constant evaluation. The responsibility of the State is one of the main components that define the right to food, and it was positively surprising to hear that stakeholders were aware of it.

In addition to the role of the government to ensure the right to food, participants highlighted the unequivocal role of income in accessing food. They emphasized the need of having the economic ability to access food.

“It [the right to food] is about enabling people to be able to feed themselves. And that to me, then, also speaks too of it being something to do with the household economics and having sufficient income to be able to secure a stable, protective, food supply” (SHSC1)

Having the means to access food is one of the most important determinants of achieving the right to food (along with the enabling environment promoted and facilitated by the government). Considering this, it was mentioned that when organizations, or the government, aim to help people to access food, food should not be the only thing provided to those who need it. Support should be focused on enhancing people’s ability to get a job, to have an income and to maximise it, to navigate systems (i.e., benefits, welfare), among other skills and knowledge.

Dignity was mentioned as another important element. As one stakeholder mentioned, it is also important to consider dignity, seen when people have a job that they enjoy and provide them with dignified conditions. Dignity is at the core of the human rights-based approach (UNFPA, 2005), which extends to living with dignity in all spheres of life.

“That [food insecurity] is a large problem that Scotland needs to resolve drastically but it comes a lot from poverty, from education, from lack of jobs, not just jobs but meaningful work, work that gives you meaning, work that you can get thoroughly involved with, there is a lot of crap jobs in these places, but yes, it is a historical issue, and it is not as simple as just having no good shops in poor places” (SHSC4)

Understanding and valuing the drivers to access adequate food is of utmost importance to guarantee the realization of the right. From the perspective of the stakeholders, the right to food is not having free food delivered to those who are more vulnerable. There is a robust body of research that supports this (Booth & Whelan,

2014; Lambie-Mumford & Dowler, 2014; LambieMumford, 2017; Poppendieck, 1994; Riches, 2002; Tarasuk, Fafard St-Germain, & Loopstra, 2020). Food aid deviates the attention from the need of solving structural problems that lead to food insecurity, such as unemployment, low income, lack of social protection policies, as well as the lack of healthy foods being available.

Stakeholders also referred to the importance of people participating actively in shaping the food system. This, along with people having a more active role when choosing food, is part of a concept called food citizenship, which has the right to food at its core (Gómez-Benito & Lozano, 2014). At the same time, a human rights-based approach requires the active participation of people (UNFPA, 2005).

In conclusion, there was a clear consensus on how stakeholders perceived the right to food. Their understanding of the right was very accurate. I had the perception that participants didn't over or under emphasized any of the components of the right to food. This understanding can give an idea of how the concept of the right to food in Scotland is being expanded to different fields. In the future, this could facilitate the implementation of guidelines and laws to ensure the right is accomplished.

The right to food in the Scottish public agenda

In Scotland, the Good Food Nation Bill passed in 2022, after more than five years of planning it (Scottish Government, 2022b). The Bill aims to include the right to food in the Scottish legislation, showing that the right to food had been in the political agenda before the pandemic. The effort made by the Good Food Nation Bill was mentioned by some of the stakeholders. Based on the recognition that the government has a pivotal role in promoting the right to food, its inclusion in legislation was considered a definite step towards the achievement of the right to food in Scotland. Having a law for the right to food was thought to bridge the theory of the right with its' actual implementation and delivery.

“There is potential disconnect between legislation and delivery [of the right to food], but having the legislation is potentially a game changer” (SHSC6)

Having a legislation that promotes and protects the right to food does not guarantee that the right will be accomplished immediately, it needs time, as the principle of progressivity states (CESCR, 1999). Some stakeholders commented on the time that it would take for changes to appear after a legislation is put in place. Also, having mechanisms to make the right enforceable was mentioned as a necessary element to be able to advance in the accomplishment of the right to food.

The right to food during the pandemic

Stakeholders shared their perceptions about the impact of the pandemic on the right to food. For some participants, the right to food had not been totally protected even before the pandemic. Stakeholders thought that the mitigation strategies prevented people from realizing this right. The government aimed to protect people from the pandemic, but the mitigation measures also prevented people from doing activities that allowed them to access food (i.e., not being able to work, loss of income), and therefore realizing the right to adequate food.

According to the stakeholders, as well as in published papers (Gundersen, Hake, Dewey, & Engelhard, 2021; Mardones et al., 2020; Mueller et al., 2022; Niles et al., 2020), many people became vulnerable to access adequate food during the pandemic. Stakeholders shared their concerns about the consequences of food insecurity on people's mental health, and the threat it represents to social justice. The following quote explains this.

“The human right to food for me relates with what Sen called “entitlements”, so this is central to getting food, but I think is also central to issues of social justice because lack of food compromises a person’s right to personhood and social justice, because it is undignified and people can get so caught up and be in a spiral of despair about food insecurity, health problems, particularly mental health” (SHSC2)

Facing a situation without precedents such as the pandemic, required governments to take actions to protect people's health immediately. However, these actions, caused significant disruptions in people's lives in the short and long term. An

interesting remark from a stakeholder was about the need of policy makers to focus on the long-term impact when designing and implementing policies. For her, policies are usually planned in the present, and this can lead to unintended consequences, that can be harmful for some people. She mentioned this as an argument to support her thoughts about how the government strategies to protect people's health also caused negative consequences.

“We tend to focus initially as a society and as, you know, governments, our attention is drawing to what is in front of us with, and we don't really [focus] in policy cycles, I mean that we don't tend to think long term, maybe on five years, is about here and now” (SHSC1)

This emphasised the challenge that policymakers face in order to solve acute problems without worsening inequalities, and other unintended consequences (Hall, 2014). It highlights the importance of working towards improving structural issues in order to be more resilient when acute and sudden actions are taken when crisis arise. In addition to the loss of income, participants also referred to the issue of delayed diagnosis and treatments, worsening morbidity and mortality (Maringe et al., 2020). Participants commented that the measures implemented were going to cause more harm in the long term because of the inequalities they were widening in the population.

8.3 Second theme: The pandemic impacted food availability and affordability, from the perspective of offer (food system), and access (individuals and households)

The second theme reports stakeholders' perceptions about the impact of the pandemic and mitigation strategies on both the food system, and individuals.

Impact on the Scottish food system

During the pandemic, mitigation strategies as well as their consequences (i.e., people losing their jobs and income) had a direct impact on the food system. There was shortage of some products at the start, which indicated changes in the food supply

chain caused by the pandemic (staff getting ill, less production), but also a consequence of panic shopping (Loopstra, 2020).

“It was clearly an initial huge spike [of food insecurity] which was associated not only with the economic challenges that people were facing, but also, initially, with constrained access to the food (...) the food supply failed in the supermarket system, it was placed under great strain as it was panic buying and challenged with, you know, supplying and keeping supermarkets provisioned” (SHSC1)

Despite the shortage of products, stakeholders mentioned that they perceived the food system to be very resilient and responded quickly to the challenges brought by the pandemic.

“The way the food system operates, appreciate just how flexible and responsive and capable, and how little room there was for problems in the food system, which is why there was an immediate reaction to panic buying, but actually the system can readjust just incredibly quickly, and make sure as long as people are going to buy the stuff, that it would be there on the shelves and available” (SHSC7)

In a final comment, showing the inequality of the pandemic’s impact, a stakeholder mentioned the difference in impact on food businesses, where local and smaller businesses suffered a greater impact, whilst the supermarkets did well, and even managed to make profit. In addition, for a couple of stakeholders, there was still work to do to improve inclusion of local producers in the market, which would have an impact in the sustainability of diets and the food system.

Impact of the pandemic on individuals and households

Stakeholders commented on the impact of the pandemic at individual and household levels. They talked about the challenges people faced to access food during the pandemic, with especial attention to food insecurity. There was a general perception of an increase in food insecurity primarily because of the economic challenges that people were facing. During January-March and April – June 2020, employment rate in the UK fell from 76.3% to 75.5%, and to 74.6% in November 2020 – January 2021 (Powell, Francis-Devine, & Clark, 2022). Around 7.5% of people were affected by

unemployment in Scotland in November 2020 (Scottish Government, 2021b). This situation decreased the total income families had before the pandemic. In average, in the UK, household income (including benefits) decreased 8%, which was estimated as a loss of 160 GBP per month; but this loss was worse for the poorest, with a loss of 15% in their median household earnings (Bourquin, Delestre, Joyce, Rasul, & Waters, 2020).

Many stakeholders reflected on the problem of food insecurity that has been identified in Scotland since some years ago. The UK is a country that despite being considered a developed country, has an estimated high prevalence of food insecurity compared to other countries in Europe (Davis & Baumberg Geiger, 2017; Loopstra, 2020).

For stakeholders, the impact of the pandemic on access to food could vary in intensity according to the previous situation of the individual or the household. Stakeholders mentioned that people in deprived neighbourhoods might have worried more about accessing food and chose different foods to match their budgets.

“I can’t generalize, but people living in more deprived communities are more likely to face food insecurity, which for them means that they’re perhaps unable to afford to buy food that is gonna meet their needs or their family needs as well, but recognizing that while people can afford food, they might not always be able to afford healthy, nutritious food” (SHSC3)

Choosing lower quality foods can have a negative impact on people’s health in the short and the long term (Laraia, 2013; Leddy, Weiser, Palar, & Seligman, 2020a). It is also of great importance to recognize mild food insecurity as a reason for concern as well as hunger (severe food insecurity) (see chapter 2, page 37). This situation happens more often in developed countries, where people experiencing economic issues are more able to access cheap low-quality food, which is more available, rather than not having any food at all, and experiencing lower weights and hunger (FAO, 2019b).

Identifying vulnerable people during the pandemic

Stakeholders shared which were the population groups they considered to be more vulnerable, which meant having a worse time when navigating the pandemic. All the stakeholders agreed that those who lost their jobs, and therefore lost part of their earnings, became more vulnerable. Other population groups stakeholders considered more vulnerable were: people who had precarious contracts; people working in the food industry; people who were living in deprivation, and receiving benefits; people who were already struggling with accessing food when the pandemic started; frontline workers; those shielding for medical reasons; students (because a lot of them were working in the hospitality sector and had to stop working); people living by themselves, especially the elderly; ethnic minorities; and the self-employed. In summary, many of the vulnerable populations were already in a situation of vulnerability before the pandemic. Hence, the pandemic made their situations even worse. As one stakeholder put it: *“Everybody was in the same kind of boat but a sort of different storm” (SHSC3).*

Stakeholders mentioned some of the mechanisms that led vulnerable people to struggle with accessing food. Having a loss in income and/or earnings meant deciding between paying heating bills or food. Also, the rising cost of life worsened people’s situations. Also, having debts and being swallowed by them.

“I think the combination of losing incomes, having higher heating bills, and then having restricted access to affordable food has been a combination that’s been a real disaster” (SHSC6)

Some participants also mentioned that some people experienced a more nuanced impact of the pandemic, possibly related to a combination of the household (pre-pandemic) socioeconomic status (SES) and the availability of schemes to soften the impact of the mitigation strategies, such as the furlough scheme.

Also, stakeholders mentioned characteristics of the food environment that could have had an impact on people’s ability to access food during the pandemic. The main issue was the proximity of food outlets to people’s homes. Not having a food outlet nearby meant having to commute, increasing expenses and increasing exposure to the

virus. One stakeholder referred to the challenging situation people in remote areas of Scotland face due to the limited options of food outlets and their fragility due to weather conditions. This situation sheds light on the importance of the food environment and the availability of food outlets at easy reach.

Online food delivery was widely used in Scotland during the pandemic. However, with its increased demand, getting slots to have food delivered was complicated after some weeks. This situation was mentioned by a couple of participants in the households' interviews, including one person who was shielding. Shielding, was perceived by the stakeholders as a situation that directly challenged people's ability to access adequate food.

Finally, stakeholders mentioned stockpiling as an activity that in addition to creating scarcity, could had only been done by those with more economic resources. People with less resources could not afford getting more food and products than needed. As one stakeholder described it, stockpiling had its own sociodemographic dimension.

"Panic buying was a challenge if you don't have the money to panic buy, and if you don't have, if you don't drive to the supermarket, so if you have to carry your panic buying, that limits what you can do. So, panic buying had its own sort of sociodemographic dimension in terms of how much you could afford to panic shopping" (SHSC7)

Digital exclusion and social isolation

Digital exclusion was mentioned by stakeholders. The internet was used to access food, services and even education during the pandemic (Chenarides, Grebitus, Lusk, & Printezis, 2021; Mouratidis & Peters, 2022). Not everyone has access to the Internet, or to electronic devices, especially a third of the people living with low incomes (Halliday, 2020). During the pandemic, the lack of these tools was a disadvantage for some people to access food and other services (including education) (Halliday, 2020).

This situation was tied to social isolation. As people had to stay at home, this meant reducing social interactions in a very significant way (Sanders, 2020). According

to one stakeholder this was particularly hard for the elderly and for ethnic minorities. Having social interactions is beneficial for many reasons, from the impact it has on mental and physical health (Ingram, Hand, & Maciejewski, 2021; Razai, Oakeshott, Kankam, Galea, & Stokes-Lampard, 2020), to the role it plays when accessing food. Social interaction can facilitate access to food (food sharing, and knowledge sharing) (Loopstra, 2020; Mogaji, 2020).

Stakeholders also commented on the role that food aid provision services can have in facilitating social interaction with other members of the community, contributing to their mental health. During the pandemic activities that required social interaction in this kind of services had to be suspended. In the words of one stakeholder, this situation should have been foreseen before implementing measures that required these places to close or to limit their activities given the negative consequences that isolation could have on service users.

“I don’t necessarily would say I would blame the government for that but I do think more thought should have been put into place, particularly when some places seem to be open and there doesn’t seem to be any, there’s no reason for them being open (...) essential places were closed for, it wasn’t so much the food side of things, it was also the social and welfare support side of things, and the lack of social support, I think, impacts on food security even when food is available. Because food is more than just nutrition as we know” (SHSC2)

8.4 Third theme: Food aid during the pandemic was abundant: a situation to be proud about?

This theme is about food aid during the pandemic. All stakeholders talked about food aid, how it changed during the pandemic, as well as its effectiveness. There were also comments referring to food banks, their role and how they don’t contribute to a long-term solution to the problem of food insecurity.

Stakeholders mentioned that during the pandemic many people started using food provision services, including food banks, food pantries, and other services. The reason for accessing food aid provision services by households was perceived to not necessarily be because people didn't have food, but to help themselves financially because food is a huge expense of income.

However, accessing food aid services during the pandemic could have been challenging for some people. Stakeholders shared barriers and facilitators to access food aid. Some of the barriers were related to people being new at using this kind of services and not even knowing which services or programmes were available. As one of the stakeholders shared:

“There are a great [number] of people who are now what are called “newly poor” or “newly vulnerable”, “economic vulnerable” because they were never in a position to even imagine not being able to, you know, live from their business or put food on the table, or have certainty of an occupation that is now disappeared, and they actually don’t know how to navigate the [benefits] system and don’t see themselves as being worthy, or see themselves as being candidates to be part of that system and access that system and who won’t, who would probably run down any savings that they’ve got there, you know, before they get to the point where they think of having to, or are forced to look for support from universal credit or whatever, benefits” (SHSC1)

Digital exclusion also played an important role in accessing food aid. Not having the technological skills, access to a computer or a cell phone with internet, hindered searching and applying for food aid or other online services. In addition to this, stigma was also a perceived barrier to access food. As one stakeholder mentioned it:

“It can be a challenge for people that never had to ask for help because they’ve always provided for themselves and their families, they are used to it. So, I think there is a psychological barrier alongside” (SHSC7)

GP's (General Practitioners) refer patients to support services. During the pandemic, health clinics were closed to the public, and people could only access

doctors by calling the clinic. This could have limited people's willingness to seek for a doctor, hence hindering the possibility of GPs to refer patients to support services. Another potential obstacle for people to access food aid was having children at home. Parents taking care of children's education whilst attending other responsibilities challenged looking for options to access food support. In addition to the barriers to access these services at the individual or household level, stakeholders also mentioned that these services have very lengthy processes, and they could be quite bureaucratic.

Stakeholders also identified facilitators for people to access support services during the pandemic. First, if someone had used the services before, at least once, then they knew how to access the service and the benefits provided. Second, be able to be in touch with community workers or GPs. And third, if there was not any stigma related to accessing food aid.

"There is help out there, but you need to search and find it, and sometimes you just get lucky because you know the right person or you have, you already have the organization in, like we [her organization] do link up with like the GPs, the community link workers, so I think that is our biggest one if anyone was needing their GP" (SHSC3)

Even though the benefit system is not actually solving any structural problem, it does provide support for those who unfortunately fall in a challenging situation that hinders their ability to access food and other resources to cover their needs and their families'. Hence, it could be relevant to make it more visible and accessible for those who have never used it before.

Changes in food aid provision

Stakeholders talked extensively about food aid provision during the pandemic. There were a lot of options available, some of them having started before the pandemic. Food aid ranged from emergency food packages, cooked meals, community fridges or pantries, as well as food banks.

Stakeholders mentioned how food aid provision had to adapt to the challenges of the pandemic. The pandemic required quick actions from third sector organizations and

community centres to adapt and be able to keep providing their services. Participants who were part of third sector organizations shared the main changes they had to make in order to be able to provide food for people without increasing the risk of getting COVID-19. Some of the changes were delivering food aid to people's houses instead of people going to the premises to pick the meals/food up; offering meals/food outdoors instead of inside the venues; or even changing to online delivery of workshops or training. However, with this last resource, even if it apparently worked for some users, stakeholders mentioned that this was not their preferred way to provide services given that they are organizations that work with people, face to face, and going online defeated their mission. Online delivery was perceived as effective by making resources more efficient, but users lost the opportunity to leave their homes and have a little bit of safe social interaction.

“At community level had to reconfigure everything they were doing, and did that remarkably quickly as well because they couldn't run community cafes, they couldn't run lunch clubs for older people, well, I mean their whole, there lots of work done with parents and toddlers, or you know all sort of work, that communities do, that was just impossible since the first lockdown started and they were equally flexible and good turning a lot of their effort to basically make sure food got to people who either couldn't afford it, or who couldn't leave their house even if they could afford to buy the food because they were shielding. So, there was a major reconfiguration in the community centres just as it was in the private sector” (SHSC7)

For the communities and organizations, adapting to the pandemic meant mess and frustration because of the restrictions and the actions taken to reduce the risk of getting the virus. Organizations had to deal with reduced staff, whilst trying to protect their users' health.

“An awful lot of the community sector could get incredibly frustrated and wanting to do more. But honestly, it is different from another, from another kind of crisis, it was one where doing more, or doing what they would like to do could actually

*endanger themselves, and endanger the people they were trying to help”
(SHSC7)*

The unprecedented nature of the pandemic caught everyone off guard. A lot has been learnt since then, and it would be advisable for organizations and community food initiatives to have risk management plans, considering scenarios of lockdown. The lack of planning as well as the limitations in resources complicated the work of these organizations.

Cash approach

Cash approach to provide support was also mentioned. This approach was perceived as being better because it allowed people to choose where to spend their money, and to choose the food they want. In food insecurity, the main problem, as it has been explained in Chapter 2 (page 35), is the lack of economic resources to access food. Also, choosing one's food is part of the right to food, as it means that people have the freedom to have their own food preferences, and follow their culture and traditions. This is limited when food is provided as support. Stakeholders emphasized their agreement with cash approaches in the UK during the pandemic (Gentilini et al., 2020 ; Scottish Parliament, 2022b). They also agreed on food vouchers and suggested that parents receiving school meals would also prefer cash to be able to choose healthier foods for their children, than the one coming in food boxes.

“The campaign that was run was to get people money rather than free food, because if it's actual money it's potentially more supportive to them than actually giving them access to random free food that might not suit their taste, that might not suit their medical requirements or meet their cultural requirements” (SHSC6)

Even though providing cash could be a more dignified solution to helping people to access healthy food, there is the issue related to the food environment. In order for cash to be exchanged for healthy and nutritious food, it means that there are food outlets or food markets at a reachable distance from people's households, food being affordable, and with a diverse food offer.

During the pandemic, the Universal Credit (which is a payment made to people over 18 on a low income or unemployed to help with living costs) was increased £20 per week (Scottish Government, 2022a). A stakeholder mentioned that in the news, this rise was portrayed as being very generous. The perception was that even though cash is better, the fact that £20 made a difference in a household's wellbeing was seen as shocking. These comments strongly contribute to the idea that structural issues have to be solved urgently, instead of thinking in short term solutions for food insecurity and poverty that are not sustainable in the long run.

Perceptions of food provision effectiveness during the pandemic

Despite the understanding of needing to look for long term solutions to food insecurity, short term solutions might be of use in the progressive path towards a society that does not need food aid provision. For example, a stakeholder mentioned the need for food banks during the pandemic despite the community consensus that they should not exist.

Stakeholders perceived the food aid provision services as being effective in their activities and use of resources. However, in terms of reaching out to all the people who were in need of food support, stakeholders had a different point of view. They mentioned that it was difficult to know with certainty if the food aid provided reached those who needed it the most. Some participants mentioned that probably people who struggled the most during the pandemic, probably didn't even manage to access food support.

From a historical perspective, there was a comment of how the food aid provision has grown in Scotland since some years ago. The stakeholder mentioned that it began as a service for people dealing with addictions, or homelessness, or other specific issues. It then evolved to be broader and to be used by people who don't necessarily have any of these problems but struggle financially. Food aid services increasing is not necessarily a good thing, as this reflects the growth of another issue: people struggling to access food because of financial strain. This growth shockingly increased during the pandemic.

“It’s been crisis each time that we have kind of further embedded and further entrenched the charitable feeding system over time of economic crisis, but now with the pandemic it’s like, and watching what’s happened locally, you know, the food bank change, it’s like, it’s just being in steroids for a year, you know, it’s just massively increased” (SHSC1)

Food aid provision during the pandemic was considered by some stakeholders timely because it already existed. Stakeholders gave some analogies to understand how the food charity sector, especially food banks, are just a temporary palliative solution for a bigger problem. The following quote reflects one of the analogies used to describe the food bank growth during the pandemic.

“The big issue is always the food banks, and we had food banks before the pandemic and there’s lot of issues around food banks and surplus food redistribution but clearly it came into place [during the pandemic] as an obvious and advert almost response to people not having enough food, it’s like the little Dutch boy with his finger in the dike” (SHSC7)

Stakeholders also mentioned other aspects of the food charities that situate them far from facilitating the right to food. First, they have opening times and days, which means that food provision is restricted. Second, there is an issue of power dynamics, where the service is the one providing food to the people who need it (positioning the user as a passive recipient). Also, the charity food system in Scotland was seen as heterogenous across the country. Finally, several factors impact its’ functionality and availability, such as its dependency on volunteers, funding, opening times, amongst other factors.

In conclusion, the emergency food relief system had a relevant role during the pandemic. It was effective given that it had been growing since a long time ago. However, as many of the stakeholders mentioned, it is a sign of flaws in the system, and an indicator that things need to change.

8.5 Fourth theme: Third sector organizations' role during the pandemic

This theme explores stakeholders' thoughts around the work of third sector organizations and community efforts to provide food provision services that helped people to cope better with the pandemic. Stakeholders perceived that third sector organizations, the private sector, and even the general population felt an increased need of helping others. During the pandemic, many organizations and the government were concerned with people's ability to access adequate food. Food aid was widely available. There was a perception of an increase in funding from the government to community food initiatives and the emergency food relief system.

During the pandemic there were funding opportunities in Scotland aiming to support third sector organizations (Scottish Government, 2020c). Stakeholders from food provision services mentioned applying for funding but described the process lengthy, which required experience with funding applications, and also a process that did not guarantee success. The difficulty in applying for this funding meant that a collaborative response was needed, according to participants. Stakeholders mentioned that organizations shared resources, and even started collaborations to apply together for funding, increasing their likelihood of getting it. Joining forces with other organizations not only increased resources but also meant an increase in the reach of their services, as well as strengthening the way they were working.

"The importance of different organisations working in collaboration with each other is paramount and I am really happy to see that the approach of that is being amazing (...) And although they might have collaborated before, the strength of that collaboration seems to be much, much stronger" (SHSC2)

Collaborating with other initiatives meant that resources and best practices were shared. Improvements in the way organizations worked made their work more efficient. Collaboration between initiatives was perceived as beneficial for all parties involved. In addition to these collaborations, one stakeholder remarked the importance of collaboration between different government ministries (i.e., health sector, agriculture

sector, etc). This action could contribute to the coherence between sectors aiming to achieve an organized and functional food policy that protects and guarantees the right to food (FAO, 2005).

Moreover, stakeholders mentioned that local authorities could benefit from creating stronger links with the community sector to be more efficient. The community sector was recognised as a valuable entity in the provision of support in an efficient way. Stakeholders mentioned that local organizations know the communities with whom they work better than any other entities. This was perceived as something that is worth encouraging to provide safety and social cohesion.

“Local organizations who really know the communities are much better placed to mobilising the help that’s needed than people who are not, I think the wealth of the small-scale food banks, community coffees, etc have been really, really recognized in how well placed they are to mobilize the help that is required during these times” (SHSC2)

Reciprocally, shared by stakeholders, people who access community centres or third sector organizations’ services also feel comfortable as they perceive that these organizations care about their wellbeing. Stakeholders mentioned that people trust them and consider them a good source of advice. Also, a stakeholder highlighted the role community centres have in strengthening resilience of people during a public health crisis.

In conclusion, community networks were perceived as highly relevant for a community’s development and resilience. The more organized the community was, the more likely it was to be resilient. Stakeholders mentioned that low-income communities sometimes don’t have community groups that can provide support when crisis arise. Hence, it is important to create, maintain and strengthen the community sector.

In addition to the work done by third sector organizations and community centres, stakeholders mentioned that a lot of people were interested in helping other people. This was also mentioned by some of the participants in the households’ interviews, where people reported wanting to help their neighbours. People organizing in groups to

help others is a phenomenon that took place during the pandemic. In the household interviews, some of the participants mentioned offering help to their neighbours, or even wanting to work as volunteers in third sector organizations. In one of the households' interviews, a participant mentioned wanting to help others because of the interest in contributing, but also to alleviate his anxiety during the pandemic. In the words of a stakeholder:

“People who volunteer and help these organisations seem to get a lot of psychological benefits out of doing it for themselves, so helping others during time of crisis helps them deal with the crises that they have to deal with. I think that’s really an important thing, that giving and getting help is good for the mental, social, wellbeing of individuals” (SHSC2)

People accessing services in community centres or other organizations experienced psychological and social benefits too. These organizations do not only provide food, but also promote social inclusion, and wellbeing in general. Other benefits mentioned by stakeholders were related to extending people’s social network, being more closely involved with the community, and developing confidence and new skills that can improve people's chances to get jobs (if unemployed). All these benefits could contribute to stepping out of food insecurity.

“Nutrition was probably the least [benefit], the biggest impact of a cooking skills class was people meeting with others, people feeling that they are able to learn more, you know often going on totally different sorts of courses or back into the workplace, or undertaking food hygiene courses, which is a great step into employment, are often much bigger impacts than, than the immediate nutritional benefit” (SHSC7)

In conclusion, third sector organizations had to adapt during the pandemic in order to be able to keep delivering their services. The pandemic incentivized collaborative work between organizations to increase the likelihood of getting funding. Besides the help provided by the emergency food relief system, a lot of individuals also

felt like contributing to help people cope better with the challenges posed by the pandemic.

8.6 Conclusion

Stakeholders talked about their perceptions about the impact of the pandemic on both the food supply chain and individuals. The box below shows a summary of the key findings.

Summary of Key Findings

- All stakeholders were familiar with the right to food and all its components.
- Stakeholders recognised that there could be a general misconception of the right to food being accomplished when the government provides free food to people.
- They also considered that the right to food was not accomplished before the pandemic and that many changes were still needed.
- Stakeholders perceived that the Scottish food supply was resilient and adapted quickly to the changes imposed by the pandemic.
- The mitigation measures, social isolation and digital exclusion widened inequalities.
- Proximity of food outlets was key for people to access food because this reduced transportation costs and the risk of getting the virus from public transport.
- Food aid might have not reached hard-to-reach individuals.
- Food aid increased importantly during the pandemic, however despite its growth, it reflects a sign of more worrying issues happening at structural levels.
- In spite of this, the work of community centres was considered highly valuable given that they know communities better and could facilitate government's work at the community level. Community centres' work can enhance social cohesion and resilience when crisis arise.

9. Chapter 9: Discussion and Conclusions

9.1 Introduction

This thesis presents the results of the cases of Mexico and Scotland in relation to how the COVID-19 pandemic and the mitigation strategies impacted people's ability to access food during the first lockdown in 2020. The two case studies were informed by three data sources: 1) a qualitative evidence synthesis that looked at studies using photo-elicitation to researching access to food by vulnerable populations; 2) online photo-elicitation semi-structured interviews with households where at least one member lost their income, partially or totally, as a result of the lockdown; and 3) semi-structured interviews with stakeholders (academia, third sector organizations and government) in both countries.

In this chapter I:

- 1) Present a brief summary of each of the three studies and how they contributed to address the aims and objectives of my thesis.
- 2) Use the main findings of the four sets of interview data to compare and contrast how the right to food in Mexico and Scotland was impacted by the pandemic and its mitigation strategies.
- 3) Discuss findings in the context of current evidence, including the importance of knowing what the right to food is.
- 4) Discuss my contributions to the field of knowledge.
- 5) Discuss strengths and limitations of the thesis.
- 6) Reflect on online research, as well as the utilization of photo-elicitation interviews.
- 7) Present recommendations for future research and implications for policy and practice.

9.2 Reviewing the aims and objectives of the thesis

The goal of this thesis was to achieve the following aim and objectives.

Aim: to examine how the COVID-19 pandemic and the mitigation strategies impacted food and nutrition security in Mexico and Scotland from the perspective of the right to food.

Objectives: To build the case studies of Mexico and Scotland by conducting a comprehensive body of research that achieves the following:

- i. Exploring challenges, enablers and coping mechanisms to access food in people living with any degree of vulnerability (qualitative evidence synthesis (chapter 3)).
- ii. Understand how photo-elicitation contributes to the research of access to food (food and nutrition security) (qualitative evidence synthesis (chapter 3) and empirical evidence of the online photo-elicitation interviews (chapters 5, 7)).
- iii. Understand how drivers to the right to food are affected during a pandemic through the perspective of Mexican and Scottish families which were at risk of being vulnerable during the COVID-19 pandemic lockdown (online photo-elicitation interviews (chapters 5, 7)).
- iv. Understand the impact the COVID-19 pandemic had on people's ability to achieve the right to food during the pandemic through the perspective of key stakeholders involved in policymaking, research and practice of strategic actions to improve food and nutrition security in Mexico and Scotland (stakeholders' interviews (chapters 6, 7)).
- v. Identify systemic barriers and facilitators that impact the accomplishment of the right to food during the pandemic by comparing the findings of both cases (chapters 5, 6, 7,8).

9.2.1 Exploring challenges, enablers and coping mechanisms to access healthy food in people living with any degree of vulnerability

The qualitative evidence synthesis included 11 papers that used photo-elicitation to research access to food by vulnerable populations. The findings of the review showed facilitators and barriers to accessing food, in an individual/household and community/environment level. The main barrier to accessing healthy food was the lack of economic resources, as well as elements related to the proximity of food outlets and the type of food offer. The review also found environmental, social and individual determinants of food choices, where culture played an important role, as well as social connections. The review also showed how people experienced food insecurity and which types of coping strategies they developed.

9.2.2 Understand how photo-elicitation contribute to the research of food and nutrition security.

The qualitative evidence synthesis showed how photo-elicitation, in any of its modalities (researchers/staff-produced photographs, or participant-generated photographs) was successfully used to research access to food. It also demonstrated that the way photo-elicitation is conducted is very heterogenous. From the included studies it appeared that photo-elicitation can be adapted to the purpose of the study; analysis of photographs is better done in conjunction with what participants share verbally; it allows seeing participant's experiences the way they see them; and it can help to close the gap between participants (with different backgrounds and cultures) and researchers.

In my photo-elicitation interviews, participants from both countries, did the photograph activity and engaged with it in a way that demonstrated acceptance and recognised its value. All participants sent at least 5 or more photographs to be discussed with me, and all participants showed enthusiasm when narrating the stories around their photographs and what they meant to them. In both countries, participants showed photographs related to the amount of food available in their fridges or pantries, how they perceived and navigated the food environment (social distancing measures),

as well as meals they had cooked. In some cases, participants shared photographs that by just seeing them (without the textual data), seemed to not be related to the topic of food and nutrition security. However, these abstract photographs represented feelings, or thoughts, or had interesting stories behind them which provided interesting data about people's food-related experiences during the pandemic.

9.2.3 Understand how drivers to the right to food are affected during a pandemic through the perspective of families at risk of being vulnerable

From the perspective of Mexican households, the main challenge to access food during the first COVID-19 lockdown was the loss of income. Participants referred feeling concerned about being able to access food; perceived an increase in food prices; adopted coping strategies to make the most of their resources (food and money). Some of the strategies were: to plan shopping better (this also contributed to reduce exposure to the virus when going out); access less variety of food, cooking more, reducing spontaneity when shopping, and accessing cheaper (and less nutritious) food. For participants in rural areas, food access was not a concern by the time of the interviews, and they highlighted the value of the field and being able to grow their food. However, roads closure impacted food variety, and generation of income when not being able to sell their products in other locations.

For Scottish households' participants, income reduction was less alarming than in the Mexican households, because of the furlough scheme. Uncertainty about food availability was a concern, but access was not impaired for these participants. Characteristics of the food environment were important for people to feel safe when food shopping. Proximity of food outlets, smaller shops with good layouts, and people following rules were features that made people feel safe. Being at home provided the opportunity to cook, which was perceived mainly as a positive experience. Having children, and/or a chronic health condition that required shielding provided complexity to the experience.

9.2.4 Understand the impact the COVID-19 pandemic had on people's ability to achieve the right to food through the perspective of stakeholders

Mexican stakeholders shared their concerns about the impact of the pandemic in the context of the ongoing social and economic issues that have been happening in Mexico. The epidemic of obesity and non-communicable diseases, such as diabetes, was brought up as a main concern given the increase in severity of COVID-19 cases for people with these conditions. The loss of income and the prevalence of poverty, as well as the informal economy were seen as factors that worsened the impact of the lockdown in the Mexican population. Also, the food supply chain was perceived as inefficient to distribute fresh produce during the pandemic. Finally, for Mexican stakeholders, the right to food was not evenly understood and there was a common understanding that food aid is providing the right to food.

Scottish stakeholders considered the pandemic increased food insecurity because of the loss of jobs. They perceived an increase in support from both the government and community-based initiatives. The provision of food aid was reported to have increased significantly. The work of community groups was valued because of their familiarity with communities and their needs. The food supply chain was perceived as resilient and responsive, given that the scarcity of some products during the first weeks of the pandemic was resolved relatively quickly. Stakeholders in Scotland were very familiar with the definition of the right to food, the obligations of the State, and the common misconceptions around food aid.

9.2.5 Identify systemic barriers and facilitators that impact the accomplishment of the right to food during the pandemic by comparing the findings of both cases.

In Mexico, the social and economic context in both rural and urban areas increased people's vulnerability to be financially insecure, as well as food and nutrition insecure. Working in the informal sector, having low income, not having enough savings, having to ask for loans, and not being able to sell products in exchange for money (as it happened in rural areas), directly impacted the availability of economic resources to cope with the challenges of the pandemic. These situations had an impact

on the accessibility dimension of the right to food. Then, the closure of roads and disruptions in the food supply chain, as well as stockpiling in the first weeks of the pandemic, impacted the availability dimension. Finally, the increased stress and anxiety, changes in family structure, inability to access healthcare services, and complications to adopt lifestyle changes to control chronic health conditions impacted the quality dimension of the right to food (the utilization dimension of food and nutrition security). In addition to all these, the Mexican government did not do enough to decrease people's vulnerability and/or to increase resilience during the pandemic. This showed a failure of the State to protect the human right to food during the pandemic. Additionally, all the pre-pandemic social, health and economic issues reflected a context that hardly enables people to fully achieve the right. All these issues worked as an augmenting lens to the impact the pandemic and the mitigation strategies had on the Mexican people.

In Scotland, the findings from households' and stakeholders' interviews provided information about the impact of the pandemic from different angles. Whilst in Mexico the findings of both sets of interviews were very similar and reinforced one another, in Scotland, the experience of households was somewhat different to what stakeholders shared. Households' participants were benefitted by some of the social protection measures the government put in place to neutralise the impact of the mitigation strategies. Being furloughed and having stable jobs in the formal sector allowed participants to have a less negative experience during the pandemic. Participants shared their experiences around changes in food-related behaviours adapting to the mitigation measures. Stockpiling, adopting hygienic measures when purchasing foods, and being stressed/anxious about the pandemic impacted food-related activities to some extent.

In contrast, stakeholders provided a different angle to how the pandemic impacted Scotland. Increase in food aid demand during the pandemic, as well as an increase in food aid provided was reported. The insights provided by stakeholders suggested an impact to the accessibility dimension of the right, especially for people who were already vulnerable before the pandemic (e.g., older adults, single parents, students with zero hours contracts, people on benefits). Food availability was impacted

during the first weeks of the pandemic, because of stockpiling. However, the food supply chain adapted quickly and there were no more problems with food availability. In summary, the findings from Scotland allowed to see the beneficial impact of social protection measures for some people. These measures mitigated the harm of the pandemic and allowed some part of the population to be less vulnerable. However, the literature and the data from stakeholders indicated that those who were struggling before, suffered a more negative impact.

All the situations reported in my interviews suggested challenges that hindered the realisation of the right to food in both Mexico and Scotland, especially for those who were already in vulnerable situations. Following an ecological perspective, in the next sections I compare and contrast the results of both cases to discuss how the pandemic and the mitigation strategies impacted the right to food in both countries.

9.3 Comparing and contrasting how the right to food in Mexico and Scotland was impacted by the pandemic and its mitigation strategies.

In this section I compare and contrast what I found in Mexico and Scotland in relation to some determinants of FNS during the pandemic. The themes of the households' interviews from both countries contained information related to the four dimensions of FNS. Data showed differences, but also some similarities that are worth mentioning. The themes from the stakeholders' interviews revolved around their perceptions on how the pandemic impacted people's ability to realise the right to food, as well as their thoughts on how the government responded to the pandemic. Table 15 shows the themes from both sources of the two countries.

Table 15 Themes developed for each of the interviews' sets in both countries

	Mexico	Scotland
Households' interviews	Physical access to food changed during the pandemic: shopping experience; food sources; stockpiling.	Lockdown, social distancing measures and their impact on physical access to food: changes in shopping; food environment and measures; stockpiling.
	Economic issues around food access: economic landscape; overcoming income loss; challenges to access food.	Economic issues related to food access: not being vulnerable; economic scenario; stability; food expenses.
	Household's food availability and the surrounding environment was affected by the restrictions: food availability, the Mexican field.	Food-related behaviours, diet and health during the pandemic: cultural influences, cooking and benefits, eating healthy, promoting health.
	Changes and issues about the utilization dimension of food security during the pandemic: socio-cultural influences of food behaviours, food-related activities, diet, diet-related conditions.	
Stakeholders' interviews	The right to food in Mexico	The right to food and the role of government is widely acknowledged by different stakeholders in Scotland
	The COVID-19 pandemic impacted food and nutrition security in an unequal way across the country	The pandemic impacted food availability and affordability, from the perspective of offer (food system), and access (individuals and households).
	Perceptions about the government's response to the pandemic	Food aid during the pandemic was abundant: a situation to be proud about?
	Perceptions around food aid provision during the pandemic	Third sector organizations' role during the pandemic

I discuss the findings considering the socioecological approach that takes into account the different determinants at different levels of FNS. I take this approach as its relevance was highlighted when researching food and nutrition security (see chapter 2, page 32). The socioecological model provides a useful framework to explore the impact of the pandemic on food and nutrition security through its different levels: individual, households, community and societal. As presented in chapter 2 and in the findings of the two cases, stable access to food – or FNS – is the result of the interaction of

different elements in each of the different levels of the socio-ecological factors. In both countries, both sets of interviews provided insight into the impact the pandemic and the lockdown had on these levels. For example, the closure of businesses had an impact on people's income and this had a repercussion on how food was accessed by families.

In conjunction with the socioecological model, the right to food framework also allows the comparison of findings of both countries. The right to food framework was the backbone of the design and analysis of the data from both countries, in both sets of interviews. Having this framework made possible the cross-case analysis given that the dimensions of the right (and inherently those of FNS) provided a structure that facilitated a straightforward comparison and contrasting of results. For instance, the availability dimension of food and nutrition security, as well of the right to food was explored using the topic guide, and some of its determinants and characteristics were coded in the analysis stage. This dimension was identified in both levels, household and community, which justifies the utilisation of the socioecological model. The lockdown challenged the food system and the food supply chain, reducing the availability of some food items. At a household level, participants could not purchase their regular foods either because they were not available in food outlets or because the financial strain limited their economic power.

The pandemic and the lockdown unveiled the strengths and weaknesses of many social, cultural and economic aspects of countries. The extent to which the pandemic and the mitigation measures impacted people's FNS depended on policy, environmental and household's factors that increased or decreased the likelihood of being vulnerable. Considering the findings of the literature review and the interviews' findings, and using the socio-organizational dimension of food and nutrition security (Gross et al., 2000), these factors could be classified in the following way:

- *Macro level (world, region, nation)*: mitigation strategies: lockdown, closure of non-essential businesses; companies not being financially viable; budget for and availability of social protection policies; the healthcare and food systems.

- *Meso level (community: province/city, district/town, village):* regional food supply chain; hygiene and social restriction measures being followed in food outlets; food prices; food aid provision; availability of food in shops.
- *Micro level (household/family, individual):* having assets, savings, and insurance; having debts; employment (type and status); household food production; social networks; digital skills; cooking skills.

After comparing the findings of the cases of Mexico and Scotland, it was possible to identify some determinants of the level of impact the COVID-19 pandemic had on the right to food. They might not be all the determinants that had a role in how likely it was for households and individuals to experience changes in FNS, but are the ones identified in the findings. They represent contextual characteristics within a socioecological framework that contribute to understand how the right to food was impacted by the pandemic and its measures. Figure 5 shows the factors that determined how the pandemic and the lockdown impacted FNS (outcome of the right to food).

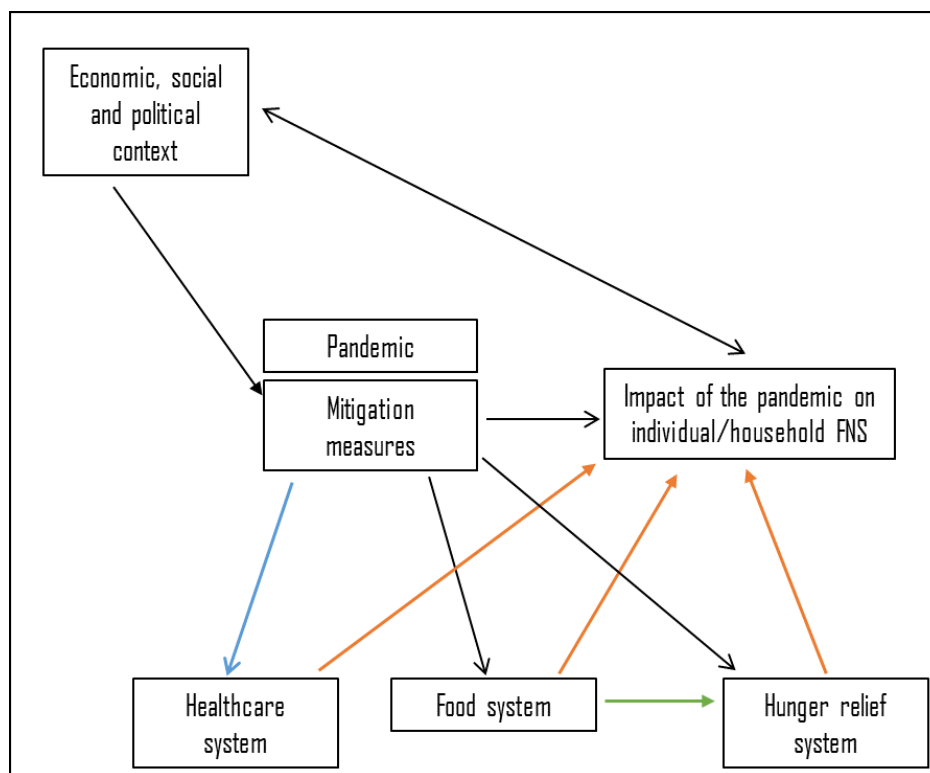


Figure 5 Diagram showing relationships between determinants of the impact of the COVID-19 pandemic on food and nutrition security based on findings

The factors that had an impact on FNS identified in the findings of my interviews in both countries were: 1) the economic, social and political context; 2) the healthcare system; 3) the food system; and 4) hunger relief system. Figure 5 depicts these determinants and how they impacted individual and household food and nutrition security via the mitigation measures (especially the lockdown).

The economic, social and political context of each country determined the type of mitigation strategies that were put in place to slow the spread of the COVID-19 pandemic. Simultaneously, they also had a direct impact on individual/household FNS. For example, the economic background of people and households, and the existence and implementation of social protection policies aiming to provide support for the most vulnerable had an influence in how individuals and households coped with the challenges affecting their FNS. The two-way arrow linking these two elements of the

diagram indicate that the impact on FNS can also have a repercussion on the economic, social and political context in the medium and long term. Then, the mitigation measures had an impact in the healthcare system, the food system, and the hunger relief system of each country. The challenges and changes in these three systems had a direct impact on FNS. Finally, the green arrow showing a link between the food system and the hunger relief system demonstrates how the changes in the food system in Mexico influenced and affected the hunger relief system (based on the findings of my interviews). This relationship was not perceived in the interviews with participants from the UK. In the following sections, I describe each of these relationships remarking the differences between both countries. I also describe the findings about these determinants in relation to their role within the right to food framework.

9.3.1 Social protection measures, economic context and social context of a country

Findings from both countries highlighted the role of social protection measures, the economic context and social connections in people's ability to access food during the first COVID-19 lockdown. This section discusses the findings around these three aspects.

Social protection measures

The recommendations on how to tackle the pandemic should have not been universal and homogenous; countries had to assess their population needs regularly to avoid widening inequalities and persistence of poverty and disease (The Lancet, 2020). Similar recommendations by Mikolai, Keenan, and Kulu (2020) were reported when considering the different geographical differences in the UK, where authors emphasized the need of understanding both regional and even neighbourhood vulnerabilities to choose the best ways to mitigate the consequences of the pandemic. In Mexico, for example, the pandemic mitigation measures, especially the lockdown, were not harmless for a great number of people. The socioeconomic context of Mexico, for example, the informal employment as well as the deprivation and remoteness that rural areas encounter, represented factors that made the impact of the pandemic mitigation

measures worse for people living under those circumstances. The mitigation measures challenged people's ability to have a stable income, as well as to obtain food and even access support.

During the pandemic, with the mitigation strategies to protect public health, people's rights to food was impacted given that some rights were temporarily limited, alongside many changes in the social, economic and political environment. Some human rights can be limited or derogated when situations represent a threat for the community and its organisation. A pandemic such as COVID-19 was considered one of these situations (Spadaro, 2020). The pandemic as such had a direct negative impact on the right to life, and the right to health, for example (Lebret, 2020; Spadaro, 2020). The limitation or derogation of rights might have a disproportionate impact on populations that are more vulnerable, such as women, the elderly, refugees, prisoners, children, indigenous people, and others. In an event such as the pandemic, it was necessary to take other measures *that "make the basic rights of vulnerable people as effective as the rest of the population"* (Lebret, 2020, p. 9). These other measures could be the social protection policies designed to reduce people's vulnerability during the pandemic.

By 2022, 3 856 social protection and labour measures were put in place by 223 countries; in March 2020, there were 180 measures every week, whilst in 2022, the number decreased to 16 measures per week (Gentilini et al., 2020). Also, the most common type of policies were the social assistance ones (61%), followed by supply-side labour market programmes (20%) and social insurance (19%); and this order of development of policies was very similar in high-, middle- and low-income countries (Gentilini et al., 2020). Moreover, implementing these policies required approximately 4.5 times more expenditure than during the Great Recession in 2008. Finally, according to this report – from the World Bank – high income countries (like the UK), spent around 716 USD per capita; in upper middle-income countries (like Mexico), 145 USD was spent per capita; in lower middle-income countries, 45 USD/per capita; and in low-income countries, 8 USD/ per capita (Gentilini et al., 2020).

In the cases of Mexico and Scotland, there were distinctive differences regarding the availability of social protection measures for the population during the pandemic. The experiences of interviewed households were mediated by the benefit of these policies, or the lack of them. All the Scottish participants were benefitted by either the furlough job retention scheme or the shielding scheme, denoting differences in how the pandemic was experienced in this country compared to Mexico. The situation in both countries was very different in terms of what kind of social support measures were provided.

In Mexico, at federal level, there were no specific assistance interventions during the pandemic. The federal government made some budget reductions for government employees and cancelled 10 sub secretaries; provided 3 million pesos (£101,971.44) of credits (25 000 Mexican pesos (£849.76) for individuals and family businesses with a three-month grace period); created more than 2 million jobs in public infrastructure and social programmes; and performed the sale and raffle of the presidential airplane. The economic reactivation programmes, as well as the direct transfer of resources for vulnerable people were the same the Government already had before the pandemic (Vilaboa-Arroniz et al., 2021). Some of those programmes were those related with agriculture support, scholarships for students, pensions for the elderly, support for disability, support for children of working mothers, insurance for female head of families, and youth support (Villagómez Ornelas, 2021). The percentage of households receiving public assistance didn't change (28.1% in 2018, 29.7% in 2020), but its composition was altered, making it worse for people in rural areas, and those with lower income. In 2018, 53.2% of people in rural areas received support from social programmes, and in 2020 only 43.5%. In urban areas, 20.6% in 2018, increasing to 25.9%. Also, 61% of those in the lowest decile got support in 2018, and in 2020, only 39.9% (Villagómez Ornelas, 2021). These figures align with what participants from households and stakeholders shared. Those living in rural areas were not aware of any kind of support given during the pandemic, whilst in the urban areas people knew about them and applied for them. By 2021, the Mexican government had not given any additional social assistance to mitigate the challenges brought by the COVID-19 pandemic, which was

estimated to be a cause for an increase in poverty in the general population (Lustig, 2021).

In contrast, the Scottish Government provided £350 million to support people in need during the pandemic (Campbell, 2020). This package had eight funding streams, including the Food Fund to support food provision; the Council Tax Reduction Scheme; support to the increased demand for social security benefits; the Welfare Fund that provided support for those in times of crisis; support to third sector organizations dealing with isolation and other vulnerabilities; amongst others (Campbell, 2020). The social protection measures to support food security during the pandemic, in the UK and Scotland, were classified into two categories: those related to the economic aspect of households, and those related to direct food provision. The first ones were: the furlough scheme, the increase of the Universal Credit by £20 a week, the local housing allowance, the Welfare Fund to support people in acute economic crisis, amongst others. The second ones were those related to the food box scheme for people shielding, the provision of free school meals in the form of vouchers to exchange for food, or cash approaches (used only in 10 local authorities (of the 32) in Scotland). And the support from the government to the food aid services, as well as efforts to increase food donations to food banks from supermarkets and other food outlets (Pautz & Dempsey, 2022). These social policies also received some criticism, especially related with leaving behind certain populations (such as people not qualifying for the furlough scheme), delays in provision of the Universal Credit payment, amongst others (Pautz & Dempsey, 2022).

Participants in Scotland shared their perceptions when knowing they were going to be furloughed. For most of them, the decrease in income was not a source of concern and did not trigger fear of not being able to access enough food. They were emphatic with how beneficial it was for them to enjoy this benefit. A study by Wielgoszewska et al. (2022) found that peoples' health, diet, sleep and physical activity was not negatively impacted when being furloughed. These findings are similar to what Scottish participants reported, when they mentioned not identifying important changes

in their diets, and even feeling relieved when knowing they were not going to lose their jobs.

Availability of employment protection schemes (i.e., unemployment benefits), and the more generous they were, were reported to be very effective to minimising the risk of vulnerability during the pandemic, as well as the delays on rent and mortgage payments (Midoes & Seré, 2021). Midoes and Seré (2021) estimated that almost 30% of the population from seven different countries in Europe would not have been able to cover their needs after losing their jobs with only using their pensions and public transfers. They would not have been able to cover all the expenses without financial support coming from the government. Findings of the Scottish households' interviews showed that participants enjoyed the benefits of the furlough scheme, as well as the delays on rent and mortgage payments. For them, these strategies provided them stability during the first months of the pandemic. On the other hand, Mexican participants had to cope with the challenges of the pandemic using their own resources, increasing their vulnerability.

Social protection policies during the pandemic seemed to be effective at reducing household's financial vulnerability, and risk of being food insecure. The investment of Scotland in these policies was significant and covered many people. In Mexico, the lack of social policies was translated into an increased prevalence of poverty, as well as many challenges related to food access. When in Mexico people who were not vulnerable before the pandemic became vulnerable, and those living in poverty struggled even more; in Scotland, the social protection policies might have prevented some people to be more vulnerable, but this did not mean that those who were already living in difficult situations benefitted with the policies and decreased their vulnerability.

Economic context

Certainly, the lockdown had a very similar initial impact in Mexico and Scotland. In the first months of the pandemic, aiming to decrease social contact and following government's mandate, many businesses closed to avoid people gathering in workplaces, saturating public transport and crowding public spaces. Staying at home

meant different things for different people and this depended on the type of job (including level of specialisation the job entails, the possibility of tasks involved being able to be carried out remotely, formal or informal sector, part or full time), and other household's financial aspects. In the interviews with Mexican households, it was possible to appreciate the impact the lockdown had in people with informal jobs, or businesses that had to close, as well as people who had to stop working because their jobs didn't have the infrastructure to be done remotely. Working in a job that could not be done remotely, or being part of the informal economy represented a challenge for confinement measures. This was especially challenging in places where a big percentage of the population work in the informal economy, which is the case of Mexico and other countries in Latin America like Peru, Argentina and Chile (Cuatlayo Meza et al., 2022). This was also true for India, for example, where more than 80% of people work in the informal sector. Following the lockdown, people who work in the informal sector disproportionately experienced a negative impact on their livelihoods, and most struggled to meet their basic needs (Human Rights Watch, 2020).

On the other hand, people with jobs in the formal economy, whose jobs allowed them to work from home, had a relatively positive start during the pandemic (having a better work-life balance, cost and time savings because of no need to commute, feeling more productive (Scottish Government, 2022e)). In Scotland, 28% of people who were not retired were working from home in April 2020. Also, there was a decline of 70% of visits to workplaces in the same month (Scottish Government, 2022e). In Mexico only a 10.6% of jobs could be done remotely (Leyva & Mora, 2021). In the interviews with both Mexican and Scottish households, only a few participants were able to work from home. Participants appreciated being able to keep working and their income but felt increased economic responsibilities when no other members were working.

As the stakeholders in both countries mentioned, people who did not have assets or savings, nor a job that allowed them to work from home were more vulnerable to suffer a negative impact of the pandemic, decreasing their ability to cover their basic needs. In Mexico, work poverty increased from 35% to 39% in 2020, meaning that four of ten people had an income lower to the cost of the basic food basket (Villagómez

Ornelas, 2021). People from lower socioeconomic groups struggled to cope financially with the pandemic (The Lancet, 2020) with repercussions on FNS. This situation reflects the idea suggested by Amartya Sen, where he proposed that people's ability to access food not only depends on its availability but also in people's employment status, having assets and ability to trade them, owning a land, and ability to exercise human rights (Sen, 1981).

Participants from Scottish households also had to stop working, but the job retention scheme and other social protection policies facilitated the compliance of the measures without drastically destabilising their financial situation. However, this was not the situation for all people in Scotland. In a study by Mikolai et al. (2020) where the intersection of different vulnerabilities at household level were analysed in the UK during the pandemic, researchers found that households with at least a member with a part-time job were at higher financial vulnerability (because of having less savings available). Additionally, households composed by single parents were at higher financial vulnerability, with lower income and more delayed bill payments. The study also showed that families with working-age adults and children were more likely to have employment and financial vulnerabilities, followed by housing (renting and not having a garden). For households without children, with working-age adults, the main vulnerability was the related with housing, and the other vulnerabilities shared similar proportions (Mikolai et al., 2020). This supports the experience of a participant's household with three children, where one parent was furloughed and the other was a frontline worker, they still struggled to cover all their needs. For stakeholders, digital, financial and employment vulnerabilities were important issues to consider when assessing the pandemic's impact.

A clear distinction on how the pandemic was experienced in Mexico and Scotland was described by the participants, with participants from Mexico having a more difficult experience. This contrast in experiences reflected the dynamic nature of vulnerability (population groups that have a greater exposure to risks) in different settings. Vulnerability during the pandemic, was partly a function of the policy response to address the pandemic (The Lancet, 2020), and the household's

economic/employment situation (Mikolai et al., 2020). In the UK, it was argued that the government's response to the pandemic determined the risk of households of losing their jobs or accessing social support (The Lancet, 2020).

Losing one's job means a decrease in income and it is likely the first domino piece falling, preceding a long line of pieces that -if not addressed - could lead to poverty, food and nutrition insecurity, and other negative future outcomes. Losing one's job often means being financially vulnerable (Midoes & Seré, 2021). Considering this, the first impact of the mitigation strategies in FNS was in the accessibility dimension, limiting people's ability to purchase food. However, being vulnerable to a decrease in income depended on the availability of assets, savings, opportunities to perform other jobs, or having access to social protection schemes. When people lose their jobs, they might start using the available resources they have such as savings, other types of income such as assets or benefits, in order to fulfil their needs (Midoes & Seré, 2021; Pieters et al., 2013). Another strategy that households might implement when they lose income, is to ask for loans. In the interviews, a few participants referred to this option as something they had to do because they didn't have any other option to cover their needs. They were aware of the negative impact this could have in the future, but it was one of the few options they had to solve their issues at the time of the first lockdown. Having debts or asking for credits is generally, in itself, a measure of financial vulnerability (Midoes & Seré, 2021).

As part of adjusting to the income loss, changes in food consumption patterns can take place too. If savings are not enough to continue with consumption patterns from the past, it is more likely that households experience a decrease in welfare (Midoes & Seré, 2021). Participants in both countries mentioned the possibility of using their savings to cope with the challenges of the pandemic, especially if the circumstances were prolonged. Even though participants in my interviews were not financially vulnerable before the pandemic, and some of them referred having savings they could use in the future, they also mentioned making changes in their food consumption patterns. Some of these changes were an outcome of the lockdown, such as planning shopping, shopping less frequently, and cooking more. These changes

were also found in a qualitative study with low-income families with children in Northern Ireland (Spyreli et al., 2021). For some participants in Scotland, the lockdown even meant a decrease in expenses, because of the restrictions in transportation, travel, and entertainment (Green, 2023).

Changes in food access were mentioned in the interviews with Mexican households. In Mexico, some participants described changes that are coherent with the definition of food and nutrition insecurity. These changes were related with buying less variety of food, less amount of food, and eating less meals per day. In spite of the qualitative nature of my study, the findings are very similar to what quantitative studies found in relation to food and nutrition insecurity in Mexico. In a systematic review of 10 papers focusing on measuring food insecurity in Mexico during the pandemic, the author found that food insecurity in Mexico increased from 55.5% to 59.1%, from 2018/2019 to 2020. This was mainly because of loss in income and people accessing more high-processed foods (which are generally cheaper) and less fresh produce (Cuatlayo Meza et al., 2022). This information was very similar to what Rodríguez-Ramírez et al. (2021) found in their study (also with Mexican population). However, they also found that families that reported having positive changes in their diet because of an increase of healthy food, were more food secure at the time of the pandemic (Rodríguez-Ramírez et al., 2021). Also, Villagómez Ornelas (2021) found an increase in mild food insecurity (from 25.8% to 30.1%), but severe food security remained the same (from 7.6% to 7.5%) from 2018 to 2020, in Mexico. This shows that people who were not food insecure before the pandemic started struggling with food access with the lockdown, and those who were already in a severe level, remained at that level.

In my interviews, Scottish households mentioned being worried about food during the first weeks of the pandemic. However, their worries were originated by the fear of uncertainty and seeing empty shelves in supermarkets. Concerns were not directly related with having a lower income, except for one household. For the rest of the families, the main changes were related with cooking more, which was usually seen as being healthier. Other research in the UK found that food insecurity increased in the UK. In a report produced in April 2020, Loopstra (2020) showed how the prevalence of

adults in the UK living with food insecurity had increased four times since the start of the pandemic. For example, people who were already food insecure, continued being insecure; families who stopped having free schools' meals also faced food insecurity. In the study by Spyreli et al. (2021), households who used to get school meals and during the pandemic received bank transfers thought these were not enough to cover the increased needs of their whole families during the pandemic. Finally, new people who never experienced vulnerability to food insecurity, became a new vulnerable group because of the loss of work, isolation and the lack of foods in shops in the first weeks of the pandemic (Loopstra, 2020).

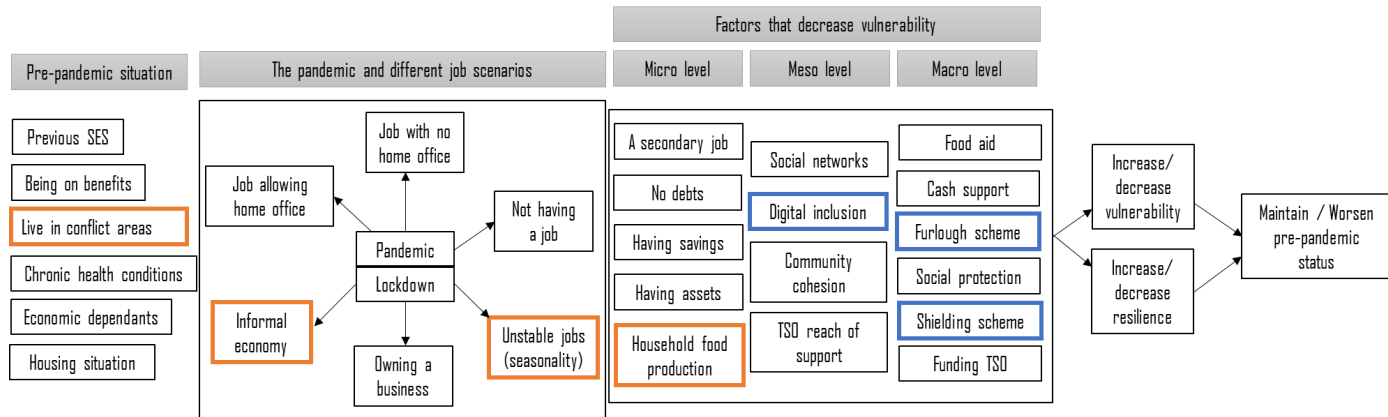
Social context: social isolation and digital exclusion

Being connected with other people, in person or remotely, is an essential experience of human beings. It has even been related to having a longer life expectancy, and better mental and physical health (Martire & Franks, 2014; Roth, 2020). During the lockdown, being in touch with other members of the society became difficult, and physical social contact was substituted with videoconferences or other digital means. Stakeholders and households' participants indicated the importance of having family bonds and social connections. Studies showed that not having contact with friends and family, living in a house with a lot of conflict, living alone, or not having a partner increased the likelihood of loneliness (Stubbs & Achat, 2022), as well as when having less than five close social contacts (Kovacs, Caplan, Grob, & King, 2021). During the pandemic, not having social contact represented a risk for social isolation that often leads to mental health issues, as well as having less options to access food, and even financial resources, from relatives and friends (Frimpong, Arthur-Holmes, & Agyemang-Duah, 2022; Kovacs et al., 2021; Loopstra, 2020; Midoes & Seré, 2021; Mogaji, 2020). Also, the lockdown itself limited social contact, exacerbating social isolation for those who were already living by themselves during the pandemic. Loopstra (2020) found that social isolation led to food insecurity during the pandemic.

The Internet played a significant role in social connections and in facilitating social distancing in general. In Scotland, digital skills, having Internet, as well as electronic devices with access to Internet were crucial to coping better with the challenges imposed by the pandemic. Even not having access to the Internet and computers was considered a vulnerability (Mikolai et al., 2020). Education was completely transferred to a digital space; people working from home required Internet and that their jobs had the right technological and digital infrastructure to function remotely (Mouratidis & Peters, 2022); access to food could be done using online deliveries (Chenarides et al., 2021; Spyreli et al., 2021); accessing information about social support as well as food aid; and even many third sector organisations moved some of their services to the digital arena. Hence, digital exclusion widened inequalities in the short and medium term. Actually, Mikolai et al. (2020) found that people in Scotland experienced a higher prevalence of digital and housing vulnerabilities compared to the other UK nations. In Mexico, this situation did not have such a big relevance. In a few instances, people mentioned online deliveries not to order food but only to estimate cost of food, but not wanting to do it to avoid paying delivery fees. Stakeholders acknowledged the digital limitations of the Mexican people, and online services were not an option to promote social distancing.

In summary, social protection policies, the economic situation of the household, social connections and digital inclusion (especially in Scotland), played an important role on how the pandemic and its mitigation measures impacted people's lives, especially FNS. Figure 6 shows a diagram that conceptualises the impact of the pandemic in individuals/households with different job's scenarios, considering their pre-pandemic situation. It shows factors in three socio-organizational levels (household / community / national), that possibly had an impact on vulnerability and resilience of households during the pandemic. The outcome, based on the combination of different factors from each of the different levels, is whether households managed to maintain their pre-pandemic livelihoods, or it got worse. I developed the diagram based on the results from both households' and stakeholders' interviews. Boxes in orange show

situations that were only mentioned in the Mexican case; those in blue are linked to the Scottish case; and those in black were mentioned in both cases.



*TSO: Third sector organisations. Orange boxes: situations only found in Mexican case. Blue boxes: situations only found in Scottish case. Black boxes: situations reported in both cases.

Figure 6 Set of factors impacting the progression to maintain or worsen a household's pre-pandemic status

The first column of the diagram considers some pre-pandemic situations that people in the interviews referred to. These situations had an impact on how people coped with the challenges brought by the pandemic. For example, those with a lower SES experienced losing their jobs in a more concerning way than those who had a higher SES. For those with lower SES, losing their jobs meant a sudden cut in their income, which impacted their livelihoods and caused worry around accessing food in the future. The second column shows different job scenarios, and how the pandemic had an impact in each of them. As shown in the findings of the Mexican case study, those working in jobs with a marked seasonality (e.g., tourism sector) suffered a greater consequence of losing the income they would normally have during the busy season, which was the period when the first lockdown was enforced or implemented. The next column shows some factors that could decrease vulnerability in families, and each of the factors are classified in three levels: micro, meso and macro. Hence, a household or

an individual could have access to any of those factors, from any of the columns. The combination of the elements of the different columns could have an impact on households' vulnerability and resilience, which in turn would help to maintain or worsen the household's pre-pandemic status. For example, people who lost their jobs but had savings, lived in a place with a high sense of community (either provided by family, friends or the community itself), and had the option to access social protection policies, this reduced or might have reduced their vulnerability and increased their resilience during the pandemic.

In conclusion, this figure can help to consider the potential vulnerability/resilience scenarios originated from the combination of different circumstances both before and during the pandemic, as well as in different levels of the socioecological model. Each household experienced the pandemic in different ways considering their existing assets/savings and job status before the pandemic, and the existing (or recently created) mechanisms to strengthen resilience.

9.3.2 Food support

Another important issue that was mentioned in the four sets of interviews was food aid. From the perspective of stakeholders, food aid in Scotland was abundant. Participants mentioned that many third sector organizations were already providing food to people who needed it, even before the pandemic. In the last years, this sector had grown remarkably, and during the pandemic, it grew exponentially (Lambie-Mumford & Dowler, 2014; Spring, Garthwaite, & Fisher, 2022). Parallely, funding from the government was available so this type of organizations could continue working and supporting the population (Scottish Government, 2020c). By 2020, the Scottish Government had invested £70 million through the Food Fund to address issues related with food access (for people struggling with access because of low income, shielding and older adults) during the pandemic (Campbell, 2020). The growth of food aid is supported by what other researchers have found. It has been reported for the UK and the USA *“a growing transnational trend of masking the failure of welfare systems*

through their voluntary sector appendages, including the use of food charity” (Spring et al., 2022, p. 5). This situation raises concern as it reflects the growing inequality that has taken place as a result of cumulative effects of different factors such as neoliberal austerity, failure of the welfare system, failure of the states to adopt their responsibilities to ensure the right to food, and the inequalities of social policies and social services (López Peláez, Erro-Garcés, & Pérez-García, 2022; Spring et al., 2022).

Even though food aid was growing, stakeholders, especially in Scotland, mentioned that probably people who needed support the most, did not get it. For people who became vulnerable during the pandemic, and were not familiar with, for example the benefits’ system or even knew about food banks or other support aid organizations, access to support was thought to be hard. In addition, not having access to the Internet or to health clinics (where GPs usually refer people who need support to food banks) hindered access to food aid. The study by McKendrick and Campbell (2020), with frontline workers of 211 Scottish organizations, found that 80% frontline providers were concerned of not reaching everyone in need during the pandemic.

In Mexico, the situation was somewhat different. Some food aid was provided but not as coordinated, organized and extensive as in Scotland. Stakeholders from this field talked about the challenges of adapting their work, but they mainly believed that they were providing the right to food to people who needed it. The work done by food banks was seen as very effective because of the amount of food aid provided, but also how effective it was reaching geographic areas that other organizations would not reach (including the government). The Mexican Food Banks Network reported that the users of food banks in Mexico increased from 1.4 million to 2.1 million, the highest figure ever (Hernández, 2022).

In Mexico, there were important differences between food aid provision in rural and urban areas. Apparently, food aid in urban areas was more visible and people knew about it. On the other hand, support in rural areas - where the participants in my interviews were from- was scarce. Additionally, some participants mentioned feeling abandoned by the government during the pandemic. In rural areas, where people

already dealt with deprivation, not having an income during the pandemic, and not receiving food aid or any kind of support, contributed to the worsening of their situation (Villagómez Ornelas, 2021).

The response of the Mexican government was not ideal, even UNICEF recommended to the Mexican authorities to increase the budget of food programmes to a wider coverage during the pandemic. UNICEF referred to strengthening DIF and school meals (UNICEF, 2020). Similarly, other researchers recommended the implementation of programmes to provide food support to vulnerable populations; the consolidation of newly created programmes so they could be put in place in time to address the challenges of the pandemic; and, opting for cash-approaches rather than food baskets to avoid big crowds (Bonvecchio, Unar, Pacheco, & Rivera Domarco, 2020).

Despite the acknowledgement that food provision is not the solution to food and nutrition insecurity in the long run, and that its existence is actually a sign of system's failure, food aid played an important role during the pandemic. For example, in the US, researchers found that accessing food pantries or participating in food assistance programmes could improve FNS in people struggling with food access (Lee et al., 2023). In the Netherlands, food banks were perceived as a manifestation of social solidarity to contribute to food security (Dekkinga, van der Horst, & Andriessen, 2022). In Northern Ireland, families with children valued and welcomed any kind of support coming from the government, organizations, or families and friends (Spyreli et al., 2021). The pandemic and the implementation of aggressive mitigation measures that in many cases led to a loss of income, made food aid, to an extent, a resource that mitigated the immediate challenges caused by the lockdown and the pandemic.

In an attempt to honour dignity of users, in the interviews with stakeholders from both countries, it was acknowledged that food in food aid should be of good quality, aiming to provide fresh produce and a smaller amount of ultra-processed foods. In Scotland, stakeholders mentioned that support should always have dignity at its core (e.g., options should be provided). Also, cash approaches were seen better than food

provision because they allow choice, and in some instances allow the acquisition of more nutritious food. Despite the extensive role that food aid played, it is often argued that food banks and the whole hunger relief system should not exist, and structural causes of food and nutrition insecurity should be urgently addressed.

Research has shown that the existence and growing utilization of food banks is a reflection of the right to food not being realized as a result of structural problems, austerity measures, and economic hardship (Bazerghi, McKay, & Dunn, 2016; Lambie-Mumford, 2019; Loopstra et al., 2015; Riches, 2002; Silvasti & Riches, 2014; Spring et al., 2022). Hence, the solution to food insecurity should be based on addressing the structural causes of poverty and social insecurity. Solving the structural causes of poverty is not the responsibility of the food banks, but the government (Silvasti & Riches, 2014).

9.3.3 The food system during the pandemic

In addition to the impact the mitigation strategies had on people's jobs and incomes, and the availability of food support from the government or third sector organizations, it is important to consider the food system's role on the impact of the pandemic. Understanding FNS within the lens of food system has recently gained attention. Food and nutrition security is the result of a complex interaction of different factors from different systems that intersect and impact each other (Clapp et al., 2022; Ericksen, 2007). The food system was impacted by the pandemic on its three components: the food supply chain, the food environment, and people's behaviours and diets (HLPE, 2017). The interviews with all my participants (households and stakeholders) yielded information regarding these three elements.

The food supply chain

The food supply chain itself was impacted by the pandemic in different ways. For example, restriction of transportation of foods and goods due to closure of roads and increase in transportation costs; absence of local or migrant workers due to illness or confinement, disruption in flow from manufacturers to end users, amongst others (Aday

& Aday, 2020; Hobbs, 2020). All these changes had a direct impact on the availability dimension of FNS, which in turn impacted accessibility too (Cuatlayo Meza et al., 2022). Loopstra (2020) found that in the first weeks of the pandemic, food shortage in food outlets had a direct impact on the growth of food insecurity in the UK. Despite the stabilization of the food supply chain after some weeks, people still struggled to access food because of other reasons, such as loss of income, and isolation (Loopstra, 2020).

In Scotland, there was a general perception (from stakeholders) that the food system was very resilient and adapted quickly. In Mexico, households mentioned some foods being scarce during the first weeks of the pandemic, but then they were back in stock. Mexican stakeholders had the perception that the food supply chain failed to distribute fresh produce throughout the whole country. This was equally reported by all the stakeholders, and even those involved in food aid distribution mentioned that scarcity impacted the food aid they provided. The failure in fresh produce distribution was also a finding in the review by Cuatlayo Meza et al. (2022), who reported that the main factor that affected this was the restrictions to stop the spread of the disease. This compares to what I got from the Mexican stakeholders, emphasizing the impact of the pandemic on the availability dimension of FNS.

An important situation mentioned by Mexican participants was the food surplus that could not be distributed because of roads closures. This was reported by all the participants in rural areas, and some stakeholders. The increase in transportation costs, the inability to properly store surplus, and the low prices offered to buy local farmers' products, were issues that contributed to greater food waste. Evidence shows that farmers had to leave their products in the field or burn them because of the restrictions. This also happened for milk being dumped in, for example, the US and the UK (Aday & Aday, 2020). Food waste also represented income loss, which directly impacted rural households' livelihoods and diets. In other developing countries, like in Sub-Saharan Africa, where small producers depend on what they can sell in other villages, not being able to sell their products had a negative impact on their financial vulnerability (Frimpong et al., 2022).

The difficulties to obtain income from sales during the pandemic increased poverty in rural areas. In 2020, 43.9% of the Mexican population was considered poor (Cuatlayo Meza et al., 2022). Rural areas in Mexico are usually deprived and have higher poverty rates (17% live in extreme poverty (Vilaboa-Arroniz et al., 2021)) and food insecurity compared to urban areas (Cuatlayo Meza et al., 2022; Villagómez Ornelas, n.d.). Historically, deprivation has been a commonality in the majority of rural areas of the country (CONEVAL, 2020, Martínez-Carrasco et al., 2014, (CONAPO, 2019)), which is 20% of the whole Mexican population (CONAPO, 2019). Those who produce the food that feeds urban areas are the ones with worse financial stability, and who suffer more from lower income and worse quality of life.

Despite the scenario of deprivation where people from rural areas live, these participants referred feeling safe because they were able to grow their own food. In the short term they were not worried about not being able to access food. In the analysis by Villagómez Ornelas (2021), it was reported that people in rural areas did not see an increase in food insecurity, whilst people from urban areas did. This represents the relevance of household food production, which covers the availability and physical accessibility dimensions of FNS. However, not being able to have a diet with different types of food, and not being able to sell their products (which both happened because of the roads closure) could have negative consequences on FNS in the long term.

Food-related behaviours and the food environment

The main early generalised change on a food-related activity was panic shopping and stockpiling. Households' participants from Scotland mentioned that they did or were keen to do panic shopping during the first weeks of the pandemic. In Mexico, a few participants in rural areas wanted to do it, but their lack of resources/savings represented an obstacle to do it. Research has shown that there was indeed an increase in panic buying, for example in the UK (Loopstra, 2020) stockpiling was mainly done by people with more resources, or as a participant in Scotland said, it had a "sociodemographic dimension". This was also found in a study of consumer spending dynamics conducted by O'Connell, de Paula, and Smith (2021), in the UK during the

first COVID-19 wave. Moreover, Ahmadi, Habel, Jia, Lee, and Wei (2022) found that the likelihood of stockpiling was related to cultural context of countries. For example, countries where people had more uncertainty avoidance, as well as a more individualist approach to life were more likely to stockpile. On the contrary, those who were more collectivist in nature, or dealt better with uncertainty, did it less. The increase in demand, and the changes in the food supply chain, originated scarcity of some products and a consequent increase in food prices. These two issues had a greater impact on those people who were already vulnerable before the pandemic, and those who didn't have savings to purchase more than what was needed. The increase in food prices had a direct impact on the food that some Mexican families chose during the pandemic (Rodríguez-Ramírez et al., 2021). My findings showed that some participants bought less food and less diversity of food when they perceived an increase in prices, in conjunction with the loss of income.

The shopping experience during the pandemic was different to the usual. Some features of food outlets made shopping easier, for example having shops near people's homes, as well as those that implemented social distancing measures, as people referred feeling safe when going to those outlets. It is important to mention that not all cities and villages allowed an easy, fair and non-widening inequality adoption of social distancing rules, like in the case of Bogotá, Colombia, where researchers found that spatial imbalances in accessibility impacted more poor people with an increase in costs of transportation, longer working hours and more care obligations (Guzman, Arellana, Oviedo, & Moncada Aristizábal, 2021).

Also, a good shop lay out (with a one-way system, where products and corridors were organized) was considered favourable to go shopping. For many participants, shopping became a solo activity, which brought anxiety and fear, and people often tried to do it quickly and efficiently. Other researchers found similar approaches to grocery shopping during the pandemic when trying to reduce the exposure to the virus by being more efficient when shopping and adapting health safety practices (Shamim, Ahmad, & Md Ashraf, 2021; Spyreli et al., 2021). In a study comparing changes in management and organizational food practices during the first months of the pandemic in the UK, the

Island of Ireland, New Zealand and the United States, researchers found people made changes in food practices (such as planning, making lists, getting less takeaways) (Murphy et al., 2021). Almost all participants in Mexico and Scotland emphasized the importance of planning shopping in order to make shopping more efficient and quicker, which also benefitted their budgets and helped them to have less food waste. Reduction in households' food waste as a result of cooking more at home, improved food management skills, and having better shopping planning was reported in other studies too (Principato, Secondi, Cicatiello, & Mattia, 2022; Roe, Bender, & Qi, 2021).

Finally, the food environment and food-related activities were social spaces where families used to spend time together, strengthening their unity and identity before the pandemic. Participants in both countries referred to the importance given to performing certain food-related activities together, which was the case prior to the pandemic (e.g., shopping). Even if that was lost, cooking with the family was seen as a practice that could engage other family members (when living in the same household). This was reported in other studies too (Isaacs, Gallagher Squires, & Hawkes, 2021; Spyreli et al., 2021). In the interviews, participants were able to see their cultural identity reflected on the foods they purchased, and the meals they prepared. This situation shows the utilization dimension of FNS, where food is to be culturally appropriate, satisfying personal preferences, and has a social role. In a survey conducted in 10 European countries (which included the UK) investigating changes in food-related behaviours during the pandemic found that 40% of the sample made changes in their behaviours. The changes (cooking more, enjoying cooking, having more family meals) were perceived as positive, and were even experienced more by people who lost their income and were struggling emotionally (Grunert et al., 2021).

I developed Figure 7 to show a brief summary of four different aspects linked to food-related activities and changes during the pandemic: 1) factors that facilitated shopping; 2) coping strategies when struggling with accessing food; 3) food-related positive aspects of being in a lockdown; and 4) negative aspects or negative changes in food-related activities during the lockdown.

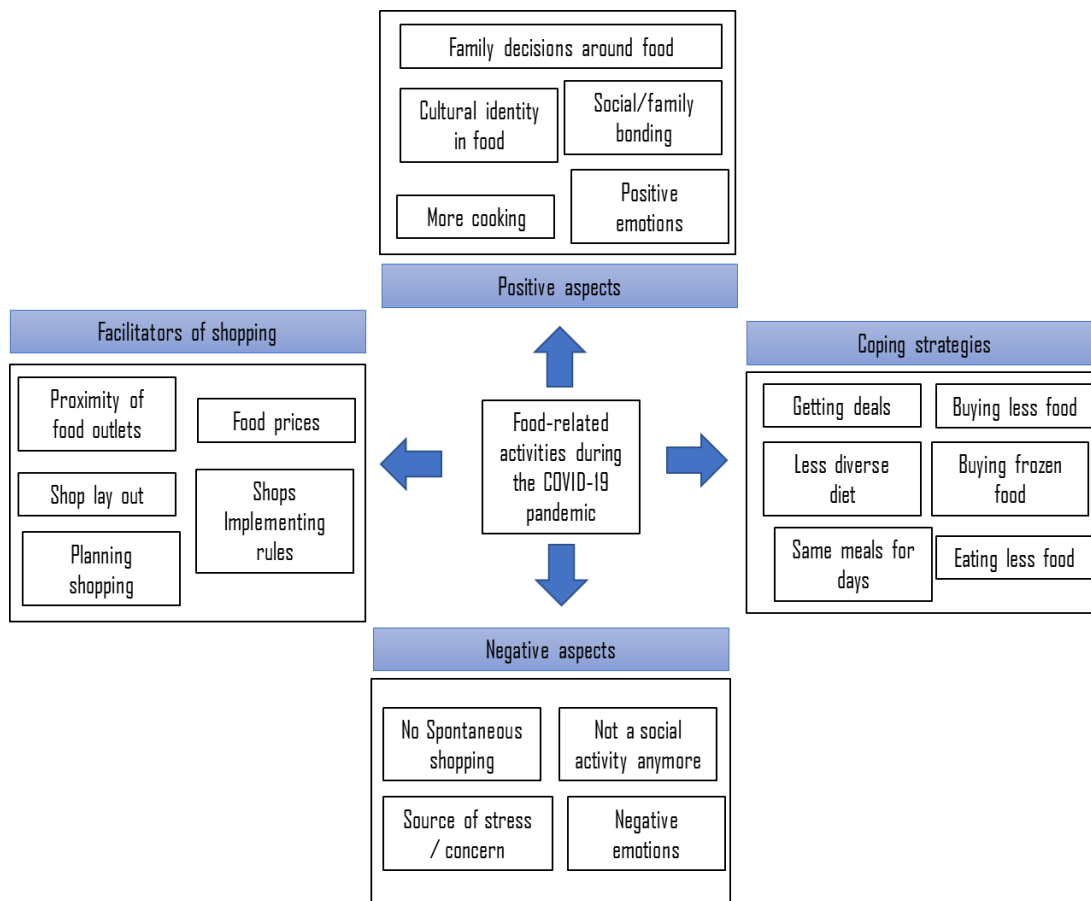


Figure 7 Some aspects and changes of food-related activities during the COVID-19 pandemic

These four categories have been described in detail in the previous paragraphs. The aim of the figure is to depict how the pandemic and the lockdown had an impact on different facets of food-related activities. Some people had to adopt coping strategies to access food whilst dealing with reduced income. In addition to those coping strategies, there were some changes in food shopping that were perceived as negative. However,

despite the changes and challenges, people identified positive changes, which could reflect the ability of individuals to adapt to situations. These non-tangible aspects could have reinforced family bonds, cultural identity and, in some cases, even improved health as a result of cooking more at home (and reducing buying ready meals / take aways). Finally, the influence of the food environment, as well as the adoption of measures by food outlets, on food shopping was reported in both cases. This indicates the close relationship between our physical environment and our behaviours, which directly affect FNS.

Eating patterns and obesity / diabetes epidemics in Mexico

Finally, in relation to the food system, the issues related to the high prevalence of obesity and diabetes, as well as other diet-related diseases was commonly mentioned as a concern by all the Mexican stakeholders. Households' participants talked about their many relatives with some of these chronic conditions, which was coherent with what stakeholders mentioned. In addition to these diseases, stakeholders were concerned about the high availability of ultra-processed foods in the Mexican food system, a situation that has raised concerns for a long time now (Marrón-Ponce, Sánchez-Pimienta, Rodríguez-Ramírez, Batis, & Cediél, 2023; Monterrosa et al., 2013; Pineda, Brunner, Llewellyn, & Mindell, 2021). For Mexican stakeholders, access and availability to food is greatly determined by the market; and the food industry shapes food offer. The food industry has been identified as an important determinant of a nation's diet, hence, health. Food industry competition, profit-seeking activities, and participation on politics, has made people's diets an outcome of what is offered and not what is best for people's health (Nestle & Pollan, 2013).

These concerns were only briefly mentioned by Scottish participants when perceiving that the Scottish diet was not healthy as it was seen high in fat. Also, they reported a higher availability of ultra-processed foods in low-income areas, which widens health and social inequalities (Dowler, 2008). Some stakeholders perceived an important predominance of supermarkets, limiting opportunities for local producers to

have a place in the market. The big food supply chain seemed to play a major role in food supply, displacing the local produce (James, 2016).

Having a chronic health condition increased morbidity and mortality by COVID-19. Carrillo-Vega, Salinas-Escudero, García-Peña, Gutiérrez-Robledo, and Parra-Rodríguez (2020) analysed a database with data of 10,544 Mexican individuals who were hospitalized and/or died because of COVID-19. In their results, researchers found that more than 60% of those people had chronic conditions such as hypertension, diabetes, obesity or a combination of them (34%, 30%, 25%, respectively). Having the three comorbidities increased the risk of hospitalization by 85%. Similarly, those comorbidities represented a higher risk for mortality (44%, 38%, 30%, respectively for each condition).

A great amount of literature has reported the relationship between eating patterns and the development of NCD's (Hu, Liu, & Willett, 2011; Matos, Adams, & Sabaté, 2021; Romagnolo & Selmin, 2017; Waxman, 2003). This was relevant to be considered as an ongoing problem that made the impact of the pandemic and its measures unequal for those living with chronic health conditions not just at the time of the pandemic but also after the social distancing measures were lifted (Leddy et al., 2020a). In addition, in the context of FNS, certain chronic health conditions are associated with unstable access to adequate food (Laraia, 2013; Leddy et al., 2020a).

9.3.4 The health system during the pandemic

Having access to healthcare promotes good health, and thus nutrition security (Clapp et al., 2022). During the pandemic, attending health clinics, as well as hospitals was restricted mainly to those infected with COVID-19. Besides, the lockdown and people's cautious approach to reduce unnecessary exposure to the virus meant they sought for care less frequently than before. In a qualitative study with participants in the UK, researchers found that people were less motivated to seek healthcare because they were aware that the NHS was saturated (Parretti et al., 2022). Also, researchers found that the stress caused by the pandemic could have impaired individual's ability to

evaluate symptoms (Parretti et al., 2022). Other studies have shown similar results in Mexico (Pérez-Gaxiola et al., 2020). This situation was not mentioned as such by the households' interviewees, but in both countries, stakeholders expressed their concerns about the potential harm of not being able to access health care. Many delays in diagnosing diseases, as well as provision of treatment could have led to a higher morbidity and mortality from other causes (that were not COVID-19, such as cancer) (Al-Azri, 2021; Maringe et al., 2020). These issues could increase the prevalence of some diseases in the population in the long run, increasing the utilization of health sector resources after the pandemic.

Another complexity added to this situation is that people's health deteriorates, and, in some cases, impacts people's ability to assimilate nutrients in a proper way that ensures good nutrition and good health. In two opposing examples from interviewees in Mexico and Scotland, differences in how measures were adapted to people's health needs were identified. Whilst in Mexico there wasn't any intervention or support for people with chronic health conditions, in Scotland, people in this situation were told to shield for 12 weeks and were provided with medicines and food. Even when shielding meant protecting this vulnerable population from getting COVID-19, the study by Mikolaj et al. (2020) found that people shielding were at higher risk of having financial vulnerability. In both countries, having a chronic health condition brought serious challenges, with inevitably future consequences (either getting COVID-19 and risking their health, or struggling financially when staying at home).

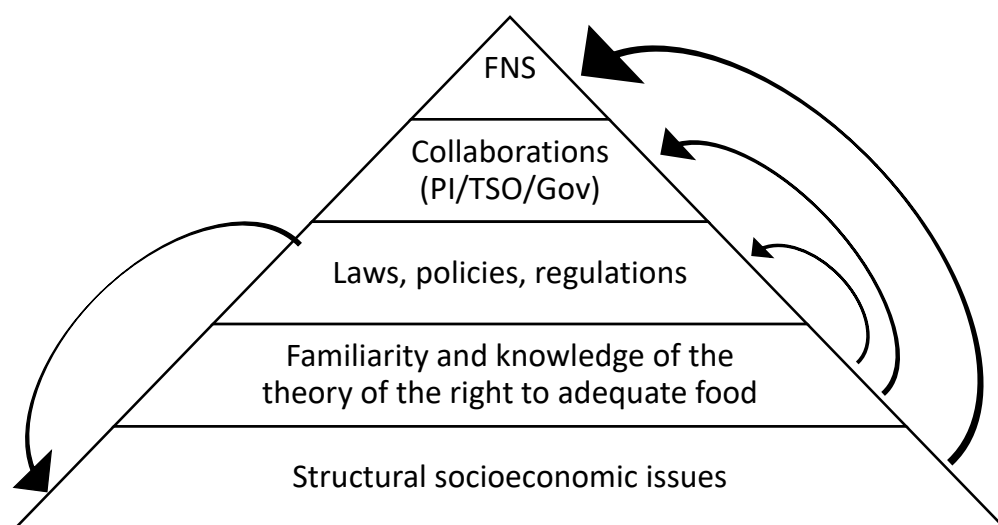
To conclude, this section discussed the main determinants on how the pandemic and its mitigation strategies impacted FNS, which is the measurable outcome of the right to food. Based on the findings, it can be said that the right to food was impacted by the pandemic in both countries. Considering the three dimensions of the right to food, availability, accessibility and quality, the pandemic had a main impact on the first two. However, differences in the socio-economic context of Mexico and Scotland, as well as the implementation of social protection policies mediated the impact of the pandemic. In a comparison of a developed country and a developing one, it was possible to appreciate the influence of greater budgets to provide immediate support when crisis

arise, as it was the case in Scotland. Similarly, formal employment that provides stability and allow households to have savings can contribute to decrease vulnerability to crisis. Figures 5, 6 and 7, visually showed the delicate relationship between different elements of the socioecological model in relation to food and nutrition security. The cases of Mexico and Scotland served to explore, demonstrate and understand the intricacies of the changes in different systems (e.g., economic, social, health, food) and how they had a direct impact on households' FNS. Figure 5 showed a broader conceptualization of how the macro level and its components were impacted by the pandemic and how these changes impacted FNS. Figure 6 allowed the visualisation of the interaction of the individual level with the meso and macro level. Finally, Figure 7 provided an approximation to understanding the changes in food behaviours at a household level without overlooking the relationship between individuals and the built food environment. In brief, using the socioecological model and the right to food, provided a comprehensive framework to understand the impact of the pandemic in FNS in a systemic way.

9.4 The relevance of being familiar with the right to food

Promoting the right to food for all requires interdisciplinary work between the government and non-State actors (such as the private industry and third sector organizations). Also, it requires laws, policies and institutions that support its implementation. Working towards this has to be a collaborative work where the knowledge of the right to food is shared by all stakeholders involved. Otherwise, if this doesn't happen, uncoordinated efforts will never provide sustainable solutions to ensure the right for all. Knowing the theory is not enough either, given that political will should exist, as well as governance and coordinated institutions that make sure the right is enforceable and justiciable. Having this could contribute to permeate the right's principles through all the different fields that have a direct or indirect influence on the promotion of an enabling environment to exercise, claim and promote the right.

In Mexico and Scotland, as discussed in Chapter 2 (pages 59 and 63) governments have signed international treaties expressing their agreement with the right to food. Both, as well, have been actively working to have a domestic law that protects the right. Many of the efforts started before the pandemic. However, as it was discussed in the previous section, many ongoing social, cultural and economic issues in each country contributed to the challenges to achieve the right to food during the pandemic. Additionally, the interviews in Mexico reflected an heterogeneous understanding of what the right to food is, whilst in Scotland, the knowledge seemed more widespread and homogenous. I argue that this difference could also determine how likely is to make the appropriate changes throughout the whole system in order to promote the right. To illustrate the relationship between this (familiarity of the right), structural socioeconomic issues, laws and regulations, stakeholders and outcome of the right (FNS), I present Figure 8.



FNS: Food and nutrition security; PI: private industry; TSO: third sector organizations; Gov: government

Figure 8 The role familiarity and knowledge of the right to food in promoting an environment that promotes food and nutrition security

In this diagram I situated socioeconomic structural issues at the base of the pyramid, given that they are ongoing issues resulting from different drivers, political decisions, and historical moments. After this level, I situated having knowledge of the

theory of the right to food. Aiming to have a rights-based approach to FNS and achieving the right to food for everyone, requires that all parties involved are aware of it. Training and capacity building of all stakeholders (from food system, health system, social development, agriculture) is essential to promote joint efforts towards the goal of putting in practice the guidelines for the right to food. If this is achieved, then the next level could take place. Collaborations and creation of appropriate tools, regulations, policies and legislation are essential to promote a holistic change that includes all stakeholders. If all this happens, then food and nutrition security could be expected to be met by all people.

The arrows in the diagram indicate further links between the levels. First, the structural socioeconomic issues have an impact on people's ability to have FNS. Familiarity and knowledge of the theory of the right to food, and the different dimensions of food and nutrition security, by different stakeholders can influence how laws, policies and regulations that aim to promote FNS are designed (Clapp et al., 2022). Finally, laws, policies and regulations could, in the long run, change structural socioeconomic issues.

Regarding the second level of the diagram, related to familiarity and knowledge of the right, clear differences were identified in both countries. In Scotland, the familiarity with the theory of the right and its components demonstrated that the narrative of the right has reached many people and stakeholders. Participants from this country were clear about the common misconception of associating food aid with providing the right to food. On the contrary, in Mexico, stakeholders had a partial understanding of what the right to food is. Most of them knew it was included in the Constitution, however, some believed that food aid provision was contributing to promoting the right to food. This is a misconception that has been widely discussed by many scholars, given that it deviates attention from the government's responsibility to ensuring the adequate conditions for people to access adequate food (Lambie-Mumford & Dowler, 2014; LambieMumford, 2017; Poppendieck, 1994; Tarasuk et al., 2020).

To conclude, stakeholders shared their perceptions about the government's response to the pandemic in relation to right to food. In both countries, participants considered that the right to food had not been totally protected from the harm the mitigation strategies inflicted. The findings from the households' interviews, and the literature also reflected how the enjoyment of the right to food was negatively impacted by the COVID-19 pandemic and the lockdown.

9.5 Contributions to the field

The main contribution of this thesis to the field of FNS is the exploration of people's "live experiences" of one of the rarest crises (of that magnitude) that affected the entire world. The COVID-19 pandemic provided a scenario where the three socio-organizational levels of FNS were impacted by a global situation. This generated a new research opportunity of how immediate changes in the macro and meso level interacted with households and individuals' (micro level) characteristics to increase or decrease vulnerability to food and nutrition insecurity. Even though the studied population is not the regular kind of population approached for topics related to food insecurity, it yielded rich information on the relevance of factors that can decrease households' vulnerability when crisis arise. The findings in this thesis provide evidence on the relevance of tackling social issues from a holistic approach, where different systems are taken into consideration. Important takeaways learnings of this thesis are:

- 1) The relevance of job's stability and formality, which can allow people to enjoy work benefits as well as savings, which can decrease vulnerability and increase resilience during crisis.
- 2) Strengthening the food supply chain, as well as the food environment so all people have easy access to food that is nutritious, safe, affordable and culturally adequate.
- 3) Improving livelihood of people from rural areas so they are not the ones who live in deprivation despite producing the food that goes to the cities.

- 4) Support and strengthening agriculture and small local producers to improve their livelihoods, and to promote sustainable food systems.
- 5) Collaboration between the government and the community sector to improve communities with services that promote sustainability, social connection and development.
- 6) Stability of food and nutrition security is fragile when the social, economic and political contexts do not reduce households' vulnerability to external shocks (like a pandemic).
- 7) The comparison of Mexico and Scotland allowed to see the difference that social protection policies have on households' risk to be vulnerable when crisis arise, as well as having specially designed measures to target those who are more vulnerable.

9.6 Strengths and Limitations

9.6.1 Strengths

Exploring qualitatively the impact of the COVID-19 pandemic on access to food in real time was a strength of this thesis. Not many studies were conducted at the time of the first lockdown, and many of them took a quantitative stance. Being able to interview members of households providing information of current changes in practices rather than recalling past actions or habits was an advantage of the first study (the online phono-elicitation interviews). The stakeholders' interviews, conducted a year after the households' interviews, provided a more holistic view on how actions taken in the previous months worked, given that the focus of these interviews was on their opinions about the government's response to the pandemic, as well as their perceptions on the impact of the pandemic.

Using case studies helped to provide a holistic view of how the pandemic impacted the individual/household sphere, but also different systems (e.g., food and health system) in each of the two countries. Bringing together the data from households' and stakeholders' interviews allowed this integrative vision. Having the framework of the

right to food, where food and nutrition security its tangible and measurable outcome, provided important benefits. It helped to guide data collection and analysis in a way that information related to its different dimensions was not missed. Also, situating human rights at the core of this research, contributed to emphasize the role governments have on FNS.

Another strength was my familiarity with the Mexican culture, and also my experience of living in Scotland for five years. Being Mexican, and Spanish speaking, allowed me to have a seamless interaction with the Mexican participants. I could say that they felt at ease with me given that they were open with me from the first introductory call. Building rapport with these participants was easy. The participants in Scotland were of diverse backgrounds but all of them had lived in Scotland for years before the pandemic hit. Living in Scotland and my ability to speak English, gave me an understanding of the culture and the food environment.

Doing data collection online also was a strength. The COVID-19 pandemic and its measures also impacted my own life as a PhD student, as well as the research community. Accessing participants during this time was only possible through remote means, such as online research. This way of getting in touch with participants and having the interviews was in line with the context of mandatory social distancing. Having Internet, and electronic devices to be able to get in touch was a privilege for both, my participants and me. Even the speed of the Internet and the availability of video conference software, as well as WhatsApp proved being useful tools to allow communication in real time, with people living in different places.

Also, using online photo-elicitation interviews was a strength. Participants were very receptive to using this method. Participants in both countries were open to using this and reflected their enthusiasm by sending more photographs than requested. Researchers had reported that photo-elicitation can promote emotional catharsis and creative expression (Padgett et al., 2013). Also, during the interviews, I could sense their excitement to share their photographs with me and talk about them. I have the perception that this method was adopted satisfactorily because of the pandemic itself.

People had been at home for almost two months, so taking photographs and being able to talk about their experiences during the lockdown seemed like an activity that could be done with time and even excitement, and perhaps relieved some stress for participants.

Photo-elicitation can help to elicit further information related to the utilization dimension of FNS. The food insecurity experience survey, is concerned purely with access to food, a reduction in quantity, feeling worried about accessing food, and feeling hunger. The photographs allowed seeing issues related to cultural and social influences on food, as well as the changes during the pandemic (Isaacs et al., 2021; Spyreli et al., 2021). Harper (2002) and Padgett et al. (2013) mentioned this benefit of PEI in research about homelessness. Data provided with photographs showed the boundary between being completely food and nutrition secure and moving into the risk of being vulnerable. These nuances were facilitated by the photographs, something that verbal interviews can hardly achieve.

In my rural interviews, participants were, in their majority, from indigenous communities of Mexico. As Harper (2002) mentions, qualitative research has the challenge of bridging the world between researcher and participants, and photographs can help to bridge that gap, given that images are easy to be understood. This happened with the indigenous communities but also when interviewing people in Scotland. For example, in the rural interviews, there were plants I didn't know, and they managed to show them to me, same as with meals, and ways of preparing food.

Finally, in relation to ownership and privacy of photographs, a few participants were really keen on having their photographs published and not even having a pseudonym. They told me that it was up to me, but they were equally happy if I used their names. Also, on one occasion a participant mentioned that he felt my work could maybe make a change and he hoped the findings could have an influence on public policy. This, to me, showed the trust they felt in sharing information with me, as well as being emotionally engaged with the topic and understanding the role of the government in providing solutions.

9.6.2 Limitations

There are limitations to the work I have done, as with all work in research (Smith & Noble, 2014). I present limitations regarding recruitment and selection of participants, as well as issues related with online research. Recruiting participants amid a worldwide pandemic only using digital and remote ways to do it was a limitation. Recruitment for my households' interviews was complicated, especially for participants in Scotland. In Mexico, because I knew people who could help me to distribute my poster and informative email, I managed to get people without a lot of complications. However, in Scotland this was harder. First, I sent my poster and informative email to different organisations to ask if they could help me to recruit participants, but I rarely received answers, and in the few cases I did, they mentioned being busier than normal trying to adapt their services to the pandemic, or dealing with reduced staff, so they could not help me to recruit participants.

This situation forced me to share my poster in Facebook groups with British, Scottish and Mexican members. Some of the people who replied were not Scottish people, but they were married to Scottish partners, and had been living in the Scotland for a long time. This situation could be seen as a limitation but because they had been living in Scotland for years, then the impact of this limitation was minimised, given that people were familiar with the British culture, and the Scottish food environment. Recruiting people from rural areas in Scotland was even more complicated, given that I didn't know anyone living in these areas, or in islands. This lack of participants created a gap in the case of Scotland. Probably if I have had more time to recruit participants, I could have managed to access people in these areas. However, because of the pandemic, it was uncertain when that moment could arise.

Participants were selected based on eligibility criteria related with having lost a job or income during the pandemic, as well as being in situations that could restrain people's access to food (such as being shielding or living in a rural/remote area). If I have had more time, I could have had a matrix to recruit participants from different socioeconomic (SES) status. However, recruiting participants from very low SES that

were probably already using food banks or the food relief system would have been difficult because of the previously described issues.

Recruitment of stakeholders in both countries was similarly hard, but not harder than it would usually be. However, this was also done by sending emails to people in both countries. Having conducted these interviews a year after the households' interviews, meant that stakeholders were more likely to agree to speak to me as they were not trying to cope with the uncertainty of the COVID-19 pandemic.

The number of participants in both sets of interviews, as well as in both countries could have represented a limitation because of the representativeness of the sample. The purpose of qualitative research, and case studies, is not to generalise findings, but to contribute to theoretical generalisations (Patton, 2002; Yin, 1994). I consider that the findings in my thesis contributed to the theory of the right to food during public health crisis. However, probably having a bigger sample of participants and being able to interview people from rural areas in Scotland could have benefitted the research. As Weller et al. (2018) says: *"If an investigator wishes to obtain most of the ideas that are relevant in a domain, a small sample with extensive probing will prove much more productive than a large sample with casual or no probing"*. In my interviews, I might have not had a large sample, but extensive probing was used, and the photographs helped to do this. Whilst in my interviews with households from both countries, and with Scottish stakeholders I observed thematical saturation (no new ideas appeared after interviewing the participants (Weller et al., 2018)), I feel that Mexican stakeholders' interviews could have benefitted from increasing the number of participants.

Conducting online interviews was a strength and a limitation at the same time. It was a limitation because of issues related to how well the Internet or electronic device worked. In some of the interviews we struggled with low Internet signal, frozen screens, and conversations being cut off. However, communication was always able to be resumed. This could have broken the flow of the conversation, affecting the way participants felt about sharing their experiences. Another limitation is that despite asking participants to be in a quiet and private space, it was difficult to confirm total privacy of

the room where the participant had the interview. However, this wasn't a big issue given that the topic of the research was not sensitive, and if participants were not in a complete private space, they could still share their experiences.

In my interviews with stakeholders, I initially tried to offer the possibility of having them to take photographs to have a similar dynamic as with the households' interviews. However, most of the stakeholders said that they didn't want to take part in the photograph activity because of their busy schedules. This was foreseen when I was planning the interviews, but I still decided to try. Two participants from third sector organisations in each country decided to share photographs, which were about their work, or the type of meals or products they provided to people. I decided not to include these photographs in my thesis given that they were not providing any meaningful information that could be analysed.

9.7 Implications for research, policy and practice

<p>For research</p>	<ul style="list-style-type: none"> • A greater-scale exploration of the understanding and knowledge of human rights-based approach, and the right to food and its application in each of the countries. Involving more stakeholders from different sectors (e.g., health, agriculture, food system). This could help to understand the state of knowledge and how integrated is in practice. • Exploration of at which extent the right to food / human rights-based approach has been integrated in legislation, documents, and policies in both countries. Having an understanding of how the concept of the right to food in Scotland and Mexico has been expanded to different fields. In the future, this could facilitate its' practical implementation. • Research how people, from different backgrounds, understand the right to food. And maybe develop an intervention to
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	<p>promote the understanding of the right to food, as well as how it is achieved. Widespread education could incentivize participation, as well as empowerment to claim it.</p>
For policy	<ul style="list-style-type: none"> • Findings show that is important to consider different FNS drivers at different levels when designing public policies. • Social protection policies do make a difference on how crisis impact the population. • Situating the right to food at the centre of food/agricultural policies to consider its different drivers and be able to foresee unintended consequences of public policies. • In a situation such as the pandemic, should be mandatory to think on the challenges measures will impose on vulnerable people, and also on how other people could become vulnerable as a result of the measures. • Policies that improve the whole food system, including the physical food environment are necessary to promote FNS.
For practice	<ul style="list-style-type: none"> • Intervention on how to implement a human rights-based approach in third sector organization’s work, so they start applying the principles to the work they do. • Local food systems should be strengthened to improve sustainability and decrease vulnerability to food insecurity when crisis arise.

9.8 Conclusions

The COVID-19 pandemic was a situation with no precedents where actions had to be taken in a very short period, without considering the potential unintended consequences that they could have on the population. Governments all around the

world established measures to mitigate the spread of the pandemic to protect people's health, the healthcare sector and health professionals. This study has been able to unravel the consequences of these measures in people's lives and FNS.

If there had been already actions to try to guarantee the right to food in the population before the pandemic, perhaps the impact of the decisions made during the pandemic would not have affected the population to the extent they did. This is the reason why it is important to reflect on the situation before, during and after the pandemic in order to implement structural changes that can enhance the population's resilience when unexpected situations arise.

The differences between countries are worth taking into consideration when researching FNS. They reflect the influence that socioeconomic factors, and political context have on the way people access food, but also who can struggle to do it. Referring to the structural causes of food insecurity, stakeholders agreed that food insecurity is not a situation caused by the individual, but rather a result of socio-economic determinants such as lack of employment, minimal wage, lack of food being available and affordable, amongst others. Because of this, what has to be solved firstly are the structural problems that lead to challenges in accessing food.

The main characteristic of the right to food is the acknowledgement that the government has an essential role in promoting an environment that allows people to access adequate food. Valuing its' role means valuing the role structural factors (i.e., socioeconomic, political, cultural factors) have in shaping people's ability to access food. Therefore, to guarantee that everyone has access to adequate food, there should be an enabling environment, and individuals and households should have the appropriate economic ability to access the food they want and need. Given my interest and commitment to social justice, I believe that a human's right approach to FNS is the glue that puts all the pieces together by aiming to generate accountability from all the relevant parties that have a say in the food system. These actors, and especially the government, are the ones that have obligations towards the provision of regulation of

those factors that people can't control but have an impact on FNS, and even on the sustainability of diets and the food system.

The key messages of this thesis are the following. Social protection measures play a very important role in protecting households' stability, especially when crisis arise. A public health crisis – the COVID-19 pandemic in this case – represented a challenge not only to people's health but also to their livelihoods and financial stability. Losing income as a result of the mitigation strategies had a direct impact on people's food and nutrition security. These findings provided evidence to argue that tackling a public health crisis can widen inequalities given that those families who did not have stable jobs, sufficient income or assets and savings experienced a steep worsening of their current condition. These findings also provide evidence that in order to ensure people's FNS – hence the right to food – it is important that immediate measures taken during crisis consider households' likelihood to be vulnerable as a result and consider concomitant strengthening measures to protect households stable access to food. Moreover, beyond crisis, these findings emphasise the need to consider an ecological understanding of how FNS is determined, which calls for actions at different levels that increase household's stability and resilience through time.

To conclude, this PhD involved innovative research in three main areas. First, it focused on the COVID-19 pandemic, and captured data in real time, which makes it a very unique study. The pandemic itself, and its mitigation actions, revealed and even further exposed the many deficiencies in the food, welfare, and economic systems of Mexico and Scotland. Second, the utilization of digital tools demonstrated a feasible way to conduct research. Third, the utilization of online photo-elicitation interviews was effective to collect data (confirmed also by the qualitative evidence synthesis), which indicated that this method in its online version could be used to research FNS. Finally, it provides a unique comparison of two different countries where lessons can be learned from both sides. Scotland offered a wide range of policies to protect as many sectors of the population during the pandemic, as well as the widespread knowledge about the right to food and the effort that many organizations are making to implement it in their practices. In Mexico, the richness of the land (milpa) was reflected in the value

households placed on food production. There was also the urgency to solve ongoing social issues to improve people's livelihoods, as well as to decrease vulnerability to the right to food and increase resilience when crisis arise.

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Appendix 1: Key terms definitions for qualitative evidence synthesis

Key term	Definition
Food environment	“Refers to the physical, economic, political and socio-cultural context in which consumers engage with the food system to acquire, prepare and consume food. The food environment consists of: food entry points; the built environment that allows consumers to access these spaces; personal determinants of food choices; and the political, social and cultural norms that underlie these interactions” (HLPE, 2017).
Food security	“Food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2002).
Food insecurity	“Whenever the availability of nutritionally adequate and safe foods, or the ability to acquire acceptable foods in a socially acceptable ways, is limited or uncertain” (Anderson, 1990).
Food/	Substances taken in by the body to provide nourishment [MeSH Heading]
Obesity/	A status with BODY WEIGHT that is grossly above the acceptable or desirable weight, usually due to accumulation of excess FATS in the body The standards may vary with age, sex, genetic, or cultural background. In the BODY MASS INDEX, a BMI greater than 30.0 kg/m ² is considered obese, and a BMI greater than 40.0 kg/m ² is considered morbidly obese (MORBID OBESITY) [MeSH Heading].
Overweight/	A status with BODY WEIGHT that is above certain standard of acceptable or desirable weight. In the case of BODY MASS INDEX, overweight is defined as having a BMI of 25.0-29.9 kg/m ² . Overweight may or may not be due to increases in body fat (ADIPOSE TISSUE), hence overweight does not equal “over fat” [MeSH term].
Malnutrition/	An imbalanced nutritional status resulting from insufficient intake of nutrients to meet normal physiological requirement [MeSH Heading].
Vulnerable populations/	Vulnerable population/: Groups of persons whose range of options is severely limited, who are frequently subjected to COERCION in their DECISION MAKING, or who may be compromised in their ability to give INFORMED CONSENT [Medline, MeSH heading]

Appendix 2: Search strategy for qualitative evidence synthesis

ELECTRONIC SEARCHES

I conducted this search the 12th of January 2022

(ASSIA, ProQuest Dissertations & Theses Global, and Web of Science)

1. Food/
2. Malnutrition/ or obesity/
3. Vulnerable people/
4. (("nutrition*") n/1 ("security" or "insecurity" or "poverty" or "deprivation" or "vulnerability"))
5. ("food" n/1 ("security" or "insecurity" or "poverty" or "deprivation" or "vulnerability" or "justice"))
6. ("food" n/1 ("access*" or "availability" or "affordability" or "adequacy" or "sustainability" or "sovereignty" or "system" or "environment" or "dessert" or "swamp"))
7. ("human right to adequate food" or "right to food" or "right to adequate food")
8. ("food" n/1 ("citizenship" or "agency"))
9. (vulnerable population* or vulnerab* or depriv* or indigenous)
10. ("photo*elicitation" or "photo*voice" or "photograph*" or "photo" or "photo-novella")
11. ("visual" n/1 "method*")
12. s1 or s2 or s3 or s4 or s5 or s6 or s7 or s8 or s9
13. s10 or s11
14. s12 and s13

(MAINSUBJECT.EXACT("Food") OR MAINSUBJECT.EXACT("Vulnerable people") OR (MAINSUBJECT.EXACT("Malnutrition") OR MAINSUBJECT.EXACT("Obesity")) OR noft(("nutrition*") NEAR/1 ("security" OR "insecurity" OR "poverty" OR "deprivation" OR "vulnerability"))) OR noft(("food" NEAR/1 ("security" OR "insecurity" OR "poverty" OR "deprivation" OR "vulnerability" OR "justice"))) OR noft(("food" NEAR/1 ("access*" OR "availability" OR "affordability" OR "adequacy" OR "sustainability" OR "sovereignty" OR "system" OR "environment" OR "dessert" OR "swamp"))) OR noft(("human right to adequate food" OR "right to food" OR "right to adequate food")) OR noft(("food" NEAR/1 ("citizenship" OR "agency"))) OR noft((vulnerable population* OR vulnerab* OR depriv* OR indigenous))) AND (noft(("photo*elicitation" OR "photo*voice" OR "photograph*" OR "photo" OR "photo-novella")) OR noft(("visual" NEAR/1 "method*")))

For OVID (MEDLINE, Global Health, PsychINFO, Embase):

1. Vulnerable populations/
2. FOOD/
3. Malnutrition/ or Obesity/ or Overweight/
4. ((nutrition*) adj1 (security or insecurity or poverty or deprivation or vulnerab*)).ti,ab
5. ((food) adj1 (security or insecurity or poverty or deprivation or vulnerab* or justice)).ti,ab
6. ((food) adj1 (access* or availability or affordability or adequacy or sustainability or sovereignty or system or environment or dessert or swamp)).ti,ab
7. (human right to adequate food or right to food or right to adequate food).ti,ab
8. ((food) adj1 (citizenship or agency)).ti,ab
9. (vulnerable population* or vulnerab* or depriv* or indigenous).ti,ab.
10. (photo*elicitation or photo*voice or photograph* or photo or photo*novella).ti,ab
11. (visual adj1 method*).ti,ab
12. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
13. 11 or 12
14. 13 and 14

Appendix 3. Excluded papers with reason for exclusion

Title	Author ID	Reason
Use of participatory research and photo-voice to support urban Aboriginal healthy eating	Adams, K 2012	Wrong methodology
From the Lunch Table, to the Family Table: A Grounded Theory Approach to Understanding Urban Adolescents' Experiences of Food Culture Mismatch between School and Home Environments	Agaronov, 2019	Wrong population
Co-constructing food access issues: Older adults in a rural food environment in West Virginia develop a photonarrative	Andress 2017	Wrong methodology
Her Seat at the Table: A Youth Participatory Examination of Food Insecurity among Latina High School Students	Arrendol-Kiely 2020	Wrong population
Factors influencing dietary practices in a transitioning food environment: a cross-sectional exploration of four dietary typologies among rural and urban Ugandan women using Photovoice	Auma 2020	Wrong population
Food journeys: place, mobility, and the everyday food practices of young people.	Bosco 2017	Wrong population
Food deserts or food swamps?: A mixed-methods study of local food environments in a Mexican city	Bridle-Fitzpatrick 2015	Wrong population
Role of expendable income and price in food choice by low income families.	Burns 2013	Wrong focus
A pilot study of an online produce market combined with a fruit and vegetable prescription program for rural families	Burrington 2020	Wrong focus
Teen Food Insecurity: Finding Solutions through the Voices of Teens	Burriss 2020	Wrong population
Setting the table. Theoretical and methodological approaches to studying family food practices in relation to place and social location	Chapman 2020	Not found

Witnesses to hunger: participation through photovoice to ensure the right to food	Chilton 2009	Wrong methodology
How Latina mothers navigate a 'food swamp' to feed their children: a photovoice approach	Colon-Ramos 2017	Wrong methodology
How Do African-American Caregivers Navigate a Food Desert to Feed Their Children? A Photovoice Narrative	Colon-Ramos 2018	Wrong methodology
Healthy options: a community-based program to address food insecurity	Dailey 2015	Wrong focus
Experiences of Students Utilizing a Campus Food Pantry	Daugherty 2017	Wrong focus
Agriculture, diet, and empowerment: Understanding the role of community gardens in improving the health of Oregon's urban Latino community	Dezendorf 2013	Wrong focus
Understanding the local food environment: A participatory photovoice project in a low-income area in Madrid, Spain	Diez 2017	Wrong methodology
A community-driven approach to generate urban policy recommendations for obesity prevention	Diez 2018	Wrong methodology
The mismatch between observational measures and residents' perspectives on the retail food environment: a mixed-methods approach in the Heart Healthy Hoods study	Diez 2016	Wrong methodology
A Photovoice study of food (in)security, unemployment, and the discursive-material dialectic	Dougherty 2018	Wrong focus
"Men Are in Front at Eating Time, but Not When It Comes to Rearing the Chicken": Unpacking the Gendered Benefits and Costs of Livestock Ownership in Kenya	Dumas 2018	Wrong focus
Voices of hunger: addressing health disparities through the culture-centered approach.	Dutta 2013	Wrong methodology

Feasibility study of asset mapping with children: identifying how the community environment shapes activity and food choices in Alexander First Nation.	DyckFehderau 2013	Wrong population
Photovoice Engages Rural Youth in Childhood Obesity Prevention	Findholt 2011	Wrong population
Environmental influences on children's physical activity and eating habits in a rural Oregon County	Findholt 2011b	Wrong population
Through the lens of our cameras: children's lived experience with food security in a Canadian Indigenous community	Genuis 2015	Wrong population
College Student Perspectives of Food Insecurity during the COVID 19 Pandemic: A Photo-Elicitation Narrative Inquiry	Gilbert 2021	Wrong focus
Foodways and futures (2013-2016): an action research approach to exploring the food choices of formerly homeless young people in the north east of scotland	Gombert 2017	Wrong population
Effects of photovoice on youth perceptions of healthy food access in the built environment	Gozalians 2012	Wrong population
Residents' perceptions of their local food environment in socioeconomically diverse neighborhoods: A photovoice study	Gravina 2020	Wrong methodology
Early adolescent food routines: a photo-elicitation study.	Green 2021	Wrong population
Childhood to Early Adolescence: How Are Food Choice Processes Developing and Influenced During this Transition Period?	Green 2019	Wrong population
Examining childhood obesity and the environment of a segregated, lower-income US suburb	Hackett 2015	Wrong population
Exploring the perceptions of and experiences with traditional foods among first nations female youth: A participatory photovoice study	Hanemaayer 2020	Wrong population

The Food Environment Through the Camera Lenses of 9- to 13-Year-Olds Living in Urban, Low-Income, Midwestern Households: A Photovoice Project	Heidelberger 2015	Wrong population
A Phenomenological Photovoice Study of the Lived Experiences of Community College Students Who Are Food Insecure	Henehan 2019	Not found
Food choices and practices during pregnancy of immigrant women with high-risk pregnancies in Canada: A pilot study	Higginbottom 2014	Wrong focus
Immigrant women's food choices in pregnancy: perspectives from women of Chinese origin in Canada	Higginbottom 2018	Wrong population
How is COVID-19 shaping families' relationships with food and food environments? A longitudinal qualitative study	Isaacs 2021	Wrong focus
It's who I am and what we eat. Mothers' food-related identities in family food choice	Johnson 2011b	Wrong focus
Food in My Neighborhood: Exploring the Food Environment through Photovoice with Urban, African American Youth	Johnson 2017	Wrong population
Photo-elicitation: Reflections on a method to study food insecurity among low-income, post-9/11 veterans	Kamdar 2021	Wrong focus
Witnesses to hunger: methods for photovoice and participatory action research in public health.	Knowles 2015	Wrong type of publication
The use of Photovoice to document and characterize the food security of users of community food programs in Iqaluit, Nunavut	Lardeau 2011	Wrong methodology
Beyond Nutrient Intake: Use of Digital Food Photography Methodology to Examine Family Dinnertime	McCloskey 2019	Wrong focus
Farmers Market Access by Snap-eligible Mothers of Young Children: Barriers and Impact on Nutrition Education Programming for Cooperative Extension	Misyak 2014	Wrong focus

Gaining women's views on household food security in Wote sub location, Kenya	Mulandi 2007	Wrong focus
Using photovoice methodology to investigate facilitators and barriers to food acquisition and preparation by rural older women.	Neill 2011	Wrong methodology
Exploring the Contextual Factors of Adolescent Obesity in an Underserved Population Through Photovoice	Nichols 2016	Wrong population
eHealth promotion and social innovation with youth: Using social and visual media to engage diverse communities	Norman 2012	Wrong focus
The food environment of primary school learners in a low-to-middle-income area in cape town, south africa	O'halloran 2021	Wrong type of publication
The photo-elicitation of food worlds: a study on the eating behaviors of low socioeconomic Chilean women	Galvez 2017 (Patricia 2017)	Wrong focus
Engaging homeless individuals in discussion about their food experiences to optimise wellbeing: A pilot study	Pettinger 2017	Wrong focus
Using creative methods to engage 'marginalized' groups in food/nutrition activities: A plymouth pilot study	Pettinger 2016	Not found
Urban physical food environments drive dietary behaviours in Ghana and Kenya: A photovoice study	Pradeilles 2021	Wrong methodology
Qualitative Study on Participant Perceptions of a Supermarket Fruit and Vegetable Incentive Program	Riemer 2021	Wrong methodology
Visualizing perceived enablers of and barriers to healthy eating by youth in rural El Salvador.	Romero 2019	Wrong population
Perceived role of built and social environments on childhood obesity a photovoice approach with latino migrant farmworking families.	Rosado 2020	Not found

It's all about the children: A participant-driven photo-elicitation study of Mexican-origin mothers' food choices	Johnson 2011 (Sharkey 2011)	Wrong focus
Healthy Food Access and Low-Income Teens: A Photovoice Approach	Simpson 2021	Wrong population
"...I don't forget my traditions..." Exploring barriers and facilitators of food security among low income newcomer Latin American families in Edmonton, Alberta	SosaHernandez 2012	Wrong focus
A qualitative exploration of the impact of COVID-19 on food decisions of economically disadvantaged families in Northern Ireland.	Spyreli 2021	Wrong focus
Fremont County food and agriculture: A communal conversation	Sutton 2009	Wrong population
Culturally constructed meanings for consumption of sweetened beverages among schoolchildren in Mexico City	Theodore 2011	Not found
Local Institutional Structures, Culture and Food Security in South Africa	Trefry 2013	Not found
Reaching for a Healthier Lifestyle: A Photovoice Investigation of Healthy Living in People with Serious Mental Illness	Weinstein 2019	Wrong focus
Understanding Nutrition Transition Among Internal Rural-To-Urban Migrant Women in Kenya	Peters 2020	Wrong methodology
Perceived community environmental influences on eating behaviors: a photovoice analysis.	Belon 2016	Wrong population
The Public Voice and Sustainable Food Systems: Community Engagement in Food Action Plans	Sears 2017	Wrong focus
Using photovoice and asset mapping to inform a community based diabetes intervention	St Omer 2016	Wrong focus

Using photovoice to understand perceptions of obesity among African-American women	Xiao 2021	Wrong population
A Photovoice Study to Reveal Community Perceptions of Highly Processed Packaged Foods in India	Sharma 2021	Wrong population
Promoting policy and environmental change using photovoice in the Kaiser Permanente Community Health Initiative	Kramer 2011	wrong focus

Appendix 4: General contextual data of included studies

No.	Author, year	Country	Field of researchers	Population	Aim	Method
1	Akande, 2021	Canada (Arctic)	Health promotion; Health; Work & Social Psychology	16 participants (10 women, 6 men). Nunavut Inuit*	To understand the perspectives of Inuit on the factors that constitute barriers and enablers to making healthy dietary choices and increasing the physical activity levels in the population.	Photo-elicitation semi-structured interviews with photos taken by researchers. PEI is defined as the insertion of photographs in an interview.
2	Cannuscio, 2010	USA	Public Health, Family Medicine and Community Health.	32 participants (25 female, 7 male) (17 Caucasian, 13 African American, one Hispanic, one Asian).	To examine the health relevance of foodways – the social dynamics surrounding the production, purchase and consumption of food. To understand residents' street-level views of the causes of urban health disparities.	Photo-elicitation interviews with photographs generated by researchers and city residents' interviews.
3	Folta, 2021	USA	Nutrition Science and Policy	18 participants, age 40 (23-77) (8 male, 10 women)	To use in-depth insights from people experiencing financial scarcity to explore whether scarcity-related cognitive phenomena, such as tunnelling and bandwidth tax, manifest and, if so, how they affect food choice.	Participant-driven photo-elicitation interviews.
4	Galvez-Espinoza, 2018	Chile	Nutrition, Kinesiology and Community Health, Applied Health Science,	31 low-income women, with at least one kid under 12 years	To understand eating behaviours of vulnerable women, to know the reasons why these women have diets	Photo-elicitation interviews.

			Primary Care and Family attention	old, living with a partner.	that can contribute to obesity.	
5	Henderson, 2016**	Canada	Human Nutritional Science. Faculty of Agricultural and Food Sciences.	8 newcomers (6 female), 4 community workers	To explore challenges and opportunities associated with attempting to maintain a healthy traditional diet for newcomers living in the North End neighbourhoods of Winnipeg, Canada	Mixed methods, using photovoice.
6	Kamdar, 2020	USA	Health Services Research, Medical Illness research, Community and population medicine	17 Veterans (11 male, 6 females; age 36.06 SD 5.97 years; low income; with at least one child)	To engage low-income Veterans with children in reflecting on their experiences with trying to provide adequate, nutritious food for themselves and their families. Identify barriers and strategies to get food on the table, as well as the impact these barriers and strategies had on themselves and their families.	Photo-elicitation interviews.
7	Lindow, 2021**	USA	Literature, Science and Arts. School of Social Sciences, Humanities, and Arts. Nutritional Sciences, school of public health.	17 parents (14 mothers, 3 fathers), low income	To understand how food insecurity affects parents' ability to provide food for their family, their strategies for managing household food insecurity and the impact of food insecurity on their wellbeing.	Adaptation of the photovoice method.
8	McClain, 2019	USA	Exercise and Nutritional Sciences	27 Mexican-born mothers living in the US for less	To explore life course and ecological system influences on food provisioning among	Two face-to-face in-depth semi-structured interviews, using participant-driven

				than 10 years, with at least one kid under 5 years old	low-income, Mexican-born mothers in the USA to identify target influences and behaviours for interventions.	photo-elicitation in the first one.
9	Rodriguez, 2016**	Canada	Planning; Public Health and Health Systems; Recreation and Leisure Studies; Geography and Environmental Management	9 immigrants (6 female), and 9 community stakeholders (experience with immigrants)	To better understand how the food environment is experienced by immigrants in Ontario. It examines individual and environmental factors influencing immigrant food security.	Multi-method qualitative case study, using key informants' interviews; photo-elicitation in-depth interviews with immigrants.
10	Spires, 2021	South Africa	Food Policy, Public Health, Chronic Disease Initiative	Participants with diabetes living in an urban (n=8, all female) and a rural (n=9, 8 female), >50 years old, low income.	To gain insights into how people self-managing diabetes interact with and navigate their local food environments in both an urban and rural setting; and what (and how) aspects of these physical environments influence their food acquisition behaviours.	Participant-generated photographs and focus group discussion-style workshops.
11	Vizcarra, 2019	Chile	Department of Kinesiology and Community Health; Nutrition; Primary Care and Family Health.	31 women from low-income neighbourhoods (9 normal weight, 15 overweight, 7 with obesity)	To analyse the influences of weight status on the food choices of women from lower SES groups.	Semi-structured interviews with photo-elicitation.

*Nunavut Inuit: one of the three Indigenous peoples of Canada.

**Papers that mentioned using photovoice, but the methodology was not participative.

Appendix 5: Data related to the method used to collect and analyse data in the included studies

No.	Author, year	Details of the method	Elicited data	Data analysis	Conclusions about the method
1	Akande, 2021	Researchers took photos in the community (built and food environments during the summer and winter) and got historical photographs (from 30-50 years ago of the neighbourhoods, streets, houses, vehicles, walkways) to use in the PEI. 5 contemporary photos and 5 historical photos were chosen. Participants were briefed about the study and gave consent. Participants chose five photos of the 10 presented and chose 5 photos from a list of healthy traditional and non-traditional foods.	Participants were asked to describe each photo, asked for the event that was captured and how it related to food choices. They also described barriers or facilitators of a healthy diet, both personal and structural, in the past and in their current life.	Inductive thematic approach (Braun and Clarke, 2006). Themes, subthemes, and insights generated were member-checked by the participants.	The way photographs were taken by researchers contributed to the intention to keep the focus on the barriers and enablers, as they chose the photos, they considered were relevant. Photographs were described as an “ice-breaker” activity.
2	Cannuscio, 2010	Staff photographers' systematic social observation and photographs of a 10% sample of blocks in 3 neighbourhoods with a steep SES gradient. Participants took also photographs, which were used to guide a discussion. Few prompts from researchers.	Source of urban health disparities using visual images. Interviews structured around corner stores, delis that also sell beer, and Chinese takeout restaurants. Photographs to document barriers to and facilitators	Interviews coded by 3 independent reviewers. Quotes used to show patterns.	N/A

			of health in their daily lives.		
3	Folta, 2021	Participants had to take photographs at the point of food choice during a month, so that the Supplemental Nutrition Assistance Program benefit cycle could be captured. Cameras were offered if needed. After one month, interviews took place. Photographs were organized by day and used as a prompt during the interviews. Topic guide created with stakeholders.	Food choice, decisions at the purchase point.	Thematic analysis was used, following an inductive approach. Team members had meeting to discuss themes and a codebook was created. Final themes were developed based on frequencies and patterns found in the data.	Using photo-elicitation could have prevented people with less time available to participate. This method allowed discussion and insightful contribution. PE allowed exploration of financial scarcity and food choice when time availability was abundant.
4	Galvez-Espinoza, 2018	Individual interviews with photo-elicitation. Cameras were provided to participants. Participants could take 20 photos related to the topic of the research for 7 days. Then cameras were returned, and photographs developed. Participants revised their photographs and chose 5-7.	Photographs of any aspect in their lives that was important and that was related to food or nutrition, for 7 days. Researchers used the SHOWeD method.	Inductive analysis. Five researchers chose 10 transcripts to get familiar with data and coded them initially. Then codes were compared, keeping those that were repeated, and kept the codes that everyone agreed upon. A codebook was created and used in the rest of the interviews. Then codes were categorised and then themes were developed.	No further reflections, other than considering that using images could have been influenced by what the participants thought it would be accepted by researchers.
5	Henderson, 2016	Data collected using in-depth cultural interviews with newcomers and community	Different aspects of their food environment, such as food purchases, food	Thematic analysis was used to examine barriers and opportunities for	

		workers involved in food and newcomer programming. Photovoice used to enhance newcomer interviews to capture their food environment and experiences. Newcomers were given cameras and instructions to take 10-15 photos (written instructions were provided). Sample pictures were shown to participants. Photos were developed 6-14 days after. Photos were discussed during the interview	preparation and gardening activities.	healthy eating. Analysis began during the interviews and during the time spent in the community. Transcripts were analysed in order to identify emerging themes, used to create inductive codes. Codes were constantly compared to each other and collapsed into broader codes when necessary.	
6	Kamdar, 2020	Three meetings with each participant and took place over a five-month span. First meeting 1:1 training on photo elicitation. Digital camera with instructions were provided. Participants also completed a short survey to collect socio-demographic information. Also, the 18-item Household Food Security Survey Module. Second in-depth, semi-structured meeting took place two weeks later. The third meeting consisted of small group discussions to review information collected	10–14 photos of factors that helped and/or hindered their ability to get food to the table. In second interview: questions to understand participants' experiences with: purchasing/getting food, storing food, preparing food, Veteran-specific issues, SNAP/food pantries, food quality, and social supports.	Polytextual thematic analysis of transcripts and photos using a side-by-side method (by Gleeson). Photos and transcripts were deidentified. In PowerPoint, photos were paired with the corresponding text (copied verbatim) from transcribed interviews. First and fourth author then independently coded the slides. Differences were discussed. Coded slides	Photo elicitation allowed participants to have time to process the study purpose, and the photos helped to evoke emotions and rich information. It allowed researchers to gather rich, informative qualitative data.

		from 1:1 photo-elicitation interviews.		were shared with the remaining co-authors.	
7	Lindow, 2021	Adapted photovoice method. One-on-one training about photographs. Parents could interpret the research question broadly and use the photos to describe their personal narratives around food insecurity. Participants used their phones and sent photos throughout a 2-week period. Then parents had a 30-minute interview with the researchers to discuss the photos in detail.	Information about family's experience of food insecurity and the impact of food insecurity on their psychological wellbeing. Photographs of the daily challenges they faced (in providing food for their children during difficult economic times).	Analysis by researchers. Thematic analysis using an iterative, inductive approach. Draft codebook developed after reviewing all the content of the transcripts and photos. Then codebook was used for all the transcripts. Steps: choosing photos that reflected community's needs, 2) identify emergent themes, issues, 3) contextualising the photos with participants' own words.	Using the adaptation of photovoice is the strength of this study. Through the interviews, researchers were able to gain an in-depth understanding of each parent's unique struggle with food insecurity that could not have been captured through quantitative research methods.
8	McClain, 2019	Two face-to-face interviews. Participants had to complete the study within 2 to 3 months, at the place the participant decided in English or Spanish. In the first meeting consent was sought as well as demographic data and provided instruction for the photography activity. Cameras were provided. After providing instructions researchers asked participants for examples of	Photos of "anything important to how they feed their family and children". Used SHOWED method for each photo and using probes when necessary. In second interview, information related to perspectives on how participants' life transition from Mexico to the USA influenced the quality and quantity of how they fed their children.	Content analysis of the transcripts, complemented by field notes. Photographs to triangulate data. Analysis included iterative coding and identification of emergent themes related to research questions. Analysis began at early stages to assist in concept development and subsequent data collection. Transcripts	Photo elicitation interview allowed the participant to produce the photos and guide the interview content, empowering them to bring attention to issues they considered important and providing an emic perspective. It facilitated triangulation of data, confirming themes in both words and photos.

		the photos they would take. Copy of instructions were provided. First interview was conducted using participant-driven photo elicitation. Participants had to choose 4-5 photographs for discussion. After one month, second in-depth interview was conducted. At the end, a food insecurity experience survey was conducted.		were iteratively coded in relation to the two theoretical perspectives that guided data collection, life course perspective and ecological systems theory.	
9	Rodriguez, 2016	Key informants recruited by author via email. Immigrant participants were given a disposable camera to complete a photovoice exercise. Two weeks later, a second photo-elicited interview took place.	Photographs of food environment. Following the SHOWeD method.	Thematic analysis following a six-step process (by Braun and Clarke). Analysis framed using the Analysis Grid for Environments Linked to Obesity (ANGELO) framework.	N/A
10	Spires, 2021	First, in a focus group (FG) participants were told the aims of the study and trained in camera use. Researchers collected data to compliment and provide context to photographs (perception of food, places of daily food acquisition, frequency of acquisition). Participants numbered photos and wrote captions. After returning everything to researchers, a small interview with	Participants in the FG talked about: what in your community makes it easier for you to eat healthy? and what in your community makes it harder for you to eat healthy? Participants were given cameras and were asked to take photographs related to the answers of the two questions.	Photographs titles and captions were analysed using a theoretical, or deductive thematic analysis approach (existing constructs of availability, accessibility, affordability, desirability, convenience and marketing were considered). Thematic analysis by Braun and Clarke was used. Photographs were not analysed as they were	Using photographs and focus groups was effective to help participants to come to a better understanding of how different factors within their physical environment shape their food acquisition behaviours, diets and health. It also facilitated communication of their perspectives. The focus groups were seen as a safe space to share their concerns about their

		participants took place to clarify discrepancies.		primarily intended to facilitate discussion and visually represent participant perspectives.	diabetes, and how to manage it.
11	Vizcarra, 2019	Cameras and training provided by researchers. They had 3 weeks to take the photographs. Reminders to take the photographs were made via telephone calls. After 3 weeks, cameras were returned, and 2 sets of photographs were developed (one set for participants). At the start of the interview participants chose 5-7 pictures. Researchers chose other 5-7 photos. All pictures were used in the selection process, including those that were apparently unrelated to the food world. Participants titled each photo and explained why the title.	Participants asked to take 20 pictures of their "food world". They were encouraged to take photos not only of meals but also of any important aspects of their lives that they considered relevant to their "food world". Shaffer's SHOWeD technique used to initiate discussion. Follow-up questions.	Thematic analysis with a codebook developed from coding initial transcripts. 7 themes were identified; comparative analysis for each theme within each weight group looking for different and common patterns within each theme. Contrast table to analyse differences between those patterns per group. To explore differences, content analysis was used to determine percentage of participants that mentioned a theme, and the number of times each theme was mentioned. After comparative and content analysis, a second thematic analysis per each group was conducted to identify themes that were not initially identified. Comparison of these themes between groups,	A potential limitation identified by the researchers it that the participants' decision about what to photograph may have been biased by the fact that this was a study of food and nutrition.

				and calculation of repetition of themes*.	
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*Researchers agreed that a theme was present when it was mentioned by more than 75% of the participants in each weight status group (the group of women with obesity was smaller, hence the percentage to determine a theme was 71%).

Appendix 6: Themes found in the paper, final conclusions per paper

No.	Author, year	Themes	Final conclusions
1	Akande, 2021	Six broad themes: 1) Cost and affordability of healthy choices; 2) availability of traditional foods and activities; 3) weather conditions and climate change; 4) infrastructure and community resources; 5) social networks of family and friends; and 6) effect of substance use.	Quantitative research is also required to assess the importance of identified facilitators and barriers in promoting physical activity and healthy eating. The strategic role of transportation infrastructure in the food systems, with regard to access, affordability, and the overall impact on the health and general well-being of Nunavut Inuit, compels a call for both political and policy interventions by the territorial and federal governments. An effective and sustainable food policy intervention by both governments is required to reorient food-supply systems and improve the food environment.
2	Cannuscio, 2010	Three themes related to the three food retail outlets: 1) Corner Stores: integral to generating urban foodways from an early age; 2) Stop and Go's: Alcohol and Threats to Safety as Components of urban foodways; 3) Chinese Takeouts: Hostile Merchant-Consumer Interactions and Well-being.	Food environments shape people and their food-related behaviours, which in turn reshape or reinforce the food environment. Foodways, including the many associated pitfalls from production to purchase to consumption of food, present a complex challenge to the wellbeing of low-income across the life course.
3	Folta, 2021	Two themes: 1) strategies for stretching resources, and 2) the consideration of cost, preference, and health in food choice decisions.	Scarcity is a continuum, when individuals experience multiple resources constraints, they experience a bandwidth tax. People with limited finances and relative time abundance may instead be in a pre-scarcity condition. Time abundance is useful to innovative plan and strategize to address resource constraints. Engaging in saving activities imposes an opportunity cost on participants. Focusing in low

			cost of food can lead to poor diet quality for several reasons. Nutrition stays in the periphery.
4	Galvez-Espinoza, 2018	Seven themes were identified about how women based three eating behaviours: 1) buying food; 2) preparing food; 3) eating food. Themes were described as factors that influence these three behaviours. Factors: 1) Family; 2) preferences; 3) temporality; 4) Perceptions about foods; 5) Financial issues; 6) Special occasions; and 7) availability of foods.	These findings contribute to the understanding of eating behaviours in vulnerable women offering information about how three eating behaviours (buy, preparation, and intake) are based in seven factors. Family is one of the main factors influencing the three behaviours. Therefore, including family in interventions promoting healthy eating can have benefits.
5	Henderson, 2016	Challenges to healthy eating; opportunities to healthy eating.	Newcomer participants reported many struggles, including low incomes, gardening challenges and little access to culturally acceptable foods. Community worker interviews, field notes and an environmental scan of community resources also revealed a lack of social inclusion/support and few food and nutrition resources for newcomers. More culturally appropriate programmes and resources are needed in Winnipeg's North End to improve food security status of newcomers and support the maintenance of healthy traditional diets.
6	Kamdar, 2020	Three themes were developed: 1) Limited Resources and Capacity Challenge Veterans' Ability to Get Food to the Table; 2) Strategies to Get Food to the Table; 3) Compromises Diminished Health and Wellness. Challenges, strategies, and compromises provided insight into areas that need further investigation and improvement to better meet Veterans' needs. These areas were categorized into three domains: resources, personal capacity, and cultural influence.	Limited money, time, and disabilities challenged access to healthy meals. Limited resources decreased choice and control over what Veterans fed their children. Affordable, accessible food fell below nutritional standards. Veterans rationed their own intake to preserve food for their children. Policies to help Veterans increase access to nutritious food need to consider these factors.
7	Lindow, 2021	Four themes were identified from the parents' photos and interviews. First, parents described multiple aspects of their food environment that promoted unhealthy eating behaviours. Second, parents shared strategies they	Parents highlighted the external contributors and internal struggles of their experiences of food insecurity.

		employed to acquire food with limited resources. Third, parents expressed feelings of shame, guilt and distress resulting from their experience of food insecurity. And finally, parents described treating their children to special foods to cultivate a sense of normality.	
8	McClain, 2019	Five themes related to mothers' overall priority of providing home-cooked meals for their families. The first three themes are part of the social context of mothers' lives in Mexico: food insecurity experiences in Mexico, agrarian experiences in Mexico, and traditional foods and flavors. The fourth theme, motherhood, was a life course transition. The fifth theme, health events, was a turning point in several mothers' lives.	Due to migration happening worldwide, framing nutrition behaviour in the context of life course and ecological systems is very important. Findings demonstrate several potential implications for creating targeted and culturally tailored approaches to prevent and reduce food insecurity, capitalizing on the existing skills, values and behaviours of immigrant families.
9	Rodriguez, 2016	Three main themes: 1) Affordability and economic stability; 2) Geographic access to culturally appropriate and high-quality food; 3) Keeping traditional food practices.	Important to implement actions on the upstream determinants of health for food access. Challenges in accessing nutritious and culturally appropriate food may exacerbate financial challenges among immigrants. There is a need to continue to develop local retail food outlets that are desirable to the immigrant population. Funding, zoning and regulating these non-traditional outlets are crucial.
10	Spires, 2021	Rural participants produced 17 photographs representing what makes easier to eat healthy, and 18 representing factors that make it harder. All rural participant feedback fell into four themes: accessibility, affordability, availability and desirability. Urban participants produced 16 photographs representing what in their community makes it easier to eat health, and 15 representing factors that make it harder. All urban participant feedback into four themes: accessibility/availability, affordability, convenience and an emergent theme involving household dynamics.	Self-managing diabetes can be hard in these settings, and the food environments play a role in shaping food acquisition behaviours, and health and nutritional outcomes. Levels of knowledge regarding healthy diets among participants were high, and a general want to eat healthy was communicated; however, the findings show that local food environments did not facilitate the regular, easy access to desired healthy food items. Government has a key role to play in influencing these environments through targeted initiatives such as effective pricing policies,

			consumer subsidies and support for locally oriented agricultural initiatives.
11	Vizcarra,2019	Seven themes were found across the entire sample: 1) family, 2) preferences; 3) temporality; 4) perceptions about food; 5) financial issues; 6) special moments, and 7) food availability). Four were found to show different patterns among the weight status groups: 1) family; 2) temporality; 3) financial issues, and 4) perceptions about food.	Women with obesity seem to have a more multi-layered “food world” (it represents everything in a woman’s life that relates to food and that is important for her). These women seem to base their food choice decisions on individual and environmental factors that are difficult to control. This implies that it is more difficult to make healthy food choices and change unhealthy eating behaviours because they perceive complex barriers to do so. There is a need of developing more culturally competent approaches that adjust to the “food world” of women with obesity. In order to treat obesity, it is necessary to consider intrapersonal factors that influence women’s self-efficacy, self-control, and self-esteem. It is critical to ponder factors from the individual’s environment in the development and implementation of obesity treatment programmes for this population.

Appendix 7: Tabulation summary of quality appraisal items for the included papers

Study	Section A						Section B			Final
	Are the results valid?		Is it worth continuing?				What are the results?			Overall assessment
	Clear aims	Qualitative methodology appropriate	Appropriate research design	Appropriate recruitment strategy	Adequate data collection	Researcher-participant relationship	Ethical approval	Rigour data analysis	Clear statement of findings	
Akande, 2021	Yes	Yes	Yes	Yes, and presented reasons for no participation	Yes	Partial - researchers mentioned being familiar with the participants and their context/background but no discussion on how this might influence data collection or analysis	Yes	Yes	Yes, no photos	Minor concerns
Cannuscio, 2010	Yes	Yes	Unclear – information not presented. Link provided did not open	Partial – Not sufficient information. No discussion around it.	Yes	No	No	Partial – methods description is too short	Yes, no photos	Serious concerns
Folta, 2021	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes, with photos	No concerns
Galvez-Espinoza, 2018	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes, no photos	Minor concerns

Henderson, 2016	Yes	Yes	Yes	Yes	Yes	Partial – researcher embedded in the community to create rapport and trust. No more discussion on how this impacted data collection and analysis	Yes	Yes	Yes, no photos	Minor concerns
Kamdar, 2020	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes, with photos	Minor concerns
Lindow, 2021	Yes	Yes	Yes	No clear information on how recruitment took place	Yes	No	Yes	Yes	Yes, with photos	Minor concerns
McClain, 2019	Yes	Yes	Partial – no rationale for photo-elicitation	Yes	Yes	Partial – recognition of similar culture of participants and one researcher, but no discussion on how this could have impacted data collection or analysis	Yes	Yes	Yes, with photos	Minor concerns
Rodriguez, 2016	Yes	Yes	Yes	Yes	Yes	No	Partial – no information about consent	Yes	Yes, with photos	Minor concerns
Spires, 2021	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes, with photos	Minor concerns
Vizcarra, 2019	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes, with photos	Minor concerns

*Section C has been changed in this table for “Overall assessment” to get a conclusion of the assessment. Classification in minor, moderate or serious concerns depending on the lack of information provided by the researchers in the paper (which might have been limited by word count limits in journals’ publication requirements). Four of the eleven papers in this review do not present photographs in their findings. The great majority of studies did not present information about ethics for the photography taking activity. However, this might have been described elsewhere and omitted in the paper for word count limit.

Appendix 8. Reflexivity (assessment of identity, positionality and subjectivities)

	Households' online photo-elicitation interviews	Stakeholders' interviews
Race/culture – Hispanic/ Mexican	Being Mexican created a sense of familiarity with people from Mexico; In Scotland, when interviewing Mexicans there was familiarity, but when interviewees were not, there was a subtle distance but compensated by the time I have been living in the UK (4 years)	Interviewing Mexican stakeholders felt close to me. Interviewing Scottish stakeholders was challenging because of the distance with the culture and background.
Language - Spanish	My first language is Spanish, therefore those interviews in Spanish were easier to conduct, as well as to transcribe. English, even though I speak and understand it, posed a challenge when interviewing and transcribing.	
Gender – Woman	When interviewing women, I felt closer to them and understood their role within the society (specially the Mexican one). When interviewing men, I could recognise some thoughts that agreed or disagreed with preconceived roles I attached to the male gender within the household. I tried to be conscious of this, and not judge. However, it helped me to conduct some of the analysis when considering social context.	I do not consider that being a woman made any difference when interviewing either female or male stakeholders. I think that acknowledging stakeholders' roles as key informants was not related with their gender.
Social Class – Middle class	I could say that I have had the privilege of growing in a middle-class context, which has given me the opportunity of not struggling to get food, so I do not have the experience of food insecurity or being at risk of it. However, I have been in touch with communities that could be considered socially or economically vulnerable, which has given me an understanding of their situation (as an external observer), which is important	I can say that the same reflection around households' interviews is applicable to the stakeholders' interviews. My professional experience with vulnerable communities helped me to understand what some of the stakeholders working with food insecurity were sharing with me.

	because it makes me empathetic with the situation and opens my understanding to a different reality to mine. This was helpful in my interviews given that I could understand the indigenous people, and also the transition to vulnerability of the households that prior to the pandemic were financially stable.	
Professional background – nutritionist	I decided not to mention to my participants I was a nutritionist. In my experience with nutrition, people try to please the professional by reporting data around diet and exercise in a way that they think will be aligned with what the nutritionist wants to hear. Because this research is related with food, I tried to avoid that bias (not because of a postpositivist ideal, but because I needed people to feel open and honest when sharing with me their experiences)	In this case, I mentioned my background as a nutritionist so people felt confident of talking with me about their work knowing I could understand what they were sharing, and they could provide a deeper level of insight to what they were sharing with me. I also acknowledge when I did not know something and openly asked the participants to explain further.

Appendix 9: Poster households' interviews



Food and COVID-19

Click [HERE](#) for Info Sheet.

How has the COVID-19 crisis affected your household food-related behaviours?

Are you a member of a household with one of the following characteristics?:

- One or more member has lost his/her job in the last month?
- One or more member is considered high risk according to the current governmental guidelines for COVID-19?
- Receive any financial help from the government (e.g. Universal Credit or being furloughed, etc)
- You live in a rural area

Take part in a photo-elicitation online interview, totally ***confidential and anonymous***, to express your experiences related with food during this COVID-19 time.

Please get in touch with me if you are interested via email or mobile phone. Your participation is really valuable!

Contact sofia.alvarado@ed.ac.uk or phone/text 0737 6589 118 or WhatsApp +52 1 33 1995 1853 for more info



THE UNIVERSITY of EDINBURGH



SCPHRP
Scottish Collaboration for Public Health Research and Policy

Appendix 10: Participant information sheet households' interviews

Participant Information Sheet

Photo-elicitation interviews: households' food-behaviours in times of COVID-19 pandemic

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please read the following information carefully. Contact me if there is anything that is not clear, or if you want more information.

What is the purpose of the study?

The COVID-19 pandemic in the UK means the government has asked everyone to stay at home. This research study aims to explore household's opinions, views and experiences related with food behaviors (access, consumption, etc) and the food environment in times of COVID-19 pandemic and the "lockdown" and other measures to help prevent the spread of the virus.

Why have I been invited to take part?

Your household has been invited to take part because you reside in Scotland and fulfil one of the following criteria: someone in your household has lost his/her job in the last month, and you are in charge of food (accessing, preparation).

Do I have to take part?

Absolutely not! It is up to you to decide whether or not to take part. If you decide to take part you are free to withdraw at any time and without giving a reason. Deciding not to take part or withdrawing from the study will not affect the healthcare that you receive or your legal rights.

What will happen if I take part?

After completing the information sheet portion of this online survey, you will be asked to complete an online consent form for yourself if you are over age 18. This involves confirming that you have understood and agree to all aspects of the research.

This project requires two meetings with you in two different days. The first one, which will be less than 20 minutes, will be to explain the details of the photography-based project. The second interview, which will last around 90 minutes and will happen 3-5 days after the first meeting, will be to discuss the photographs and to hold an interview. For both interviews we will set a time and a date, and I will send the link to the call.

What are the possible benefits of taking part?

You will have the opportunity to voice your opinions, views and experiences about food-related behaviours and the food environment during the COVID-19 crisis. This in turn, could help to inform further investigations or changes in public policies.

What are the possible disadvantages of taking part?

There is understandably some anxiety around the COVID-19 for many people. To avoid creating more anxiety we will endeavour to avoid questions that may be stressful or anxiety-inducing.

You can withdraw consent from the study at any time, simply by informing us that you would not like to be included in the research, no questions asked. This includes leaving in the middle of the video call.

There also may be a time burden in taking part in this video call, but I do not think the first call will last over an hour - at the most, and the second one over 90 minutes.

What happens when the study is finished?

When the video call is complete, the researcher will write up what was said during the call word for word, and will keep a copy of the photographs. At the end of the project, anonymised transcripts with individual identifier removed will be available for me and my supervisors to use. The transcriptions will be stored on a secure and password-protected University of Edinburgh server.

Will my taking part be kept confidential?

All the information we collect during the course of the research will be kept confidential and there are strict laws which safeguard your privacy at every stage.

Nothing in any report will be able to identify you. All responses will be anonymised, and only researchers will have access to the information collected. All audio recordings will be stored securely and destroyed after transcription. The transcriptions will be kept on secure, password-protected University of Edinburgh servers.

What will happen to the results of the study?

The results of the research study will be used as part of my doctoral dissertation. I will also seek to publish the results in academic publications. I will also write up a short report for you and other participants about the results of the study and send it to you when the study is completed.

You will not be identifiable in any published results.

Who is organising and funding the research?

This study has been organised by me as part of my research project in the School of Health in Social Science at the University of Edinburgh

Who has reviewed the study?

The College of Health in Social Science ethical committee at the University of Edinburgh has reviewed and approved this study.

Researcher Contact Details

If you have any further questions about the study please contact (me) Ana Sofia Alvarado at sofia.alvarado@ed.ac.uk

Independent Contact Details

If you would like to discuss this study with someone independent of the study, please contact the School of Health in Social Science Ethics Lead, Stephanie Grohmann at Steph.Grohmann@ed.ac.uk

If you wish to make a complaint about the study, please contact the Head of School in Social Science, Prof. Matthias Schwannauer at headofschool.health@ed.ac.uk

Appendix 11: Consent form households' interviews

Title: “Measures to manage and suppress the transmission of COVID-19 and food and nutrition security in Scottish and Mexican households”

Name of Researcher: Ana Sofía Alvarado Vázquez Mellado

1. I confirm that I am 18 years or older and am interested in taking part in the online photo-elicitation interview.	<input type="checkbox"/>
2. I confirm that I have read and understood the information provided for the study. I have had the opportunity to consider the information, ask questions and have had these questions answered satisfactorily.	<input type="checkbox"/>
3. I understand that my participation in this study is voluntary and that I am free to stop taking part at any time without giving reason.	<input type="checkbox"/>
4. I understand that what I say in the video call and the photographs I send will be used in the research project. I understand that I will not be identifiable in the final report or publications.	<input type="checkbox"/>
5. I understand that the information and photographs given in the video call will be analysed. I agree to the use of anonymized quotes from the call-in publications, reports, presentations, and other published material.	<input type="checkbox"/>
6. I understand that the information will be stored in a confidential and anonymous electronic database, which may be looked at by members of the research team, only where it is relevant to my taking part in this research. I give permission for these individuals to have access to that information.	<input type="checkbox"/>
7. I understand that the interview will be audio-recorded and destroyed at the end of the study.	<input type="checkbox"/>
8. I agree to take part in this study.	<input type="checkbox"/>

9. By typing my name below, I am showing my consent for myself to take part in this study.

10. What is the first half of your home postal code?

11. Please let us know what the best method to contact you to arrange the video photo-elicitation interview:

- a. Mobile text message:
- b. Email:
- c. Twitter (add handle):
- d. Other:

Thank you for your interest!! You are now signed up for the study. The researcher will be in touch over email in the next 48-72 hours with information about when the study will start and to answer any questions you have. **Please press the next arrow to exit the consent form.**

Appendix 12: Written instructions households' interviews

PHOTO-ELICITATION INTERVIEWS FOOD AND COVID-19



Food-related behaviours during COVID-19 crisis



Positive or negative feelings related to food during COVID-19 crisis



Food environment "the outside" (following social distancing norms)



Types and availability of food, preparation and intake, family interaction



Camera

Photographs should be taken with cell phone or a digital camera



What if someone appears?

You will need a consent form for that person



Filters?

Please avoid the utilisation of filters (from camera or apps)



Remember

The purpose of the photographs is to help you to express your experiences



How many?

No more than 30. You will pick the 5 that you like the most.



Before the interview

Remember to send the 5 that you have picked to sofia.alvarado@ed.ac.uk



People?

Avoid including people in your photographs. If they do, be sure they verbally consent with it.



Interview

Find a peaceful spot in your house where we can have the interview



Remember! The photographs are to show your experience. There are no right or wrong photographs.

Appendix 13: Topic guide for households' interviews in Scotland

Topic guide: Online photo-elicitation interview with households

Expected duration: 90 – 120 minutes

Introduction

Hello again! How are you? I hope things are fine at home!

Firstly, as it was described in the consent forms, I will be recording this session because it would be impossible to write down everything that is said, and I don't want to miss any important points. This conversation will be transcribed later on. The only people who will see this transcript are those who are directly involved in the research (that is me and my two supervisors from the University). Everything you say will be both confidential and anonymized. For example, if you mention a person's name or a place, this will be removed from the transcript. In addition, when I write up the report, if we do use a quote from you, your name will be removed or changed so no one will be able to identify you.

This is also stated in the consent forms but just to be sure you are aware; it is completely fine to decide to interrupt or finish the interview at any point if you wish to do so. What you have said before you leave will still be included as data in the study unless you wish otherwise.

Additionally, as I previously mentioned, I want to emphasize that there are no right or wrong answers. Your experiences around food during this pandemic situation might be completely different than the ones other families are having, and that does not make your any more or less valid. This is a safe place to share your views and experiences.

Do you have any question or comment about what I just said? -----

If you agree, then we are ready to start the interview now.

I received your photographs in my email, thank you very much. I will have them here with me so we can discuss them later in the interview.

1. INTRODUCTION / PRESENT CIRCUMSTANCES

- a. What is your name? What is your age?
- b. Where do you live?
- c. Could you talk a little bit about your family? How many live in the same household?
- d. Could you let me know if you receive any benefit / support from the government or an organization? Is it new? Since when do you have it?

2. COVID AND FOOD SECURITY

a) General

- a. Could you tell me your thoughts and feeling when the pandemic became more serious in the UK? How did you feel when the lockdown became a reality in the UK?

b) Changes in work and daily activities

- a. Due to the pandemic, have you had changes in your work? What happened?
- b. Due to the pandemic, have you or someone in your household been considered as high risk?
- c. Due to the pandemic, how the changes in your daily activities have changed?

c) Food accessibility

Going back again to food area, how the changes in your work and daily activities have influenced the food habits in your household?

1. Changes in your food related behaviors
 - a. Are you getting your food in the same shops as usual? Or not? Why?
 - b. How often do you do your food shopping?
 - c. Have you had to use any food distribution system such as food banks?
2. At the beginning of the pandemic, did you get more or less products that you usually used to get? Which ones? What was the reason to do this?
3. Have you struggled or has it been easier to access some of the food items that you usually get?
4. Taking into consideration the evolution of the pandemic, how would you describe the access you have to food?
5. How have you organized in your family to access food?
6. Have you been worried on how you will access food in the future?

d) Food availability

1. What have happened in your neighborhood since the pandemic started? What changes do you notice in the physical space related to food?
2. What is your experience related to “social distancing” and going to the food outlets? Feelings? Thoughts?
3. The fact that some food outlets / restaurants are closed, what is the consequence, positive or negative, that it has had on your normal food access?

e) Utilization, quality and safety of food

1. Who is in charge of purchasing food? And preparation? Why?
2. Have you changed the way you eat and prepare food? How? Why?
3. Has it been changes related to portions, variety and food times during a daytime?
4. Have you had any thoughts or feelings regarding the nutritional quality of the foods you are having access during this pandemic? Why?
5. What do you think that makes easier or harder to have a healthy diet during this particular time?
6. What does it mean to cook for you in this time?

f) Food and health

1. In your opinion, do you think there is a relationship between the food we eat and our health? Why? How interested do you feel about this during the pandemic?
2. What do you think would be the role and activities of the government regarding food and everything that surrounds it? And during the pandemic?

g) Photo-elicitation (discussing the photographs participants sent to me)

- a. What are we looking in the photograph?
- b. What is happening in the photograph?
- c. How is this related to the current situation of the pandemic?
- d. Why do this event or situation exist?

h) Final

- a. Of what we have discussed here, is there anything that you consider is more important for me to understand of your experience in relation to food access during the pandemic?
- b. is there something else you would like to share with me about your experience?

This are all the questions I had for you. Thank you very much for your time to participate in this interview and for sending your photographs. This has been very valuable for my research. Once again, the aim of this project is to understand how the pandemic and the mitigation strategies are impacted households' access to food, as well as food-related activities. After analyzing the information, findings could help to provide recommendations to improve food access during public health crisis.

Please let me know if you have any questions or comments. Thanks again for your participation.

Note: this is just a general guide of the questions that will be used in the photo-elicitation interviews.

The interviews can change their focus as a result of the subjects that arise during the interview.

Appendix 14: Ethics approval for the Households' interviews



SCHOOL of HEALTH IN SOCIAL SCIENCE

The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Telephone 0131 651 3969
Fax 0131 650 3891
Email hiss.ethics@ed.ac.uk

16 February 2023

Dear Ana Sofia Alvarado Vasquez Mellado,

Application for Ethical Approval

Reference: NURS047

Project Title: Measures to manage and suppress the transmission of COVID-19 and food and nutrition security in Scottish and Mexican households

Thank you for submitting the above research project for review by the School of Health in Social Science Research Ethics Committee (REC). I can confirm that the submission has been independently reviewed and was approved on 7th May 2020.

The standard conditions of this approval are:

- I. Conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the REC.
- II. Advise the REC (by email to ethics.hiss@ed.ac.uk) of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project.
- III. Make submission for approval of amendments to the approved project before implementing such changes.
- IV. Advise in writing if the project has been discontinued. |

The School's Research Ethics Policy and further information and resources are available on the [School's website](#).

You may now commence your project; we wish you the best of luck.

Yours sincerely,

Sanni Ahonen

Administrative Secretary
School of Health in Social Science

Appendix 15: Participant Information Sheet stakeholders' interviews

Participant Information Sheet

“Exploring the effect of the COVID-19 pandemic on food security and nutrition in Scotland and Mexico from a human rights approach: stakeholders' perceptions”

You are being invited to take part in a research study. Before you decide whether or not to take part, it is important for you to understand why the research is being done and what it will involve. Please read the following information carefully. Contact me if there is anything that is not clear, or if you want more information.

What is the purpose of the study?

The COVID-19 pandemic in the UK means the government has asked everyone to stay at home, business to close or to reduce their activity. This research study aims to explore food system stakeholders' opinions, views and experiences related with the changes in the food system in times of COVID-19 pandemic and the "lockdown" and other measures to help prevent the spread of the virus, in relation with food security and nutrition (exercise of the right to food) of the population.

Why have I been invited to take part?

You have been invited to take part because your professional activity corresponds to an important role within the food system, and you fulfill one or more of the following characteristics: you reside in Scotland, you have a job within one of the following areas of the food system: policy/health/food/agriculture policies department, third sector organization working with food/human right to adequate food, or academia (researching food/food security/ etc.), or you have been in one of these roles previously.

Do I have to take part?

Absolutely not! It is up to you to decide whether or not to take part. If you decide to take part you are free to withdraw at any time and without giving a reason. Deciding not to take part or withdrawing from the study will not affect you in any way.

What will happen if I take part?

After reading this “participant information sheet”, you will be asked to complete an online consent form. This involves confirming that you have understood and agree to all aspects of the research. This project requires one interview, which will last around 30 minutes.

What are the possible benefits of taking part?

You will have the opportunity to voice your opinions, views and experiences in your field as a food system stakeholder about how the COVID-19 pandemic has affected food security and nutrition in the Scottish population.

What are the possible disadvantages of taking part?

There is understandably some anxiety around the COVID-19 for many people. To avoid creating more anxiety we will endeavor to avoid questions that may be stressful or anxiety-inducing.

You can withdraw consent from the study at any time, simply by informing us that you would not like to be included in the research, no questions asked. This includes leaving in the middle of the video call.

There also may be a time burden in taking part in this video call, but I do not think it will last more than 30 minutes.

What happens when the study is finished?

When the video call is complete, I will transcribe the conversation (which will be recorded with your permission), and I will keep a copy of the photograph(s). At the end of the project, anonymized transcripts with individual identifier removed will be available for me and my supervisors to use. The transcriptions will be stored on a secure and password-protected University of Edinburgh server.

Will my taking part be kept confidential?

Everything that is said during the interview, and any information about you (the participant) will remain strictly confidential. Even though the name of your organization or party could be mentioned in the final report, your name will not. It is important to mention that it is possible that within such a small pool of experts participating, you could be recognized by colleagues, however we will just report views thematically so that they could not be attributed to a single participant.

Only researchers will have access to the information collected. All audio recordings will be stored securely and destroyed after transcription. The transcriptions will be kept on secure, password-protected University of Edinburgh servers.

What will happen to the results of the study?

The results of the research study will be used as part of my doctoral dissertation. I will also seek to publish the results in academic publications. I could also write up a short report for you about the results of the study and send it to you when the study is completed, if you would like. You will not be identifiable in any published results.

Who is organizing and funding the research?

This study has been organized by me as part of my PhD research project in the School of Health in Social Science at the University of Edinburgh.

Who has reviewed the study?

The School of Health in Social Science ethics committee at the University of Edinburgh has reviewed and approved this study.

Researcher Contact Details

If you have any further questions about the study please contact Ana Sofia Alvarado at sofia.alvarado@ed.ac.uk

Independent Contact Details

If you would like to discuss this study with someone independent of the study, please contact the Head of the School Matthias Schwannauer at headofschool.health@ed.ac.uk and the School of Health in Social Science Ethics Lead, Stephanie Grohmann at Steph.Grohmann@ed.ac.uk

If you wish to make a complaint about the study, please contact the University of Edinburgh Research Governance Team at cahss.res.ethics@ed.ac.uk

Appendix 16: Consent form Stakeholders' interviews

CONSENT FORM

Title: "Exploring the effect of the COVID-19 pandemic on food security and nutrition in Scotland and Mexico from a human rights approach: perceptions of stakeholders"

Name of Researcher: Ana Sofía Alvarado Vázquez Mellado

1. I confirm that I have a job in any of the fields that concern the food system and I am interested in taking part in the online interview.	<input type="checkbox"/>
2. I confirm that I have read and understood the information provided for the study. I have had the opportunity to consider the information, ask questions and have had these questions answered satisfactorily.	<input type="checkbox"/>
3. I understand that my participation in this study is voluntary and that I am free to stop taking part at any time without giving reason.	<input type="checkbox"/>
4. I understand that what I say in the video call and the photographs I send will be used in the research project. I understand that I will not be identifiable in the final report or publications.	<input type="checkbox"/>
5. I understand that the information and photographs given in the video call will be analysed. I agree to the use of anonymized quotes from the call-in publications, reports, presentations, and other published material.	<input type="checkbox"/>
6. I understand that the information will be stored in a confidential and anonymous electronic database, which may be looked at by members of the research team, only where it is relevant to my taking part in this research. I give permission for these individuals to have access to that information.	<input type="checkbox"/>
7. I understand that the interview will be audio-recorded and destroyed at the end of the study.	<input type="checkbox"/>
8. I agree to take part in this study.	<input type="checkbox"/>

9. What is the place where you work at?

10. Please let us know what is the best method to contact you to arrange the online interview:

- a. Mobile text message:
- b. Email:
- c. Twitter (add handle):
- d. Other:

Thank you for your interest. The researcher will be in touch over email in the next 48-72 hours with information about when the study will start and to answer any questions you may have. **Please press the next arrow to exit the consent form.**

Appendix 17: Topic guide for stakeholders' interviews in Scotland

TOPIC GUIDE

“Exploring the effect of the COVID-19 pandemic on food security and nutrition in Scotland and Mexico from a human rights approach: stakeholders' perceptions”

Expected duration: 20 – 40 minutes

Introduction

Thank you very much for coming to the interview and thank you for having sent the photographs to my email in advance (in case participant decides to do it as it is optional).

As you read before, the aim of this project is to explore the perspective of different food system stakeholders regarding the impact of the pandemic on food security and nutrition of people from a rights-based approach.

Before starting with the interview, I would like to remind you, as you read and sign in the consent form, that the interview will be recorded, so it can be transcribed and analyzed afterwards. The only people that will have access to the data will be those directly involved with the research (me and my supervisors). This is also stated in the consent forms but just to be sure you are aware; it is completely fine to decide to interrupt or finish the interview at any point if you wish to do so. What you have said before you leave will still be included as data in the study unless you wish otherwise.

Finally, regarding the communication, you can leave your camera on if you want, but if you decide, or you think your connection is failing, you can turn it off. We can always switch to the chat function, or in the unfortunate case of having strong problems with the connection we could reschedule if you still want to participate.

So, do you think we are ready to start?

1. Can you tell me briefly about **your work and** where you work at?
2. First, from your perspective, how has the **pandemic affected the Scottish food system?**
 - a. What are the main weaknesses?
 - b. Could you mention some of its strengths?
3. What is **your understanding** and your views about **the human right to food?** How do you define it?
4. How has the **pandemic impacted the realization of the right to food/ability of people to access nutritious, safe and culturally acceptable food** in Scotland?
 - a. **Who are the people** who have become more vulnerable to be food insecure? Why?
 - i. What are the **main challenges and coping mechanisms** these people are having?
5. In an individual level, from your experience, **how the vulnerable population to be food insecure are living the challenges** around food imposed by the pandemic?
 - a. What kind of actions at an individual level could help to neutralize the impact that the pandemic can have in nutrition and food intake of people?

6. From your perspective, what can families do to be more resilient to the challenges related to food and nutrition during the pandemic? How is this being promoted in your country?
7. **What kind of actions at a community, local and regional level have been taking place to neutralize the changes produced in the food system and promote constant access to adequate food?**
- a. **What does the use of food aid tell you?**
 - c. **What kind of emergency actions could be taken to support the right to food in times of crisis, such as the pandemic?**
8. How has the Scottish government (public policies, programmes, strategies) reacted to prevent and/or solve the problem of adequate food access during the pandemic?
- a. How do you think they have worked? Why?
 - b. Has it reached enough people? What kind of people? Are they tackling vulnerable population?
 - c. If you do believe so, what do you think is enabling this? If not, what do you think that are the main challenges/barriers?
 - d. What is your perspective of these actions on sustainability?
9. Considering non-State actors, such as third sector organizations and private industry, do you know if there have been actions or programmes to support people during the pandemic?
- a. Is there any collaboration with the government?
10. What actions could be taken in your field to reduce the risk of being food insecure and ensure the exercise of the right to adequate food of people during a pandemic? How to recover from the pandemic looking for social and environmental justice?
11. (For those who sent photographs in advance; if not it is ok) Would you like to describe the photograph(s) you sent to me?
- a. What do you see?
 - b. What is happening there?
 - c. How does this relate to the current pandemic?
 - d. Why does this situation, concern, or strength exist?
 - e. How can the community be empowered to address that?
 - f. What can be done to improve the situation or enhance these strengths?
12. Finally, how would Scotland look like in order to ensure that everyone has access to food? What changes does the food system need to have to ensure food security at a community and regional level, social justice, sustainability and health in the environment?

These are all the questions I have for you. Thank you very much for your time to participate in this interview. After analyzing the data, a report will be developed, and hopefully this could inform further work to have an impact on decisions to improve the food system and pursue the

accomplishment of the right to food for all people. I will be in touch with you with more information regarding the study. Please let me know if you have any comment or question.

End of the interview

NOTE: this is just a guide of the questions that will be done during the interview. The interviews can change their focus as a result of the topics that arise during the discussions. This is the reason why the interviews are not going to follow these questions with precision. These can be reviewed after the first interviews.

Appendix 18: Ethics approval letter for stakeholders' interviews



SCHOOL of HEALTH IN SOCIAL SCIENCE

The University of Edinburgh
Medical School
Doorway 6, Teviot Place
Edinburgh EH8 9AG

Email ethics.hiss@ed.ac.uk

08 March 2021

Dear Ana Sofia Alvarado Vázquez Mellado,

Application for Ethical Approval

Reference: NURS058

Project Title: Exploring the effect of the COVID-19 pandemic on food security and nutrition in Scotland and Mexico: perceptions of food system stakeholders

Thank you for submitting the above research project for review by the School of Health in Social Science Research Ethics Committee (REC). I can confirm that the submission has been independently reviewed and was approved on 8th March 2021.

The standard conditions of this approval are:

- I. Conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal required by the REC.
- II. Advise the REC (by email to ethics.hiss@ed.ac.uk) of any complaints or other issues in relation to the project which may warrant review of the ethical approval of the project.
- III. Make submission for approval of amendments to the approved project before implementing such changes.
- IV. Advise in writing if the project has been discontinued.

The School's Research Ethics Policy and further information and resources are available on the School's website.

You may now commence your project; we wish you the best of luck.

Yours sincerely,

Sanni Ahonen
Administrative Secretary
School of Health in Social Science

Appendix 19: Themes and subthemes developed for the Mexican households' interviews

FIRST THEME: Physical access to food changed during the pandemic		
Subtheme	Categories	Description
Subtheme 1: The shopping experience and interaction with the food environment	Changes in food shopping frequency*	Changes referring to the frequency of going out from the house to purchase food to reduce the risk of infection of COVID
	Changes in speed of navigating food outlets when food shopping*	Changes referring to the speed with which a person would navigate the food environment in order to access food to reduce the risk of infection of COVID
	Time of the day for food shopping*	Changes referring to the preferred time of the day to go shopping for food to reduce the risk of infection of COVID
	Food shopping organization during the pandemic*	Changes referring to a decrease/increase in planning food shopping to be more efficient with time and resources
	Food environment, fear, and perception of risk*	Perception of the food environment during the pandemic; feelings associated
	Distance to reach shops*	Comments and thoughts related to the distance of food outlets from participant's households
	Changes in the food environment*	Thoughts and perceptions of the changes in the food environment during the pandemic
	Rules and restrictions in food outlets*	Perception of the adoption of rules and restrictions by food outlets and customers during the pandemic
Subtheme 2: Accessing food from other sources different to food outlets	Food aid from the government	Measures taken by government or other actors to help with food access
	About the provision of support from the government*	Thoughts related to the food support provided during the pandemic
	Perceptions of food aid*	Thoughts and perceptions of food aid
	Community helping the community during the pandemic	Comments related to experiences around people helping other people (either organizations or individuals)
	Food from the field	For rural areas, growing their food; benefits, concerns, etc.
	Household food production	Comments related to producing foods at home; perceived benefits, challenges, etc.

Subtheme 3: stockpiling: thoughts and challenges	Stockpiling*	Issues related to purchasing more food and products than usual at the beginning of the pandemic
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*Category is not shown as a written subtitle, it is embedded in the text.

SECOND THEME: Economic issues around food access		
Subthemes	Categories	Description
Subtheme 1: households' economic landscape during the pandemic	Work decreases*	Comments related to losing one's job
	Income decreases*	Comments related to losing totally or partially household's income
	Seasonality of economic activities*	Data related to changes in income due to seasonality of jobs / economic activity
	Different scenarios according to type of employment*	Information about economic activities of participants (formal/informal employment)
	"Vivir al dia" (living day by day)*	Comments suggesting not being able to have savings, restrictions in income
Subtheme 2: Actions to overcome job and income loss	Coping with job loss*	Changes due to job/income loss
	Alternatives to get income*	Driver and adaptation to changes around job loss (resilience)
Subtheme 3: how a decrease in income impacted economic access to food	Thoughts and concerns about accessing food	Caused by the loss of income and other changes
	Increased food prices and access to food	Perceptions of changes in price, behaviours towards price of foods
	Coping strategies to access food when income is compromised	Driver to access food, resilience

*Category is not shown as a written subtitle, it is embedded in the text.

THIRD THEME: Household's food availability and the surrounding environment was affected by the restrictions		
SUBTHEMES	CATEGORIES	DESCRIPTION
Subtheme 1: Food availability was affected on different fronts by COVID-19 mitigation strategies	Pandemic restrictions and scarcity of products in shops*	Perceptions and experiences related to navigating the food environment and availability of food.
	The rural food environment during the pandemic	Physical environment related to acquisition of food in rural areas.
	Closure of food outlets and compromised food availability and food access*	Perceptions of how shops being closed compromised people's food outlet options, and access to food.

	Pandemic restrictions and food supply chain interrupted*	Data related to consequences of roads being closed. Impact on people's diets, and livelihoods.
	Food waste during the pandemic*	Comments related to food waste
Subtheme 2: The Mexican field: "We won't die of hunger"	Growing one's food in rural areas*	Experiences and perceptions around households' food production in rural areas.
	Working in the field is a livelihood*	Comments related to the work invested in growing food

*Category is not shown as a written subtitle, it is embedded in the text.

FOURTH THEME: Changes and issues about the utilization dimension of food security during the pandemic		
SUBTHEMES	CATEGORIES	DESCRIPTION
Subtheme 1: Knowledge and socio-cultural influence of food behaviours during the pandemic	Role of culture in food and nutrition security*	Comments around the role of culture in shaping eating habits; including traditional foods and how they are seen by participants
	Behind social influences of food habits*	Comments related to social influences of food and eating behaviours. They could be habits passed from generation to generation, etc.
	Role of knowledge in decisions around food*	Data related to knowledge around food, health, nutrition, economics that are explicitly linked to food/eating behaviours.
Subtheme 2: Impact of the pandemic on food-related activities, and perceived benefits of lockdown	Impact of pandemic on food preparation*	Changes and perceived impact of the pandemic on how food was prepared in the household
	Impact of pandemic in food habits and activities*	Changes and perceived impact of the pandemic on how food was eaten, accessed, distributed, purchased
	Cooking- changes during the pandemic*	Comments related to cooking during the pandemic
	Family engagement with food activities*	Comments of how family members engaged in accessing food, cooking, etc.
	Social/emotional value of food/cooking*	Comments indicating a perceived social or emotional benefit of cooking, or food activities
Subtheme 3: Diet changed during the	Food and nutrition transition*	Comments that indicate changes in diet before the pandemic, at individual, community level.

pandemic, for good or for bad.	Changed environment, changed food habits*	Comments related to changes in food habits linked to changes in the food environment during the pandemic.
	Changes in diet during the pandemic*	Thoughts and perceptions related to changes in diet during the pandemic.
Subtheme 4: Diet-related conditions represented a common source of worry, but also an incentive to follow social distancing measures	Perceptions about the relationship between food and health*	Comments related to acknowledging a relationship between food and health status
	Perceptions of relationship between food environment and health/nutrition*	Comments about the influence that food environment has on health and nutrition
	Perception of personal health and risk of getting COVID*	Comments related to how people saw their or their relative's health and if this caused any concern
	Concerns related to getting COVID and measures to reduce risk*	Comments related to measures taken in order to decrease the risk of getting COVID

*Category is not shown as a written subtitle, it is embedded in the text.

Appendix 20: Themes and subthemes developed for the Mexican stakeholders' interviews

Themes	Subthemes	Categories
FIRST THEME: The right to food in Mexico		Knowing the right to food
		Main characteristics of the right
		Role of the government
SECOND THEME: The COVID-19 pandemic impacted food and nutrition security in an unequal way across the country	Impact of the pandemic on different spheres	Impact of the pandemic
		Income loss and access to food
		Causes of loss of food availability
		Influence of international factors on national food practices – offer and demand
	Structural issues that worsened the impact of the pandemic	Availability and affordability of food in Mexico
		Changes in food patterns since before the pandemic
		Obesity and diabetes pandemics as a greater source of concern
		Geographical differences and inequalities
		Identification of vulnerable people
THIRD THEME: Perceptions about the government's response to the pandemic	Perceptions about the Mexican government's pandemic response	Perceptions of restrictions
FOURTH THEME: Perceptions around food aid provision during the pandemic	Challenges food aid provision during the pandemic	Food aid delivery during the pandemic
		Characteristics of food aid
		Perceptions of food aid effectiveness
		Food aid understood as right to food

Appendix 21: Themes and subthemes developed for the Scottish households' interviews

FIRST THEME: Lockdown, social distancing measures and their impact on physical access to food		
Subthemes	Categories	Description
Subtheme 1: Changes in shopping behaviors to reduce exposure to the virus	Changes in food shopping frequency*	Changes referring to the frequency of going out from the house to purchase food to reduce the risk of infection of COVID.
	Food shopping organization during the pandemic*	Changes that referred to a decrease/increase in planning food shopping to be more efficient with time and resources.
	Food waste during pandemic	Increase or decrease in food waste; better planning; awareness making the best of food
	Food delivery during the pandemic	Issues, practices, challenges of food delivery options during the pandemic.
Subtheme 2: Perceptions of the food environment and social distancing measures	Perceptions of changes in food environment*	Perceptions of the changes that happened in the food environment during the pandemic
	Distance to shops*	Comments around the distance of food outlets and how this influenced food shopping during the pandemic
	Perceptions of food availability during pandemic*	Comments related to how easy / hard it is to access certain kinds of foods; food item(s) missing in outlets; closure of food outlets
	Rules and restrictions*	Perceptions on how measures were linked to the way people accessed food during the pandemic
	Behind shopping decisions during the pandemic*	The experience of accessing food during the pandemic; preferences of shops sizes, layouts, etc.
Subtheme 3: Perceptions and reasons for stockpiling	Stockpiling during the pandemic*	Perceptions around stockpiling; including reasons to do it, or not to do it; foods that were mainly bought with the intention of stockpile.

*Category is not shown as a written subtitle, it is embedded in the text.

2. SECOND THEME: Economic issues related to food access		
Subthemes	Categories	Description
Subtheme 1: Recognising the	Not seeing oneself as vulnerable*	Comments around not identifying as being vulnerable before and during the pandemic

household as not vulnerable	When vulnerability is recognized and acted upon*	Recognising vulnerability by the person, and by the society
Subtheme 2: Households' economic scenario	Decrease in work and income*	Comments related with losing one's job and income
	Different income/job scenarios during the pandemic*	Comments related to different job alternatives during the pandemic and relationship with access to food
	Thoughts related to job loss/furlough	Perceptions of losing a job, as a driver to food access
	Economic pressure	Comments related to struggles with resources
	Strategies to cope with economic pressure	Comments related to actions taken to cope with economic pressure in the pandemic
Subtheme 3: Pursuing stability	Coping with job loss	Driver and adaptation to changes around job loss (resilience)
	Stability: working from home and the furlough scheme	Coping strategies to overcome the challenges posed by losing income (resilience)
Subtheme 4: Food expenses during the pandemic	Household food expenses*	Description of how household economic resources is managed to in relation to food
	Concerns about food access*	Comments related to feeling worried about accessing food during the pandemic
	Affordability of food	Perceptions of changes in food prices, behaviours towards price

*Category is not shown as a written subtitle, it is embedded in the text.

3. THIRD THEME: Food-related behaviours, diet and health during the pandemic		
SUBTHEMES	CATEGORIES	DESCRIPTION
Subtheme 1: Cultural influences of diet	Cultural and social influences of eating / food-related behaviours*	Comments related to social and cultural influences of food and eating behaviours.
Subtheme 2: Cooking from home and its benefits	Cooking- changes during the pandemic*	Comments related to cooking during the pandemic, changes on how they were cooking, etc.
	Meaning / benefits of food*	Assigned meaning to food and food-related activities like cooking
	Family engagement with food activities*	Comments of how family members engaged on family activities such as accessing food, cooking, etc.
Subtheme 3: Facilitators and challenges to eat healthy during the pandemic	Changes in eating habits: time and place*	Comments related to changes in mealtimes and places where meals took place
	Food and emotions*	Comments related to emotions and feelings leading to eating
	Changes / impact of pandemic on diet*	Data related to main changes in diet caused by the pandemic.

	Challenges/ facilitators of healthy diet during the pandemic*	Information related to perceptions on how difficult it can be to have a healthy diet during the pandemic
Subtheme 4: Actions to promote health	Concerns related to safety of foods and actions to improve care*	Comments related to feeling at risk of getting the virus, and actions to prevent infection.
	Thoughts and perceptions of relationship between food and health*	Perceptions and thoughts related to what participants perceived as a relationship between food and health.

*Category is not shown as a written subtitle, it is embedded in the text.

Appendix 22: Themes and subthemes developed for the Scottish stakeholders' interviews

Theme	Subtheme	Categories
FIRST THEME: The right to food and the role of government is widely acknowledged by different stakeholders in Scotland		Understanding of the right to food
		The right to food in the Scottish public agenda
		The right to food during the pandemic
		Perceptions about government's pandemic response
SECOND THEME: The pandemic impacted food availability and affordability, from the perspective of offer (food system), and access (individuals and households).	Impact on the Scottish food system	The Scottish food system and diet
		Perceptions of the food system during the pandemic
		The current food system needs a change
		Unequal impact of the pandemic
	Impact on individuals and households	Increase of food insecurity during the pandemic
		Identifying vulnerable people during the pandemic
		Situations that worsened the impact of the pandemic
		Income inequality and stockpiling
		Digital exclusion and social isolation
THIRD THEME: Food aid during the pandemic was abundant: a situation to be proud about?		Accessing food aid during the pandemic
		Food provision and cash approach
		Changes in food aid during the pandemic
		Perceptions of food provision effectiveness during the pandemic
		Food banks in pandemic
		The right to food in food provision
FOURTH THEME: Third sector organizations' role during the pandemic	From the third sector organizations' side	Changes faced by organizations / food initiatives during the pandemic
		Collaborations "we are stronger together" (SHSC3)
		Food charity sector during the pandemic
		Role of government in relation to third sector organizations
		Positive aspects of third sector organizations
	From the community side	Community efforts during the pandemic
		Benefits of community engagement

